

# THE ROLE OF PSYCHOLOGICAL CAPITAL IN ENTREPRENEURIAL CONTEXTS

EDITED BY: Fu-Sheng Tsai, Karen Moustafa Leonard and Shalini Srivastava  
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# THE ROLE OF PSYCHOLOGICAL CAPITAL IN ENTREPRENEURIAL CONTEXTS

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# Editorial: The Role of Psychological Capital in Entrepreneurial Contexts

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## Editorial on the Research Topic

### The Role of Psychological Capital in Entrepreneurial Contexts

## INTRODUCTION

Psychological capital is a central topic in academic research on positive organizational psychology and behavior. Psychological capital is defined as an individual person's psychological capacity to handle and to respond to challenging situations. Self-efficacy, optimism, hope, and resiliency are the keystones of psychological capital. In the working environment, it has been proven as one vital factor for organizational and managerial performance. Important research questions related to psychological capital include its relationships to employee attitudes, behaviors, performance, as well as methodological issues (e.g., measurement) for researching this construct. For example, research has revealed that psychological capital helps prevent undesirable working attitude (e.g., cynicism) and behaviors (e.g., deviation).

As the literature and practical importance of psychological capital is growing<sup>1</sup>, more studies are needed for more fine-grained knowledge accumulation and advancement. For example, studies could investigate psychological capital's essence, functions, and implications in different contexts. For example, what constitutes an individual's psychological capital, and how it differs between for-profit and non-profit organizations. Another instance, startup new ventures and mature enterprises might require different kind of psychological capital and functionalities. Thus, psychological capital in an entrepreneurial context, as a refined construct, is strongly demanded during the complex processing of entrepreneurial activities for the new venture success.

Furthermore, interdisciplinary research between psychological capital and other scientific fields may help innovative lines of literature and thus broaden the influences of psychological capital studies in society. For example, what is the influences of new-generation technology on psychological capital? Can psychological capital be considered beyond Organizational Behavior and Human Resources and be connected to Strategic Management field of research? Should psychological capital be considered when organizations strategically choose strategic alliance partner?

The papers in this Research Topic represented new thoughts of researching PsyCap in a special context of entrepreneurship. In this section, we briefly review and criticize those scholarly pieces, in order to stimulate more reflections for the future studies. This review article utilizes a nomological taxonomy to discuss the papers published in the Research Topic, grounding

<sup>1</sup> As much has been done by the articles in this Research Topic (RT) in citing important extant literature in the research field of psychological capital, we only cite (in this article) published papers in this RT. Please refer to the published paper in this RT for their good reviews of the literature.

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one two theoretical axes—entrepreneurial activity (i.e., creativity, innovation, entrepreneurship, and ultra-entrepreneurial activities) and rationales (i.e., psychological, sociological, economic, political/institutional). To understand a research stream, both axes are important to sketch clearly the picture of literature structure, with the activity axis represent a process view of the studies while the rationale axis represents logical foundations that facilitates interpretation of the papers discussed.

## RESEARCH FRONTIERS AND IMAGINATION FOR FUTURE STUDIES

In this section, we review specifically and discuss broadly the articles published in chronological order (their publication date). Bockorny and Youssef-Morgan examined the relationship between entrepreneurs' courage, psychological capital, and life satisfaction. Results show that entrepreneurs' courage is related to their life satisfaction, and that psychological capital fully mediates the relationship between courage and life satisfaction. This study took a courageous step ahead in the field of Entrepreneurship by empirically investigating the construct of entrepreneur's courage. In our nomological taxonomy (see **Table 1**), this study is in the category that concerns beyond entrepreneurial activities (i.e., ultra-entrepreneurial) from the perspective of an entrepreneur's social life. The rationale behind the theoretical construction is interwoven by PsyCap and sociological thoughts. With this study as an implicative first step, we encourage future studies to empirically examine the relationships of entrepreneurial courage with other entrepreneurship-related antecedents and outcomes, to enrich the impact of this construct in the knowledge domain of Entrepreneurship.

Wu et al. worked creatively on the topic of "How Machiavellianism, Psychopathy, and Narcissism Affect Sustainable Entrepreneurial Orientation: The Moderating Effect of Psychological Resilience." In many aspect, we could judge this study as very innovative for its cross-disciplinary nature. The major thesis of this study is that sustainable entrepreneurship relies on careful understanding of the micro-dynamics of the relationships between personality, entrepreneurial orientation, and psychological resilience. Therefore, relationships between the "dark triad" (Machiavellianism, psychopathy, and narcissism), psychological resilience, and sustainable entrepreneurial orientation were examined through a survey study. The results showed that the three traits influenced resilience and sustainable entrepreneurship orientation differently, implying that personality traits and psychological dynamics are complex and simultaneously functional and dysfunctional in practices. This study showed that when studying entrepreneurs as individual persons, psychiatric perspective, methods, and rationales could expand the research landscape, which is just right for our suggestion for expanded avenue for future studies.

Kong F.-Z. et al. studied another interesting group of workers (i.e., new-generation farmers) on their work-life quality and entrepreneurship will. As new-generation farmers now become important workforce and economic contributors in many cities,

their entrepreneurial activities now become central imperatives. Inherently, this study focuses on entrepreneurship from a sociological lens. The authors found that "... farmers have a relatively low cognition level of their quality of work life, and their interpersonal relationship, work characteristics, material security, and family demands have significant effects on their entrepreneurship will." Such finding not only offered a clear self-understanding for new-generation farmers in China or in similar developing economies, but it also offered a solid reference for agribusiness policy makers.

Di Fabio and Duradoni have done a really interesting job in exploring a potentially to-be-widely-used construct [i.e., intrapreneurial self-capital (ISC)], which is faithfully defined as "as a possible primary preventive resource to effectively deal with the complexity of the current entrepreneurial environment." Further, they distinguish this construct from PsyCap in many significant aspects, then connect it to innovative behaviors. Expectably, there would be a considerable future studies apply this construct into a wider scope of research.

Chen and Pan contributed by testing the influences of developmental job challenges (DJC) on venture performance through the mediated moderation of entrepreneurial action learning (EAL) and entrepreneurial experience. This work investigates on the action learning as entrepreneurial workers' creative activity from Organizational Behavior perspective. On the basis of improved methodology, future studies could follow their ideas and pay more attention to the antecedents and consequences in the context of entrepreneurship.

Wang et al. in their exploratory though descriptive analyses bravely tried the possibility of integrating the PsyCap into the framework of entrepreneurial intellectual capital. In addition to propose that the psychological capital, human capital, and relational capital are all necessary and representative capitals of entrepreneurs for new venture success, based on a pile of documentary data of real-life entrepreneur stories. Through this study, an attempt of formalization of psychological capital in entrepreneurial contexts (which is the central theme of this Research Topic) has been confirmed. Future studies should try to bring more empirical examinations for further clarifying the differentiated effects of different types of intellectual capital possessed by entrepreneurs or entrepreneurial teams.

In Guo, Lu et al. paper, the PsyCap is treated as a theoretical perspective that could explain the effect of entrepreneurial team's background structure and their strategic decision-making (here, investment decisions). This is an innovative trial, for PsyCap is usually adopted in scholarly research as a confirmed construct. By leveling up the PsyCap as the *collective* PsyCap, the authors found that PsyCap well-explained the examined relationships proposed in their research framework. They reported that "...the proportion of entrepreneurial team with the technological background is positively related to R&D expenditure and negatively related to marketing expenditure. On the contrary, we also find that the proportion of entrepreneurial team with a marketing background is a negative correlation with R&D expenditure and positive correlation with marketing expenditure." Background structure can be interpreted as the social structure of an entrepreneurial group, and rationally of



**TABLE 1 |** Nomological taxonomy.

|                                    |  |   |                                     |                                    |
|------------------------------------|--|---|-------------------------------------|------------------------------------|
| <b>Entrepreneurship Innovation</b> | (Chen and Wu; Wang et al.)<br>(Di Fabio and Duradoni; Lee and Yang; Tang et al.) | (Guo, Lu et al.; Kong F. et al.; Tang and Shao)<br>(Chu et al.) | [Tang (b)]<br>[Tang (a)]            | (Guo, Liu et al.)<br>(Fang et al.) |
| <b>Creativity</b>                  | (Li et al.)  | (Kerksieck et al.)  | (Chen and Pan)                      | (Wu et al.)                        |
| <b>Ultra-entrepreneurial</b>       | (Modesti et al.)   | (Bockorny and Youssef-Morgan)                                   | (Xu et al.; Zhao et al.)            | (Ren et al.)                       |
| <b>Activity</b>                    | <b>Psychological</b>   | <b>Social</b>   | <b>Economic/<br/>Organizational</b> | <b>Political</b>                   |
| <b>Rationale</b>                   |  |   |                                     |                                    |

\*By entrepreneurship we included a wider definitional scope to include general (economic) entrepreneurship, social entrepreneurship, institutional entrepreneurship, and so on.

course, could generate impact on a state of psychological capital shared by the entrepreneurs. With this study, a new avenue of research might be opened, though, future studies are encouraged to test such thesis empirically by including the PsyCap as a testable construct.

Another interesting and important work, done by Chen and Wu, has given us a lot of imagination in a very broad academic landscape. Their paper argued that the PsyCap of the *public in a society* is the foundation of food safety governance. To a certain degree, such conceptualization is similar with the Guo, Liu et al. work above, in that the level of measurement and analysis of the PsyCap is up onto a collective-level. The difference is that the level represented by the “collective” in the Chen and Wu article is even higher (i.e., PsyCap shared by the public in a society). The linkage between the micro-macro levels are so courageous that this article sheds light on the psychological micro-foundation shared by a public collective and its influences on a public affair. Two scholars argued that such psychological micro-foundation could enable their called social governance for food safety that is co-created by the public who share the PsyCap. Furthermore, they seriously discussed the distinctive effects of the four elements of the PsyCap (i.e., self-efficacy, optimism, hope, and resiliency) in line with the co-governance of food safety. As was firmly proposed, “... that great success in food safety co-governance would be realized if the government, industry, and society nurture positive psychological capital.” More specifically, companies and government in food area could exercise social co-governance jointly by working hard “to appeal to the emotions of food companies and social actors to ensure self-efficacy toward food safety,” to “inspire hope by setting food safety goals and plans to achieve them,” to “motivate food companies and promote self-efficacy in co-governance efforts,” and to “utilize social persuasion to improve the engagement of social actors in food safety regulations.” In nature, this work’s essence and contributions is perfectly entrepreneurial and institutional, in that it gave hints on the possibility of looking into public affairs as research issues/questions from the PsyCap both as a construct and as a theoretical lens. Also, they applied the concept of PsyCap to a new and vital field of food safety governance. In such vein, we would look sincerely forward to seeing an empirical examination based on this solid theoretical ground.

Tang and Shao conceptualized the influences of PsyCap possessed by a sub-group of workforce (inter-organizational Management Information System developers) in an organization on successful social innovation, by arguing that the PsyCap could improve the workforce’s working effectiveness beyond the

boundary of single organization. In other words, they argued that PsyCap shared by the MIS developer could improve their effectiveness and volunteering intentions of inter-organizational coordination and collaboration, and then result in a successful development of new MIS system that stimulate social innovation (or a successful social innovation embodied as a generation of an inter-organizational MIS). This paper pushes the PsyCap research by step ping into the Technology Management field and sketches the visionary future that how PsyCap is important to generate impact on social innovation via social innovation developers and technologies. This justifies the reason why the paper is located in the intersection of innovation activity from the Economic/Organizational perspective.

A comparable work that involves PsyCap in inter-organizational affair is completed by Chu et al. in a development project context of public-private collaborations on the innovative accounting revolution—green accounting. The article argued that “through individual and/or collective psychological states affected by demographic attributes, top managers shape the corporate culture and determine the overall strategic directions of an organization.” Based on this premise, this article discussed “the role psychological capital plays in the relationship between top manager attributes and the effectiveness of green accounting practices adoption in a public-private partnership (PPP) context.” Through related but distinctive paths of logical explanations, this paper is comparable with the work of Tang and Shao and the Guo, Liu et al., in that they all shared interests in researching PsyCap’s impact on a group of people with very clear job goals that go beyond organizational boundaries.

Li et al. work on the role of PsyCap in the humorous leadership-employee creativity relation brings us a sense of muse in the conduction of organizational studies. This study used the concept of PsyCap to answer the question of seeking for a theoretical mechanism that well justifies the effect of humorous leadership on creativity. Through a rigor methodological design and data set of supervisor-subordinate dyads, a partial mediation effect of the PsyCap is confirmed. The results if of great practical reference, since leadership is an issue that is always at the core of organizational studies. For the current Research Topic, the results generate good practical implications for entrepreneurs as leaders in an uncertain organizational development stage.

Fang et al. worked on the mediating role of PsyCap in the relationship between inclusive leadership and employees’ innovative behaviors. Clearly, this paper identified the PsyCap as the psychological theoretical mechanism that could turn the impact of inclusive leadership into realized innovative behaviors



of employees. Providing practical implications and guidance, this study demonstrated that PsyCap is a functional factor that could bring the effort of leaders into employees' minds and stimulate their constructive behaviors toward the whole organization. One the other hand, however, this result reminds again, as many other leadership studies did, that politically or tactically, the choice of leadership styles can be a tool that manipulate an employee's mindset and his/her behavior.

Lee and Yang contributed by linking the literature of PsyCap to a farther research playground of Marketing. It is with no surprise that a mental mechanism or resource like the PsyCap would be chosen to be discussed of its potential with the works in Marketing, since psychology is also a upstream literature of Marketing and (especially) consumer research. Nonetheless, by detailed articulation in their opinion on the four dimensions of the PsyCap, this article still brought out sight to a good imagination for future studies shine at the intersection of Psychology and Marketing.

Everyday working is embedded in everyday living. Ren et al. paper is worth of attentions from the policy makers and maybe all non-academic readers who care about housing as a livelihood issue. With entrepreneurial nature, housing is an imperative that public government needs to take care of innovatively with the dramatically changing environments. Housing is also a critical ultra-entrepreneurial factors that might explicitly or implicitly affect employees' minds and conducts in an entrepreneurial context. So, as they noted, the study "identified three critical housing-related factors (HRFs) as moderators of the relationships between employees' psychological capital (PsyCap) and job embeddedness (JE) in China's entrepreneurial environment..." and by doing so the "results contribute to the PsyCap and JE literature by incorporating housing as an extrinsic life-aspect factor that might affect employees' psychological state and thus their retention in works."

Kerksieck et al. zoomed in the relational details between the personal (PsyCap) and social (job) resources at work, with innovative consideration of job crafting as the catalyst of the dynamics between the two types of work resources. Based on careful and mindful research design, they found that social support at work positively influenced the development of PsyCap, while PsyCap and crafting for social job resources were negatively related. This interesting, if not paradoxical, finding stimulate our reflection for the substitution/complementarity effects of strategic work resources, especially when in the context of workplace requiring creative, innovative, and entrepreneurial contributions. This study offered guidance for proper usage of individual/collective resources in workplace.

Tang et al. examined and explained why and how the PsyCap could lead to employee innovative behaviors, with the answer of the mediating mechanisms of job satisfaction and organizational commitment. The results of Partial Least Square analyses demonstrated that companies wish to invest in PsyCap to increase employee innovative behaviors need to focus and take good care of employees' job satisfaction and then organizational commitment endorsed by PsyCap. Put differently, if job satisfaction and organizational commitment were not leveled up by PsyCap, the nutrition of PsyCap is aimless in terms

of innovation conducts and goals. This (somehow *avant-garde*) argument implicated a strategic meaning of PsyCap beyond just a shared psychological asset of a collective.

Zhao et al.' work step into a higher education context to address the important research question: what are the influences of psychological capital (PC) on students' entrepreneurial intention (EI) in universities? Conceptually, the study distinguishes between the effects of traditional entrepreneurial capitals (i.e., financial, human, and social capitals) and that of PsyCap. Based on an analysis of 1914 university students, the study found that "... traditional capital is the direct factor to drive the behavior of entrepreneurship, while psychological factors do not directly affect EI, but improve EI by influencing traditional capital." As the higher education systems around the world increasingly appreciate the values of entrepreneurship as a career option for graduate or to-be-graduate students, the results of this study is a good reference for potential entrepreneurs' self-examination of owned capitals, in order to prioritize resources commitment especially when (the truth is) it is nearly impossible to own all of the traditional capital and the psychological capital at the beginning of entrepreneurship. Academically, this study is comparable with the Wang et al. paper mentioned above, though conducted in different research contexts.

Another good work in higher education context is brought by Kong F. et al.. The paper investigates on the moderating effect of business role model and fear of failure on the relationship between entrepreneurial intention and behavior. Same with the study of Zhao et al., a large sample of 1865 students were surveyed. The results found that "(1) Entrepreneurial intention was positively influenced the entrepreneurial behavior; (2) Fear of failure weakened the relationship between entrepreneurial intention and action; (3) The moderating effect of business role model on entrepreneurial intention and behavior was confirmed." The framework tested incorporated both positive (facilitator) and negative (impediment) factors in exploring the boundary condition of entrepreneurial intention and behavior. From intention to behavior, there is a gap that requires some intervening factors to function. The results of this study provided detailed information that entrepreneurship teachers or consultant can use to make sure that a want of a potential entrepreneur can turn into actions and an entrepreneurial dream can come into practice eventually.

The two perspective papers from Tang (a) and Tang (b) are reasonable and of conceptual references. The first paper discussed PsyCap of entrepreneurs and its influences on human resource development (HRD), while the second article discussed the role that PsyCap can play to facilitate entrepreneurial sustainability. Both topics require a full length article to discuss, though, what can be further expected, might be the relationships between PsyCap, HRD, and entrepreneurial sustainability. Either article put a lot of emphasis of the impacts from the PsyCap, from traditional Organization and Management perspectives. Enlightened by such word, we suggest that future works could do more beyond the much-discussed Strategic Management and individual-entrepreneur-focused rationales of Entrepreneurship as a research field, to more Organization Theory and Organizational Behavior related issues. Whereas, the

former rationales might shed lights on the developmental aspects of entrepreneurship, the latter ones are vital in search of the answer for organizational sustainability of a new venture.

Based on social exchange theory and the resource-based view, Guo, Liu et al. talked about the joint influences of entrepreneurs' political skills and their social networks in the relationship between entrepreneurial psychological capital and new venture performance. Embedded in a politics logic, the authors utilized organizational theories well in motivating and explaining political skills as tactical capabilities and social network as relational power resources for entrepreneurs to achieve a bright success outcome of their new ventures based on the positive origin of their psychological capital. Most importantly, this article plays as a good example of re-create the meaning of important constructs in organizational studies in a specific context, here, of the social entrepreneurship. Exactly because the big differences between general and social entrepreneurship, the functioning factors of new venture success, no matter at what levels, would be heterogeneous and should be linked differently.

Similarly, Xu et al. offered an examination of important constructs re-connection into a meaningful conceptual model of empirical relationships in a volunteering context. Through mediation and moderation relationships, the constructs of PsyCap, role identification, perceived social support, organizational commitment, and volunteering are well-connected. The study was also conducted in a sound methodological base with over-a-thousand volunteers participated. This makes their results of good reference value, which was summarized in the Abstract. This study also told that in a context of social entrepreneurship like volunteering, the actions of volunteers are not simply stimulated by warm-hearted motivation, but are gradually formed via a (complex) function of a series of direct and indirect influence relationships between psychological factors.

Modesti et al. shared the interests and core spirit of this Research Topic by placing their study in the social enterprises with a migratory background. Through a qualitative case study, they concentrated on the dynamic interplay of psychological and social capitals that might affect the operation of a social enterprise. The results suggested that the two important entrepreneurial capitals function independently in the initial stage but interact jointly in a later stage. Such finding makes this paper extremely important and interesting in that it reminds us that the functionality of different entrepreneurial capitals might occur sequentially (or even recursively we guess) in different combinations in different contexts.

## CONCLUDING REMARKS

To reflect on the Research Topic as a whole, we quote the important lines from the Frontiers' (publisher's) About Research

Topic web page (<https://www.frontiersin.org/about/research-topics>), which stressed that guest editors of a RT should "... unite the world's leading experts around the hottest topics, stimulating collaboration and accelerating science" in an RT. Using this criterion, we find that there are more to do, even with the hard works that have been done by all authors in this RT. We did attract some of very interesting and thought-stimulating papers around the world, though, more related RT could be designed to do better in encouraging collaborations between scholars who had not been working or even knowing one another. And this could be done better with the participation of both established and cutting-edge groups of scholars in the field, in order to benefit inter-generational knowledge transfer and co-creation. Indeed, collaborative studies from diverse groups of researchers at different career stages can generate great impacts, since they share similar knowledge bases but simultaneously possess heterogeneous research interests, questions, skills, and resources that might generate even larger impact after re-combinations. The RT as a virtual platform might do well in collecting, reviewing, and editing articles to form a one-stop knowledge storage for readers. But it cost more to do exactly the same in forming collaboration in research. Sincerely, we wish this RT is just a first-step in our marches toward the goal of "accelerating science." With more to be done, the very critical next step is the exchanges and collaborations of researchers of the different papers. In this way, a strong research community could grow itself sustainably.

## AUTHOR CONTRIBUTIONS

All three guest associate editors contribute equally in editing this Research Topic. F-ST wrote the original draft of this article. KL and SS reviewed and revised it.

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# Entrepreneurs' Courage, Psychological Capital, and Life Satisfaction

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Entrepreneurship involves numerous risks and uncertainties. Positive psychological resources such as courage, as well as confidence, hope, optimism, and resilience (collectively referred to as psychological capital), can be valuable for entrepreneurs. This study examines that relationship between entrepreneurs' courage, psychological capital, and life satisfaction. Results show that entrepreneurs' courage is related to their life satisfaction, even after accounting for various characteristics of the entrepreneur (demographics and human capital) and the venture (venture size and survival). Moreover, psychological capital fully mediates the relationship between courage and life satisfaction. This is the first study to investigate courage empirically in the context of entrepreneurship, and one of a few studies to apply PsyCap in the entrepreneurial context. It is also the first study to jointly examine courage, PsyCap, and life satisfaction. Implications for future research and practice are discussed.

**Keywords:** entrepreneurship, courage, psychological capital, hope, efficacy, resilience, optimism, life satisfaction

## INTRODUCTION

This study explores the relationships between courage, psychological capital (PsyCap), and life satisfaction in the context of entrepreneurship. PsyCap is conceptualized and tested as a mediator of the relationship between entrepreneurs' courage and their life satisfaction. This is the first study to empirically investigate courage, and one of a few studies to apply PsyCap, in the entrepreneurial context.

Peterson and Seligman (2004) define courage as a character strength that promotes the exercise of will to achieve goals, even when faced with opposition. A courageous decision contains an element of risk, the freedom to act, and a purposeful outcome (Shelp, 1984; Woodard, 2004; Rate, 2007; Rate et al., 2007).

Entrepreneurs often deal with plenty of risks and uncertainties. Courage can be a critical psychological resource for entrepreneurs. Naughton and Cornwall (2006) consider courage to be the most important quality for successful entrepreneurs. Without courage, an individual may never follow through with an entrepreneurial idea or leave the perks and certainties of typical employment to pursue entrepreneurship.

PsyCap is a higher-order construct defined as "an individual's positive psychological state of development and is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining

and bouncing back and even beyond (resiliency) to attain success" (Luthans et al., 2015, p. 2). Hope, efficacy, resilience, and optimism work together to produce results greater than each of the individual resources. The underlying mechanism or common thread linking PsyCap's resources is that they all share a "positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (Luthans et al., 2007, p. 550).

Entrepreneurs' PsyCap is positively related to venture performance (Hmieleski and Carr, 2008), authentic leadership (Jensen and Luthans, 2006) and wellbeing (Hmieleski and Carr, 2007; Roche et al., 2014). Interestingly, entrepreneurs with higher PsyCap have been found to experience lower, rather than higher levels of stress and anxiety than the average population. This highlights the importance of PsyCap in attracting and sustaining entrepreneurship efforts (Baron et al., 2016).

Entrepreneurial success can take on many forms. Financial return is certainly an indicator of success. However, an average entrepreneur typically has a lower income than fulltime employed counterparts (Hamilton, 2000). Many individuals tend to pursue entrepreneurship, not only as a job, but as a lifestyle. Entrepreneurship fulfills many social and psychological needs. Thus, an entrepreneur's satisfaction is an important global indicator of success.

Life satisfaction is defined as "a global assessment of a person's quality of life according to his chosen criteria" (Shin and Johnson, 1978, p. 478). Life satisfaction occurs when an individual cognitively assesses his or her current life against a preconceived subjective standard and believes to have met or exceeded that standard (Pavot and Diener, 1993). An individual may choose money, prestige, family, or work, as important life domains for determining life satisfaction (Diener et al., 1985). Kim-Prieto et al. (2005) posit that subjective wellbeing is determined by positive appraisals and memories. Since venture success is subjective to each entrepreneur (Naughton and Cornwall, 2006), life satisfaction is an important and meaningful entrepreneurship outcome.

Courage can enhance entrepreneurs' PsyCap in several ways. One of the most effective ways to build PsyCap efficacy is through mastery experiences (Bandura, 1997). Courageous entrepreneurs are likely to be more confident than their less courageous counterparts who never dare to try, take risks, and embrace uncertainty to build those valuable experiences. Courage can also promote PsyCap hope and optimism. A courageous entrepreneur may perceive a risky but feasible path around a setback as a possibility with a "can do" and "will do" attitude. Finally, entrepreneurs will most likely face adversities and setbacks. Resilient individuals function well under environmental stress and uncertainty (Rutter, 1987; Klohnen, 1996). Thus, courage can promote the PsyCap resources of hope, efficacy, resilience, and optimism, and the following is hypothesized.

**Hypothesis 1: Entrepreneurs' Courage Is Positively Related to Their PsyCap**

Research supports a positive relationship between PsyCap and satisfaction with various life domains including work,

health, relationships, and life in general (Luthans et al., 2007; Youssef and Luthans, 2007; Avey et al., 2010, 2011; Luthans et al., 2013). According to Kim-Prieto et al. (2005), factors that affect one's subjective evaluations of life (i.e., life satisfaction) include actual life events, affective reactions to events, selective memory and recall, and global evaluations of one's life in general. Because PsyCap involves positive appraisals of one's circumstances and chances of success, individuals with higher levels of PsyCap are more likely to experience life satisfaction within life domains. Thus, the following is hypothesized.

**Hypothesis 2: Entrepreneurs' PsyCap Is Positively Related to Their Life Satisfaction**

In line with Rate's (2007) description of courage as containing an element of risk, the freedom to act, and a purposeful outcome, an entrepreneur who has courage faces the risk(s) involved, and exercises the freedom to act and move forward with the venture, with an eye toward the desired outcome of a successful and fulfilling venture. The entrepreneur's subjective assessment of risk, the freedom to act and the outcome will all affect the entrepreneurship venture, and in turn, the entrepreneur's overall life satisfaction. Thus, the following is hypothesized.

**Hypothesis 3: Entrepreneurs' Courage Is Positively Related to Their Life Satisfaction**

Courage can help an individual face the risk and take the leap to make the dream a reality. A courageous entrepreneur will determine the level of risk associated with the goals for the business and possible outcomes. In turn, this courage to start and pursue an entrepreneurial venture can help the entrepreneur build confidence, find a different path if the initial one is no longer viable (hope), persevere and bounce back from setbacks (resilience), and maintain a positive outlook (optimism). In turn, PsyCap's positive appraisals and agentic, intentional approach can promote satisfaction with the entrepreneurial experience and lifestyle in general. In contrast, without PsyCap, the entrepreneur may just give up and attribute failure to individual shortcomings, which can lead to dissatisfaction. Thus courage can contribute to entrepreneurs' life satisfaction, both directly and indirectly through leveraging PsyCap, and the following is hypothesized.

**Hypothesis 4: Entrepreneurs' PsyCap Mediates the Relationship Between Their Courage and Life Satisfaction**

## METHODS

A survey was sent to all entrepreneurs who filed a new registration with the Secretary of State in a Midwestern state 2 years prior to the study ( $N = 3540$ ). Carland et al. (1984) defined a successful entrepreneurial venture as one that has survived for 2 years. Thus, the 2-year mark was used as an indicator of venture survival. 152 entrepreneurs completed the survey.

Courage was measured using the 12-item Courage Measure (Norton and Weiss, 2009). PsyCap was measured using the



12-item Psychological Capital Questionnaire (Norman et al., 2010). The Satisfaction with Life Scale was used to measure entrepreneur's life satisfaction (Diener et al., 1985).

We also included age, race, gender, degree, education, work experience, and entrepreneurial experience as control variables due to their systematic relationships with the study variables (Kim-Prieto et al., 2005; Avey, 2014), particularly in the entrepreneurship context (Prabhu, 1999; Platman, 2003; Boyd, 2005; Fairlie, 2007; Hmieleski et al., 2015). Importantly, venture survival [Carland et al.'s (1984) 2-year survival criterion] was controlled in order to account for the objective success or failure of the venture. Finally, number of employees was controlled as a proxy for venture size.

## RESULTS

Descriptive statistics, correlations, and Cronbach's alphas are represented in **Table 1**. Correlations between courage, PsyCap, and life satisfaction were all significant, supporting hypotheses 1–3.

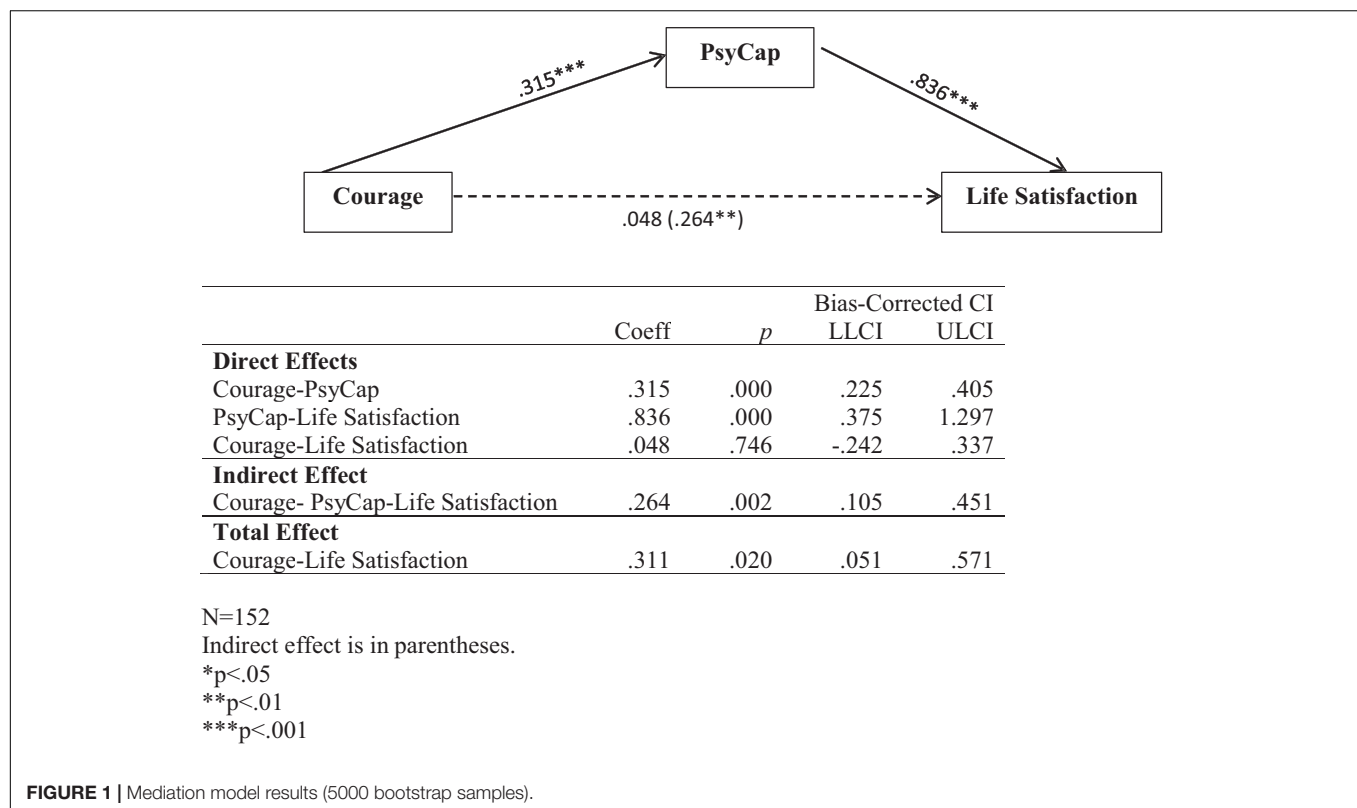
We tested the hypothesized model using PROCESS v2.16.3 (Hayes, 2013). The nine control variables were included as covariates. As shown in **Figure 1**, courage has a significant direct effect on PsyCap, which in turn has a significant direct effect on life satisfaction. The direct effect of courage on life satisfaction is not significant. However, the indirect and total effects are significant. Thus, the effect of courage on life satisfaction was fully mediated by PsyCap ( $Z = 3.155$ ,  $p < 0.01$ ).

Common-method and single-source biases are common in one-time survey studies (Podsakoff et al., 2003). Thus, Harman's single-factor test was conducted. Only 25.75% of the variance was explained by a single-factor, which is well below the 50% commonly used cutoff. Furthermore, we examined the item-level data using the common latent factor method in AMOS. Results showed poor model fit [ $\chi^2(405) = 1459.339$ ,  $p = 0.000$ , CFI = 0.418, RMSEA = 0.131]. Common variance was 22.37%. Thus, these biases are unlikely.

Cross-sectional studies also run the risk of reverse causality. Thus, we ran five additional models (all the possible causal sequences among the three study variables) using both AMOS and PROCESS. With the exception of the hypothesized model and one alternative model (life satisfaction-PsyCap-courage), all of the other models showed poor fit. These two models also had the lowest AIC values (which can be used to compare non-nested models), representing the best fit (detailed results of these analyses are available from the authors).

## DISCUSSION

This is the first study to explore courage in the context of entrepreneurship, and one of a few studies that examine entrepreneurs' PsyCap. Entrepreneurs face extraordinary risks, challenges, and uncertainties. Positive psychological resources such as courage and PsyCap are necessary to start and sustain an entrepreneurial venture while maintaining life satisfaction and wellbeing.



**FIGURE 1 |** Mediation model results (5000 bootstrap samples).

**TABLE 1 |** Descriptive statistics, zero-order correlations, and Cronbach's alphas.

| Study Variables   | Mean    | SD       | 1       | 2        | 3        | 4      | 5       | 6       | 7      | 8      | 9      | 10      | 11      | 12    |
|---|---------|----------|---------|----------|----------|--------|---------|---------|--------|--------|--------|---------|---------|-------|
| 1. Age  | 44.8553 | 11.40025 | N/A     |          |          |        |         |         |        |        |        |         |         |       |
| 2. Race [Caucasian (94%) = 1, Other = 0]                          | N/A     | N/A      | -0.106  | N/A      |          |        |         |         |        |        |        |         |         |       |
| 3. Gender [Female (43%) = 1, Male = 0]                            | N/A     | N/A      | -0.094  | -0.0121  | N/A      |        |         |         |        |        |        |         |         |       |
| 4. Degree [Business (40%) = 1, Other = 0]                         | N/A     | N/A      | -0.128  | 0.035    | 0.052    | N/A    |         |         |        |        |        |         |         |       |
| 5. Years of education   | 17.3816 | 2.72573  | 0.097   | -0.232** | 0.055    | 0.048  | N/A     |         |        |        |        |         |         |       |
| 6. Work experience  | 24.7763 | 12.46356 | 0.845** | -0.047   | -0.167*  | -0.088 | 0.015   | N/A     |        |        |        |         |         |       |
| 7. Entrepreneurial experience [Novice (39%) = 1, Experienced = 0] | N/A     | N/A      | -0.162* | 0.028    | 0.185*   | -0.019 | -0.012  | -0.203* | N/A    |        |        |         |         |       |
| 8. Number of employees  | 4.9868  | 8.01818  | 0.136   | 0.045    | -0.232** | 0.191* | -0.017  | 0.172*  | -0.144 | N/A    |        |         |         |       |
| 9. Venture survival [Yes (91%) = 1, No = 0]                       | N/A     | N/A      | -0.030  | -0.080   | -0.093   | -0.111 | 0.112   | -0.079  | -0.073 | 0.111  | N/A    |         |         |       |
| 10. Courage   | 59.934  | 0.042    | 0.034   | -0.110   | -0.104   | 0.133  | 0.104   | 0.128   | -0.009 | 0.065  | -0.106 | 0.832   |         |       |
| 11. PsyCap  | 5.05    | 0.478    | 0.065   | -0.098   | -0.165*  | 0.145  | 0.242** | 0.192*  | -0.126 | 0.141  | -0.035 | 0.552** | 0.812   |       |
| 12. Satisfaction  | 26.211  | 5.115    | 0.081   | 0.012    | -0.016   | 0.027  | 0.099   | -0.003  | -0.040 | -0.040 | -0.045 | 0.176*  | 0.302** | 0.869 |

\* $p < 0.05$ ; \*\* $p < 0.01$ ;  $N = 152$ . Cronbach's Alphas are reported on the diagonal.



A key finding is that PsyCap fully mediates the relationship between courage and life satisfaction in entrepreneurs. Thus, PsyCap may be an explanatory mechanism of this relationship. Contrary to anecdotes of fearless entrepreneurs who pursue entrepreneurship for the “thrill” or “rush” of taking extreme risks, courage seems to promote a more calculated approach to entrepreneurship. Specifically, Courage promotes hope, efficacy, resilience, and optimism, which share positive cognitive appraisals of success prospects based on motivation, effort, and perseverance (Luthans et al., 2007). Thus, courage does not promote reckless risk taking, or lead to unjustified satisfaction with an entrepreneurial lifestyle regardless of outcomes. Rather, courage promotes a positive and thoughtful approach to entrepreneurship that leads to life satisfaction based on intentional goal pursuit and achievement, effective deployment of effort and resources, and motivated persistence through obstacles and setbacks.

Limitations of this study include the small and homogenous sample, which limits external validity. Self-selection bias was also a concern, especially since most venture were still operating. However, venture survival was included as a control variable and was not significant. Common-method and single-source biases, as well as reverse-causality, are also potential validity threats as discussed earlier.

This study has several implications. Courage and PsyCap are malleable psychological resources that can be developed (Luthans et al., 2015; also see Youssef-Morgan and Petersen, 2019, for a comprehensive review of PsyCap development interventions). Furthermore, researchers, entrepreneurs and policymakers should adopt a more global perspective on entrepreneurial success. Financial measures are important, but they do not tell the full story. Many entrepreneurs are not “in it for the money,” but for a lifestyle of autonomy and intrinsic fulfillment. Societies that seek to promote entrepreneurship due to its economic

benefits should not overlook its personal and subjective drivers and outcomes.

For future research, additional antecedents can be considered, including traits such as intelligence and personality, as well as more transient states such as moods and emotions. Contextual and environmental factors are also important and can represent boundary conditions in entrepreneurial contexts (Hmieleski and Baron, 2008, 2009; Hmieleski et al., 2013, 2015). Importantly, longitudinal and experimental research is necessary to further examine the causal relationships among the study variables. This study could also be replicated in other countries to examine cross-cultural consistencies and boundary conditions.

## DATA AVAILABILITY

The datasets for this study will not be made publicly available because this data set is the property of the authors.

## ETHICS STATEMENT

This study was carried out in accordance with the recommendations of Western IRB (WIRB), with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the Bellevue University internal IRB, as well as WIRB.

## AUTHOR CONTRIBUTIONS

KB was responsible for data collection. Both authors contributed equally to formulating the conceptual framework, analyzing the data, and writing the manuscript.

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# How Machiavellianism, Psychopathy, and Narcissism Affect Sustainable Entrepreneurial Orientation: The Moderating Effect of Psychological Resilience

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In order to solve increasingly serious environmental problems, sustainable entrepreneurship based on the concept of sustainable development has gradually attracted attention and discussion in the academic field. Moreover, it is of great significance to analyze the influence of personality on entrepreneurial orientation considering dark and bright personality traits. On the basis of existing research, we analyzed the relationships between the three elements of the dark triad (Machiavellianism, psychopathy, and narcissism), psychological resilience, and sustainable entrepreneurial orientation (SEO) through a questionnaire survey. Results involve data from 328 MBA students in Tianjin University of China. The results showed that Machiavellianism and psychopathy negatively affected SEO, and narcissism positively affected SEO; psychological resilience and SEO had a significant positive association; and psychological resilience had a moderating effect on the relationship between the three elements of the dark triad and SEO. Our research has reference value and its findings have important implications for entrepreneurship research and education.

**Keywords:** Machiavellianism, psychopathy, narcissism, psychological resilience, sustainable entrepreneurial orientation

## INTRODUCTION

With increasingly prominent environmental problems such as global climate change and water and soil pollution, academics have started to consider ways to address these problems (Chang and Park, 2018). As one of the breakthroughs to solve environmental problems, sustainable entrepreneurship, based on the concept of sustainable development, has attracted the attention of scholars (Chang and Park, 2018). It has been suggested that entrepreneurship should be examined from the perspective of sustainability (Kuckertz and Wagner, 2010; Stål and Bonnedahl, 2016), as scholars believe that in the process of entrepreneurship, start-ups can help reduce environmental pollution at the source by creating green and sustainable products/services. Moreover, achieving economic success is no longer the sole purpose of entrepreneurship (Kuckertz and Wagner, 2010). Sustainable

entrepreneurship combines environmental protection with profit realization, which may not only help start-ups discover new entrepreneurial opportunities, but may also enhance their dual benefit: economic and social values. In particular, for developing countries with economies in transition, such as China, sustainable entrepreneurship can effectively transform the economic development model of “treatment after pollution,” which is of vital significance to the healthy economic development of such countries. From the macro view, sustainable entrepreneurship certainly has an increasingly relevant position and role. From the micro perspective, whether entrepreneurs have a sustainable entrepreneurial orientation (SEO) may be particularly important, as SEO can help translate sustainable entrepreneurship from theory into practice.

With the gradual deepening of research on SEO in recent years, scholars have begun to focus on the impact of individual personality traits on entrepreneurial orientation (Smith et al., 2017). However, existing studies only analyzed the influence of either bright or dark traits of personality on entrepreneurial orientation, and little attention has been paid to the interactions between dark and bright personality traits (Smith et al., 2017). Moreover, existing research incorporated the concept of sustainable development into entrepreneurial orientation and proposed SEO. These preliminary studies focused on the concept and connotations of SEO (Criado-Gomis et al., 2017; Chang and Park, 2018). Thus, few studies have analyzed the impact of personality traits on SEO.

Based on the deficiencies of existing research, our study aimed to analyze the respective effects of bright and dark personality traits on SEO. On the one hand, considering that sustainable entrepreneurship is a kind of social entrepreneurship, as a non-profit entrepreneurship, the possibility of failure is very high. Entrepreneurs can only succeed if they have a strong heart, that is, psychological resilience, which is the ability to cope with major changes, adversities, and risks (Duchek, 2018). Psychological resilience is an important quality for entrepreneurs (Korber and McNaughton, 2018) and plays a key role in the process of entrepreneurship (Duchek, 2018). It helps individuals to develop and mobilize resources they can use in the face of adverse circumstances, which is a vital growth strategy for entrepreneurs (Ayala and Manzano, 2014). Therefore, our study adopted psychological resilience as the representative of bright personality traits. On the other hand, the dark triad (i.e., Machiavellianism, psychopathy, and narcissism) has become a leading model for the study of dark personality traits in the psychological field (Adrian et al., 2013) and business management research (Smith et al., 2016). Therefore, our study adopted the dark triad as the representative of dark personality traits.

In addition, existing research focused on the impact of individual personality traits on entrepreneurial orientation at the organizational level (Kraus et al., 2018). However, potential entrepreneurs have not yet entered entrepreneurial organizations, which require an analysis of entrepreneurial orientation at the individual level. Therefore, SEO in this study was assessed at the individual level and refers to the behavioral tendency of potential entrepreneurs to achieve sustainable development and environmental protection through

entrepreneurship, based on their concern for the environment. In summary, our study aimed to analyze the effects of the dark triad and psychological resilience on SEO at an individual level. At the same time, we aimed to analyze the moderating effect of psychological resilience on the dark triad and SEO, and thus explore the influence mechanism and path of personality traits on SEO more deeply.

Our study mainly makes the following three contributions to previous research. First, we adopted bright and dark personality traits as antecedent variables to analyze their respective impact on SEO. Second, our study aimed to clarify the moderating effect of psychological resilience on the dark triad and SEO through multiple regression analysis, responding to the appeal of Smith et al. (2017). Third, our study analyzed the impact of personality traits on SEO at the individual level, further enriching existing research on SEO and expanding the research framework, while helping to more fully understand SEO in individuals who have not yet entered entrepreneurial organizations.

## Theoretical Background and Hypothesis Development

### The Dark Triad Traits and SEO

The three elements of the dark triad include Machiavellianism, psychopathy, and narcissism (Paulhus and Williams, 2002), which are mainly manifested in exploitative social strategies that promote personal goals (O’Boyle et al., 2012). The dark triad involves social malice with a tendency to self-improving behavior and reflects an unpopular interpersonal behavior style (Lee and Ashton, 2005). Its main characteristics are emotional coldness, exploitation, manipulateness, and grand self-importance (Paulhus and Williams, 2002; Lee and Ashton, 2005). A large amount of evidence shows that the dark triad is related to negative behaviors and characteristics, such as dishonest behavior (Adrian et al., 2013). Moreover, the dark triad often leads potential entrepreneurs to neglect moral and social responsibility, and affects their perception of corporate social responsibility (Myung and Yun, 2017). In fact, corporate social responsibility is not only reflected in public welfare and charity, but also in the importance attached to the environment and its protection. In most cases, environmental problems are understood as social dilemmas with time conflicts, representing tensions between the satisfaction of short- and long-term interests (Milfont et al., 2012). For example, Huang et al. (2018) showed that the dark triad was negatively correlated with environmental attitudes and suggested that when individuals with the dark triad weigh short-term interests and future environmental interests, they tend to satisfy their short-term interests at the expense of future environmental interests, which is ultimately expressed as negative environmental attitudes.

In addition, Smith et al. (2017) pointed out that social cognitive theory and social exchange theory provide an excellent framework to study the results of harmful behaviors related to the dark triad. Social exchange theory poses that those who can provide us with the highest returns are most attractive, and individuals always try to obtain the greatest rewards for themselves from their social interactions. In order to obtain



these returns, the corresponding price has to be paid (O'Boyle et al., 2012). Based on moral disengagement discussed in social cognitive theory (Bandura, 1999), individuals with the dark triad may be more likely to experience moral disengagement than those with other personalities. Combining social cognitive theory with social exchange theory, we proposed that individuals with the dark triad may have a more negative perception of society, which leads them to believe that social exchange based on the concept of sustainable development will achieve less benefits, while they have a desire to obtain higher returns in the short term. Therefore, individuals with the dark triad may be more likely to gain short-term benefits from social exchanges at the expense of the environment, rather than adopting a SEO.

### *Machiavellianism*

Machiavellianism is characterized by self-interest, lack of empathy, and interpersonal manipulation (Furtner et al., 2011). These negative characteristics may lead individuals with Machiavellianism to ignore the importance of the environment, and even choose the former in the trade-off between short-term benefits and long-term development. Specifically, on the one hand, individuals with Machiavellianism may try to gain advantage by any necessary means, without considering morality (Myung and Yun, 2017). Individuals high in Machiavellianism have a strong demand for money and wealth (Zettler and Solga, 2013), a desire to control others and pursue status (Dahling et al., 2009), and are good at using opportunities to maximize their profits (Liu, 2008). They tend to adopt short-term strategies that provide immediate gratification and are closely related to living a "fast life" (Jonason and Tost, 2010; Hmieleski and Lerner, 2016). Thus, long-term environmental benefits may not be important to these individuals. On the other hand, individuals with Machiavellianism establish and achieve their goals by controlling others, emphasizing practicality and eagerness for power. They tend to use their organizations and other people as a means for them to achieve their goals, and are more likely to engage in anti-production work (Dahling et al., 2009) without regard for the importance and protection of the environment. That is to say, individuals with Machiavellianism are mostly self-concerned, only focus on their own goals, and rarely consider the consequences for those around them and the surrounding environment (Zettler et al., 2011). In short, individuals with Machiavellianism follow their own goals, engage in low-emotional interactions, and have a low ideological input (Zettler et al., 2011). They struggle only for personal goals and tend to ignore ethical and environmental issues. For example, Simmons et al. (2013) showed a negative correlation between Machiavellianism and perception of business ethics.

### *Psychopathy*

Psychopathy is characterized by high impulsivity, thrill-seeking behavior, low empathy, lack of loyalty, and irresponsibility (Boddy et al., 2010). Psychopaths are often attracted to power, prestige, and control (Deutschman, 2007), which leads them to focus on short-term benefits, maximize their wealth and power by making short-term decisions (Boddy, 2006), and achieve short-term economic benefits even at the expense of

the environment. It was reported that corporate psychopaths constitute the greatest threat to global business ethics (Marshall et al., 2014). Previous studies have argued that psychopaths have no conscience, and are not at all concerned with the consequences of their behavior on the environment, which implies a serious lack of social responsibility (Boddy, 2015). This conclusion is supported by a study by Boddy (2010), which found that the presence of psychopathic leaders leads to a lack of corporate social responsibility in an organization. Such organizations are unlikely to conduct their business in an environmentally friendly way or in a way that benefits the local community (Boddy, 2010). In addition, individuals high in psychopathy abhor social norms and are willing to oppose the status quo (Mathieu et al., 2013), and often lack empathy. Thus, they may be inclined to turn a blind eye to increasingly serious environmental problems and even do things that are not conducive to preserving the environment, which is exactly in line with the negative traits and behavior patterns of psychopaths.

### *Narcissism*

The main characteristics of narcissism are domination, expressionism, and exploitation, as well as superiority and entitlement (Lee and Ashton, 2005). Narcissism, as a multifaceted dimension of personality, captures the extent to which an individual has an inflated self-consciousness and is constantly focused on himself (Chatterjee and Hambrick, 2007). Narcissists tend to overestimate their creativity, abilities, and wisdom (Myung and Yun, 2017). They believe that social exchanges based on the concept of sustainable development provide less benefits and take longer, and have a desire for high returns in the short term. Therefore, they are more likely to choose to gain some immediate benefits through short-term actions than to achieve long-term benefits through sustainable development. Specifically, on the one hand, narcissists exhibit anti-social, radical, and sadistic attitudes, which are detrimental to the promotion of sustainable development and entrepreneurship, as they lack compassion and show arrogant or contemptuous behavior or attitudes. Moreover, narcissists are often regarded as self-important and insensitive (Wales et al., 2013). They tend to be self-centered and constantly focus on themselves, without attending to social or environmental issues around them, and even show some anti-social behavior. On the other hand, the negative consequences of narcissism are well-documented in the existing literature (Resick et al., 2009). Narcissists are primarily concerned with behaviors focused on themselves, which often lead to power, shameless self-admiration, excessive arrogance, and resistance to external criticism (Resick et al., 2009). Therefore, they may be more concerned about personal development, ignoring the importance of those around them and environmental protection, which is not conducive to the adoption of SEO. Therefore, we proposed the following hypothesis:

**H1: (a) Machiavellianism, (b) psychopathy, and (c) narcissism are negatively associated with SEO.**

## Psychological Resilience and SEO

Psychological resilience refers to the ability of individuals to successfully respond to major changes, adversities, or risks (Duchek, 2018). This study mainly analyzed resilience introduced from health and psychology research into the context of entrepreneurship (Bullough and Renko, 2013). Psychological resilience in the context of entrepreneurship refers to the ability to overcome high-impact entrepreneurial challenges and persist in the entrepreneurial process in the face of adverse situations and unexpected outcomes (Awotoye and Singh, 2017). The definition of psychological resilience has three key themes: adversity, positive adaptation, and risk/uncertainty, which are relevant in the entrepreneurship context. The concepts of risk and uncertainty are core in entrepreneurship because the entrepreneurial process involves significant risks (Awotoye and Singh, 2017). Therefore, we believe that psychological resilience is closely related to entrepreneurship. In fact, entrepreneurship under adverse conditions depends to a large extent on entrepreneurs' awareness and resilience in the face of adversity (Bullough and Renko, 2013), as individuals who do business in complex situations often need to challenge the status quo and open up new avenues for success. Without resilience, individuals would not be able to engage in entrepreneurship or entrepreneurial behavior needed to pursue a new business (Bullough and Renko, 2013).

In addition, from the perspective of social cognitive theory, individuals with psychological resilience are more likely to identify with sustainable development, and their resilience and optimism make them more inclined to engage in sustainable entrepreneurship. At the same time, based on social exchange theory, in social exchange relationships (e.g., between individuals and the environment), individuals with psychological resilience might be more likely to agree with the concept of sustainable development because, in their view, seeking harmony with the environment, despite its costs, would provide them with more long-term benefits, such as good reputation for their enterprise, sustainable development, and so on. In short, psychological resilience has an important impact on entrepreneurship, and psychologically resilient individuals are more likely to adopt sustainable entrepreneurship and behavioral tendencies.

Through exploratory factor analysis, Ayala and Manzano (2014) found that hardiness, resourcefulness, and optimism are the three factors of entrepreneurs' psychological resilience. First, hardiness involves a kind of self-control that prevents individuals from getting easily frustrated in the face of adverse circumstances, while being bold and striving to achieve their goals (Kobasa, 1979). Additionally, personal resilience has been found to be associated with a range of positive personal attitudes and behaviors (Sommer et al., 2016). By combining resilience resources with protective factors, individuals perform better and stay healthy under high pressure (Avey et al., 2011). Hardiness prevents individuals from being tempted by immediate short-term interests, and can lead them to firmly adhere to the concept of sustainability and thus achieve long-term environmental and other benefits.

Second, resourcefulness refers to the resources, abilities, and skills that individuals possess to control the various adverse conditions they must face. Resourcefulness means that individuals believe in their ability to control events and influence the outcome of situations (Powell and Baker, 2011). In real life, entrepreneurs usually exhibit many characteristics related to resourcefulness. For example, they tend to perform well in the face of ambiguity and change (Ayala and Manzano, 2014), consider a "terrible situation" as an opportunity (Bullough et al., 2014), persist in adversity (Holland and Shepherd, 2013), and ultimately act and achieve goals with wisdom and endurance. In fact, entrepreneurs' resourcefulness is not entirely innate, and a large part of it is acquired through learning. Resilient entrepreneurs have a greater ability to self-renew through innovation over time and adapt to diverse and turbulent changes in the environment (Baardwijk and Reinmoeller, 2005). They can "stand up" again after failure and become stronger than before (Cannon and Edmondson, 2005). This kind of resourcefulness helps them to find business opportunities in adversity and learn from failures, so that they can better cope with environmental problems, discover entrepreneurial opportunities, and ultimately achieve sustainable entrepreneurship and long-term benefits.

Third, optimism refers to the ability of individuals to maintain a positive attitude in difficult situations (Schneider, 2001). Individuals can learn from mistakes and see them as opportunities rather than failures (Schneider, 2001). Studies have shown that optimism has a positive impact on entrepreneurship and helps entrepreneurs actively deal with various problems. Therefore, optimistic individuals may be more proactive in dealing with environmental problems and find it easier to cultivate their own creativity. Optimism can encourage entrepreneurs to maintain entrepreneurial motivation and actively focus on environmental and social issues around them, thereby improving their SEO. In short, individuals high in psychological resilience can take positive actions in adversity, may not be discouraged by the challenges of environmental problems, and can learn to live with rejection. Compared with others, they have higher motivation and more positive attitude to solve environmental and social problems (Bullough et al., 2014). Therefore, we hypothesized that psychological resilience would play a positive role in promoting SEO as follows:

## H2: Psychological resilience is positively related to SEO.

### Moderating Effect of Psychological Resilience

According to the previous discussion, the dark triad and psychological resilience have different effects on SEO. Specifically, the three elements of the dark triad (Machiavellianism, psychopathy, and narcissism), though conceptually different, share some common negative characteristics (Kraus et al., 2017), for example, emotional coldness, exploitation, manipulateness, and grand self-importance (Paulhus and Williams, 2002; Lee and Ashton, 2005). Based on the previous analysis, these personality traits may have a negative impact on SEO. In addition, in the entrepreneurial environment, resilience as a dynamic adaptation process is the ability of entrepreneurs to overcome a



particularly difficult environment. In this process, entrepreneurs acquire knowledge, abilities, and skills through interaction with the environment, and rely on their own resources to face an uncertain future with a positive attitude (Windle et al., 2011; Ayala and Manzano, 2014). Similarly, based on the previous analysis, we believe that psychological resilience has a positive impact on SEO.

Simultaneously, when the level of individual psychological resilience is different, the influence of the dark triad on SEO may also be different. For individuals with dark triad, their ruthlessness, irresponsibility, and arrogant attitude would only make them pay more attention to personal development, while rarely consider the consequences for those around them and the surrounding environment (Huang et al., 2018).

**TABLE 1 |** Measurement items and reliabilities.

| Variables                               | Items  | Factor loading | Alpha | AVE   | CR    |
|---|--|----------------|-------|-------|-------|
| Narcissism                              | I tend to want others to admire me.  | 0.710          | 0.795 | 0.625 | 0.869 |
|   | I tend to seek prestige or status.   | 0.731          |       |       |       |
|   | I tend to expect special favors from others.   | 0.855          |       |       |       |
|   | I tend to want others to pay attention to me.  | 0.854          |       |       |       |
| Psychopathy                             | I tend to lack remorse.  | 0.803          | 0.773 | 0.604 | 0.856 |
|   | I tend to be unconcerned with the morality of my actions.  | 0.846          |       |       |       |
|   | I tend to be callous or insensitive.   | 0.855          |       |       |       |
|   | I tend to be cynical.  | 0.569          |       |       |       |
| Machiavellianism                        | I tend to manipulate others to get my way.   | 0.676          | 0.798 | 0.627 | 0.870 |
|   | I have used deceit or lied to get my way.  | 0.828          |       |       |       |
|   | I have used flattery to get my way.  | 0.834          |       |       |       |
|   | I tend to exploit others toward my own end.  | 0.818          |       |       |       |
| Psychological resilience                | I am able to adapt to change.  | 0.739          | 0.952 | 0.526 | 0.962 |
|   | I have close and secure relationships.   | 0.688          |       |       |       |
|   | I can deal with whatever comes my way.   | 0.652          |       |       |       |
|   | Past success gives me confidence for new challenges.   | 0.716          |       |       |       |
|   | I see the humorous side of things.   | 0.731          |       |       |       |
|   | Coping with stress strengthens me.   | 0.823          |       |       |       |
|   | I tend to bounce back after a hardship or illness.   | 0.762          |       |       |       |
|   | I give my best effort, no matter what.   | 0.736          |       |       |       |
|   | I can achieve my goals.  | 0.798          |       |       |       |
|   | When things look hopeless, I don't give up.  | 0.674          |       |       |       |
|   | I know where to turn to for help.  | 0.752          |       |       |       |
|   | Under pressure, I focus and think clearly.   | 0.817          |       |       |       |
|   | I prefer to take the lead in problem solving.  | 0.760          |       |       |       |
|   | I am not easily discouraged by failure.  | 0.824          |       |       |       |
|   | I think of myself as a strong person   | 0.779          |       |       |       |
|   | I can make unpopular or difficult decisions.   | 0.593          |       |       |       |
|   | I can handle unpleasant feelings.  | 0.708          |       |       |       |
|   | I have to act on a hunch.  | 0.547          |       |       |       |
|   | I have a strong sense of purpose.  | 0.671          |       |       |       |
|   | I feel in control of my life.  | 0.703          |       |       |       |
|   | I like challenges.   | 0.746          |       |       |       |
|   | I work to attain my goals.   | 0.792          |       |       |       |
|   | I take pride in my achievements.   | 0.576          |       |       |       |
| Sustainable entrepreneurial orientation | Firms should take an internationally leading role in the field of environmental protection.                      | 0.817          | 0.870 | 0.661 | 0.907 |
|   | The environmental performance of a company will in future be considered more and more by financial institutions. | 0.829          |       |       |       |
|   | I think that environmental problems are one of the biggest challenges for our society.                           | 0.799          |       |       |       |
|   | I think that entrepreneurs and companies need to take on a larger social responsibility.                         | 0.854          |       |       |       |
|   | Firms that are environmentally oriented have advantages in recruiting and retaining qualified employees.         | 0.763          |       |       |       |

*This study measures all items with a seven-point Likert scale.*

Furthermore, they would take a negative attitude toward sustainable entrepreneurship which is full of challenges and pursues long-term benefits. In particular, when individuals with dark triad have a high level of psychological resilience, this negative attitude toward sustainable entrepreneurship may be weakened. Because when individuals have higher levels of psychological resilience, their self-confidence to overcome difficulties and ability to cope with adversity would be correspondingly enhanced (Duchek, 2018). This would affect their negative tendencies toward challenging sustainable entrepreneurship. Conversely, when individuals with dark triad have a low level of psychological resilience, their negative attitude toward sustainable entrepreneurship may persist.

In a sense, psychological resilience can motivate individuals to pursue long-term interests and focus on solving the challenges of environmental and social issues, and positively affect their SEO. Considering the relationship between resilience and coping ability (Linnenluecke, 2017), and the key role of resilience in entrepreneurship, we believe that resilience may help reduce the negative impact of the dark triad on SEO. That is to say, for individuals with the dark triad, the higher their psychological resilience, the lower the negative impact of the dark triad traits on SEO, and vice versa.

**H3: Psychological resilience moderates the relationship of (a) Machiavellianism, (b) psychopathy, and (c) Narcissism with SEO.**

## MATERIALS AND METHODS

### Participants

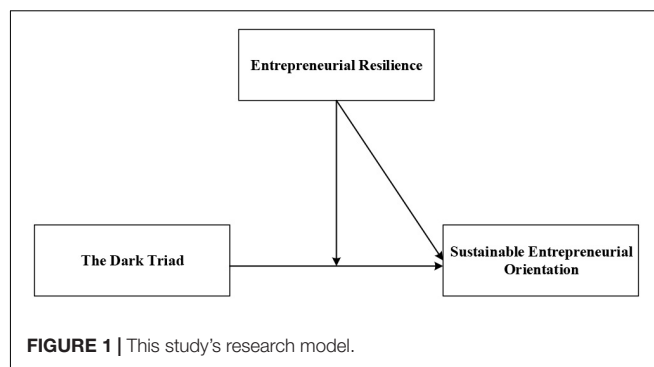
According to Hmieleski and Lerner (2016), a sample of business management students is appropriate to study the dark triad and entrepreneurship, as they generally represent business-oriented individuals and are unlikely to show omitted variable bias and endogeneity. Therefore, a sample of MBA students of Tianjin University was used in this study.

### Ethics Statement

Ethics approval for this research was not required as per institutional and national guidelines. Consent from all research participants was obtained by virtue of survey completion.

### Data Collection and Procedure

Measurements of the dark triad, psychological resilience, and SEO are well-developed and validated. According to the published scale in English, we translated all the items from English to Chinese and then translated them into English to ensure that they were used correctly and appropriate for the Chinese context. In order to minimize the risk of common method variance (CMV), we have done corresponding work in research design and data collection. At the stage of questionnaire design, we randomly arranged the order of all items and reduced participants' guesses about the purpose of measurement (Podsakoff et al., 2003). At the same time, in the course of the survey, we told the participants that all the data were used



for academic research and were anonymous and confidential (Podsakoff et al., 2003). Before conducting the formal survey, we randomly selected 20 volunteers to pilot the questionnaire. Based on their feedback and considering language expression habits in the Chinese context, we established the final questionnaire. All items in the questionnaire were rated on a seven-point Likert scale, ranging from 1 ("highly disagree") to 7 ("highly agree").

We obtained a full list of MBA students from the MBA Education and Management Center of Tianjin University, totaling 600 students. Subsequently, we selected 420 students by stratified sampling according to grade. Next, trained investigators distributed questionnaires to the students in their free time and collected the completed questionnaires on the spot to ensure the quality of the answers. Data collection was mainly concentrated in the period from May 15 to June 5, 2018. Finally, we collected a total of 402 questionnaires (95.71% response rate). After eliminating 74 questionnaires that were incomplete or invalid, the final sample consisted of 328 valid questionnaires, which implies an effective sampling rate of 81.59%.

## Measures

### The Dark Triad

The Dark Triad Dirty Dozen scale, developed by Jonason and Webster (2010), has been widely used and validated to assess the dark triad. This study used this scale to separately measure the three dark triad traits. The scale consists of 12 items, with each dark triad trait being measured with four items. Items measuring narcissism include "I tend to seek prestige or status," "I tend to want others to admire me," and so on. Psychopathy items include "I tend to lack remorse," "I tend to be callous or insensitive," and so on. Items assessing Machiavellianism include "I have used deceit or lied to get my way," "I tend to exploit others toward my own end," and so on. We assessed narcissism, psychopathy, and Machiavellianism, respectively, calculating the average of the four items as the final score of each personality trait. The higher the score, the higher the corresponding personality level.

### Psychological Resilience

To measure resilience, we used the scale of Manzano-García and Ayala Calvo (2013), who developed a Spanish adaptation of the Connor-Davidson Resilience Scale (CD-RISC). The instrument was developed using a sample of entrepreneurs and has very good psychometric properties (Manzano-García and Ayala Calvo,

2013). The revised instrument measures psychological resilience with 23 items, such as “I can deal with whatever comes my way,” “I have a strong sense of purpose,” and “I can handle unpleasant feelings.”

### Sustainable Entrepreneurial Orientation

In this paper, the measurement of SEO was mainly based on the research of Kuckertz and Wagner (2010), in which SEO was assessed with five items evaluating sustainability and environmental attitudes: “Firms should take an internationally leading role in the field of environmental protection,” “The environmental performance of a company will be considered more and more by financial institutions in the future,” “I think that environmental problems are one of the biggest challenges for our society,” “I think that entrepreneurs and companies need to take on a larger social responsibility,” and “Firms that are environmentally oriented have advantages in recruiting and retaining qualified employees.”

### Control Variables

According to the existing literature on entrepreneurial orientation, the control variables selected in this study included age, gender, marital status, and family business situation. Older students often have more work experience and wider social connections, which may make them more inclined to consider starting their own businesses (Kautonen et al., 2015). Studies have shown that gender is associated with individual entrepreneurial orientation, and male entrepreneurial orientation is higher (Goktan and Gupta, 2015). In view of the fact that entrepreneurship often involves high risks, married individuals' SEO may be relatively low. Considering that the impact of the family environment is usually significant and far-reaching, individuals with family businesses may attach greater importance to long-term interests and be more likely to engage in sustainable entrepreneurship.

### Reliability and Validity

We tested the reliability and validity of the scale in SPSS 22.0. The reliability of the study questionnaire were tested using Cronbach's alpha and composite reliabilities (CR). In the reliability analysis, Cronbach's alpha for all constructs was greater

than 0.70 (**Table 1**), which indicates good internal consistency (Cronbach, 1951). Moreover, as shown in **Table 1**, the CR values of all constructs were higher than the recommended minimum standard of 0.70 (Hair et al., 2010), so the measures in this study had good internal consistency.

Furthermore, we tested the validity of the scale by factor loading, average variance extracted (AVE), and the square root of the AVE. These results indicate that the theoretical structure of this study had good psychometric characteristics. We used confirmatory factor analysis to test the convergent validity of the scale. Previous studies have shown that factor loadings greater than 0.70 indicate that about half of the variance of items can be attributed to the construct, which is a marker of construct validity (Götz et al., 2010). In this study, the factor loadings of all items were between 0.547 and 0.855 (**Table 1**), which fully demonstrates a close relationship between items and constructs and that the questionnaire conforms to the requirements of convergent validity. Moreover, the AVE scores of all constructs in this study were higher than the recommended minimum value of 0.50 (**Table 1**). This further indicates that the scale meets the requirement of convergent validity. In addition, we used the square root of the AVE to test the discriminant validity of the scale. The diagonal elements in **Table 2** are the square root of the AVE for each construct, which were obviously larger than the non-diagonal elements. This indicates that the scale as a whole meets the criteria for discriminant validity (Fornell and Larcker, 1981). In conclusion, we believe that the reliability and validity of this study questionnaire can meet the requirements of further research.

## RESULTS

Based on social exchange theory and social cognition theory, this study explored the effects of the dark triad traits and psychological resilience on SEO, and further analyzed the moderating effect of psychological resilience on the relationship between the dark triad and SEO. **Figure 1** illustrates the theoretical model.

**Table 2** presents descriptive statistics and correlations of variables. There was a significant correlation between the

**TABLE 2 |** Mean, standard deviation, and correlation of study variable<sup>a</sup>.

|                              | Mean   | SD    | 1        | 2        | 3        | 4        | 5            | 6            | 7            | 8            | 9            |
|------------------------------|--------|-------|----------|----------|----------|----------|--------------|--------------|--------------|--------------|--------------|
| (1) Sex                      | 1.520  | 0.500 | N/A      |          |          |          |              |              |              |              |              |
| (2) Age                      | 31.060 | 4.099 | −0.212** | N/A      |          |          |              |              |              |              |              |
| (3) Married                  | 1.450  | 0.499 | 0.218**  | −0.480** | N/A      |          |              |              |              |              |              |
| (4) Family business          | 1.730  | 0.445 | 0.002    | −0.168** | 0.061    | N/A      |              |              |              |              |              |
| (5) Narcissism               | 3.116  | 1.371 | −0.124*  | −0.057   | −0.003   | −0.060   | <b>0.791</b> |              |              |              |              |
| (6) Psychopathy              | 2.881  | 1.346 | −0.105   | −0.136*  | 0.064    | 0.016    | 0.738**      | <b>0.777</b> |              |              |              |
| (7) Machiavellianism         | 4.463  | 1.259 | −0.179** | −0.039   | −0.046   | −0.071   | 0.521**      | 0.390**      | <b>0.792</b> |              |              |
| (8) Psychological resilience | 5.356  | 0.863 | −0.165** | 0.202**  | −0.145** | −0.181** | 0.019        | −0.158**     | 0.038        | <b>0.725</b> |              |
| (9) SEO                      | 5.598  | 1.044 | −0.091   | 0.143*   | −0.053   | −0.136*  | −0.174**     | −0.257**     | 0.130*       | 0.483**      | <b>0.813</b> |

<sup>a</sup>N = 328. \*Correlation is significant at the 0.05 level (two-tailed). \*\*Correlation is significant at the 0.01 level (two-tailed). (a) N/A refers to this item is not adaptive to analysis and (b) The diagonal elements in bold are square roots of AVE.

TABLE 3 | Results of the hierarchical regression analysis.

|                          | Sustainable entrepreneurial orientation |          |          |                      |                     |                      |                     |                      |                     |
|--------------------------|---|----------|----------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|
|                          | Model 1                                 | Model 2  | Model 3  | Model 4 main effects | Model 5 interaction | Model 6 main effects | Model 7 interaction | Model 8 main effects | Model 9 interaction |
| Sex                      | -0.146                                  | -0.141   | -0.017   | -0.070               | -0.026              | -0.077               | -0.028              | 0.030                | 0.028               |
| Age                      | 0.034*                                  | 0.029+   | 0.018    | 0.013                | 0.015               | 0.012                | 0.016               | 0.022                | 0.018               |
| Married                  | 0.104                                   | 0.137    | 0.138    | 0.133                | 0.097               | 0.144                | 0.117               | 0.149                | 0.137               |
| Family business          | -0.251+                                 | -0.227+  | -0.083   | -0.115               | -0.111              | -0.099               | -0.093              | -0.059               | -0.061              |
| Machiavellianism         |   | -0.116+  |          | -0.144***            | -0.150***           |                      |                     |                      |                     |
| Psychopathy              |   | -0.193** |          |                      |                     | -0.145***            | -0.0151***          |                      |                     |
| Narcissism               |   | 0.239*** |          |                      |                     |                      |                     | 0.096*               | 0.108*              |
| Psychological resilience |   |          | 0.563*** | 0.563***             | 0.495***            | 0.527***             | 0.443***            | 0.564***             | 0.591***            |
| Machiavellianism*        |   |          |          |                      | 0.167***            |                      |                     |                      |                     |
| Psychological resilience |   |          |          |                      |                     |                      | 0.191***            |                      |                     |
| Psychopathy*             |   |          |          |                      |                     |                      |                     |                      |                     |
| Psychological resilience |   |          |          |                      |                     |                      |                     |                      | -0.076+             |
| Narcissism *             |   |          |          |                      |                     |                      |                     |                      |                     |
| Psychological resilience | 0.037                                   | 0.159    | 0.237    | 0.272                | 0.328               | 0.271                | 0.336               | 0.250                | 0.257               |
| R <sup>2</sup>           | 0.025*                                  | 0.140*** | 0.225*** | 0.258***             | 0.313***            | 0.257***             | 0.321***            | 0.236***             | 0.240***            |
| ΔR <sup>2</sup>          | 1.817                                   | 1.905    | 1.773    | 1.859                | 1.902               | 1.879                | 1.887               | 1.708                | 1.711               |

N = 328. +p < 0.10; \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

key variables. At the same time, the correlation coefficients between variables were less than 0.75, which ruled out multiple collinearity to some extent.

Each hypothesis was verified using hierarchical regression analysis. Beforehand, we ensured that our data were consistent with the assumptions of regression analysis. We used the variance inflation factor (VIF) to examine the possibility of multicollinearity. The results showed that the maximum VIF value was 2.57, much lower than the cut-off value of 10 proposed by Kleinbaum et al. (1998), which indicated no multicollinearity in the regression model. Furthermore, in all models, the Durbin–Watson statistic showed that the sequence correlation of residuals was within the acceptable range (1.50 and 2.50) (Ayala and Manzano, 2014), confirming no auto-correlation problems in the data.

**Table 3** shows the hierarchical regression results for main, interaction, and control effects. First, only age ( $p < 0.05$ ) was significant factors of SEO when all control variables were included in Model 1. Second, we added the dark triad to Model 2 as independent variables and kept SEO as the dependent variable. The results showed that Machiavellianism had a slightly negative correlation with SEO ( $\beta = -0.116$ ,  $p < 0.10$ ) and psychopathy was negatively associated with SEO ( $\beta = -0.193$ ,  $p < 0.01$ ), but narcissism was positively correlated with SEO ( $\beta = -0.239$ ,  $p < 0.001$ ). Therefore, (H1a, H1b) were supported, but (H1c) was not supported. Third, Model 3 included psychological resilience as the independent variable and SEO as the dependent variable. The results showed that psychological resilience had a significant positive effect on SEO ( $\beta = 0.563$ ,  $p < 0.001$ ); thus, H2 was verified.

Finally, in order to test H3, we standardized the independent variables before we created each interactive item (Cohen et al., 2003). Model 4 took Machiavellianism and psychological resilience as independent variables. On this basis, Model 5 introduced an interactive item between Machiavellianism and psychological resilience, and psychological resilience was found to moderate the relationship between Machiavellianism and SEO ( $\beta = 0.167$ ,  $p < 0.001$ ), weakening the negative impact of Machiavellianism on SEO. Model 6 took psychopathy and psychological resilience as independent variables. On this basis, Model 7 introduced an interactive item between psychopathy and psychological resilience. The results showed that psychological resilience moderated the relationship between psychopathy and SEO ( $\beta = 0.191$ ,  $p < 0.001$ ), weakening the negative impact of psychopathy on SEO. Model 8 took narcissism and psychological resilience as independent variables. On this basis, Model 9 introduced an interactive item between narcissism and psychological resilience. The results showed a moderating effect of psychological resilience on the relationship between narcissism and SEO ( $\beta = -0.076$ ,  $p < 0.10$ ), with psychological resilience marginally weakening the positive effect of narcissism on SEO. Therefore, (H3a, H3b, and H3c) were supported.

To further analyze the moderating effect of psychological resilience, we plotted the marginal effect for the whole range of psychological resilience (see **Figure 2**). Our drawing procedure followed the work of Meyer et al. (2017). In **Figure 2**, the area between the two outer lines is the 95% confidence interval around

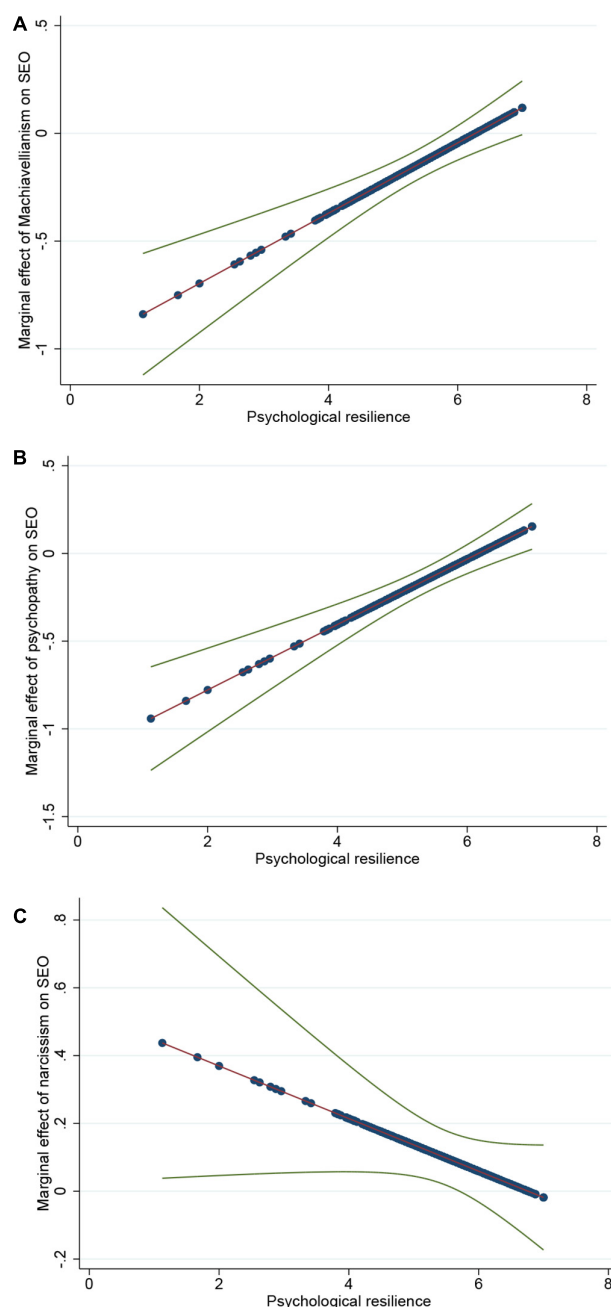
the interaction line. Moreover, when the two lines reflecting the confidence interval are both below and above the horizontal zero line, the interaction effect is significant (Meyer et al., 2017). **Figure 2A** shows the impact of Machiavellianism on SEO for all levels of psychological resilience. As **Figure 2A** notes, Machiavellianism had a significant negative effect on SEO when psychological resilience was low, but no significant effect when psychological resilience was high. **Figure 2B** shows the impact of psychopathy on SEO for all levels of psychological resilience. As **Figure 2B** indicates, when psychological resilience was low, psychopathy had a negative impact on SEO; when psychological resilience was high, psychopathy had no significant impact on SEO. **Figure 2C** shows the impact of narcissism on SEO for all levels of psychological resilience. As **Figure 2C** shows, narcissism had a positive effect on SEO when psychological resilience is low, but no significant effect when psychological resilience was high.

## DISCUSSION

Our study examined the relationship between the three elements of the dark triad, psychological resilience, and individual SEO in a sample of MBA students in Tianjin University in China. Not only did we analyze the influence of the dark triad traits and psychological resilience on SEO, but also explored the moderating effect of psychological resilience on the relationship between the dark triad and SEO.

First, we found differences in the influence of the three elements of the dark triad on SEO. Machiavellianism and psychopathy had a negative impact on SEO, which is consistent with our hypotheses. Individuals with Machiavellianism always try to seek immediate gratification by adopting short-term strategies that are closely related to living a “fast life” (Jonason and Webster, 2010), and long-term environmental benefits are not important to them. Moreover, individuals with Machiavellianism are mostly self-interested and pay less attention to the consequences for those around them and their surroundings (Zettler et al., 2011). As for individuals with psychopathy, they simply do not care about the consequences of their actions on the environment or society, and seriously lack social responsibility (Boddy, 2015). Most importantly, individuals high in psychopathy often lack empathy, and may be inclined to turn a blind eye to increasingly serious environmental problems and even do things that are detrimental to the environment. However, we were very surprised to find that narcissism had a significantly positive impact on SEO, which is inconsistent with our original expectations. We think this may be because narcissism is often two-sided (Myung and Yun, 2017), that is, narcissism has both a negative side and a positive side. In the Chinese context, narcissists may have a more optimistic attitude toward SEO, being inclined to integrate the concept of sustainable development into entrepreneurship.

Second, our study showed that psychological resilience was positively correlated with SEO, which is consistent with our original hypothesis. We believe that individuals with high psychological resilience are usually more successful in coping with major changes, adversities, or risks (Duchek,



**FIGURE 2 |** Marginal effect of the dark triad (Machiavellianism, psychopathy and narcissism) on SEO for the whole range of psychological resilience. **(A)** Marginal effect of Machiavellianism on SEO. **(B)** Marginal effect of psychopathy on SEO. **(C)** Marginal effect of narcissism on SEO.

2018), and thus have the courage and determination to achieve long-term benefits. Moreover, the three characteristics of psychological resilience (i.e., hardiness, resourcefulness, and optimism) have a positive role in promoting sustainable entrepreneurship among potential entrepreneurs. In conclusion, individuals with high psychological resilience can often take positive actions in adversity. They have higher motivation and more positive attitude to solve environmental and social problems around them, and can adhere to the concept of

sustainable development more firmly, thereby achieving long-term environmental and other benefits.

Third, the moderating effect of psychological resilience on the relationship between the dark triad and SEO was verified. Psychological resilience weakened the negative impact of both Machiavellianism and psychopathy on SEO. In other words, when individuals have only Machiavellianism/psychopathy, they will usually be reluctant to start sustainable businesses. However, if they also have psychological resilience, their willingness to



oppose sustainable entrepreneurship will be weakened, and they may even have a certain tendency toward SEO.

## CONCLUSION

### Research Implications

The current study makes important contributions to research in this area. First, our study simultaneously analyzed the influence of bright and dark personality traits on SEO. Existing studies only focused on the impact of one aspect of personality (i.e., bright- or dark-side personality traits) on entrepreneurial orientation. Considering that individual personality is multifaceted, our study introduced both the bright and the dark side of personality. We selected psychological resilience and the dark triad as pre-variables, as they are particularly critical in the entrepreneurial environment, and analyzed their impact on SEO from a comprehensive perspective, which makes a valuable contribution to research on personality and entrepreneurial orientation.

Second, by separately analyzing the influence of the dark triad and psychological resilience on SEO, we also assessed the moderating effect of psychological resilience on the relationship between the dark triad and SEO, which responds to the appeal of Smith et al. (2017) to attend to the interaction of dark and bright personality traits when studying personality factors in entrepreneurial situations. Moreover, considering that the interaction between personality traits may also play an important role in SEO, we analyzed the moderating effect of psychological resilience and explored the antecedent factors of SEO from a new perspective.

Third, our study focused on the influence of personality on SEO at the individual level. Previous studies focused on the impact of personality on organizational entrepreneurial orientation (Wales et al., 2013; Engelen et al., 2015). Considering that research in the field of entrepreneurship is increasingly focused on the critical role of individuals, we adopted an individual perspective. At the same time, the purpose of entrepreneurship is not only to obtain economic value, but social value and environmental benefits are increasingly becoming the focus of business. Therefore, our study focused on the impact of personality traits on individual SEO, laying the foundation for further analysis of the factors affecting sustainable entrepreneurship at the individual level.

### Implications for Practice

Our work has two important implications for China's entrepreneurship education. First, when conducting entrepreneurship education, business school teachers should pay attention to the dark personality traits of students and moderately intervene and guide them. Our results showed that psychopathy and Machiavellianism were negatively correlated with SEO. As we have seen, students with psychopathy and Machiavellianism may have a certain negative perception of society and pay more attention to short-term interests and fast-life strategies. This is very unfavorable to the current

entrepreneurial environment and its development in the future. Therefore, business school teachers should take appropriate measures and implement educational interventions to reduce students' level of psychopathy and Machiavellianism with specific teaching practices, thereby reducing their resistance to SEO.

Second, business school teachers should teach students in accordance with their aptitude on the basis of their personality characteristics. Especially for students with psychological resilience, business school teachers should formulate targeted entrepreneurial education programs according to their personality traits, and give full play to the advantages of students' psychological resilience in entrepreneurship and innovation. Moreover, our study found that psychological resilience contributed to reduce the negative impact of psychopathy and Machiavellianism on SEO. Therefore, we suggest that business school teachers should use the necessary methods to build psychological resilience among students who lack it Bullough and Renko (2013). For example, strengthening students' cultivation of psychological resilience may reduce the negative effects of psychopathy and Machiavellianism as much as possible. In addition, in order to cultivate students' concept of sustainable development more effectively, it is necessary for business school teachers to incorporate sustainable concepts into their educational practice and influence students' SEO in subtle ways, for example, by adding sustainable ideas to the curriculum design. Although this is a minor influence, it is especially important.

### Limitations and Future Directions

First, the conclusions of this study are based on data collected in the Chinese context, which may be different from other countries. This study found that psychopathy and Machiavellianism had a negative impact on SEO, while narcissism had a positive impact on SEO. However, in other countries, the results may differ. Specific social issues and serious environmental problems in China's current development may affect the entrepreneurial attitude of potential entrepreneurs to a certain extent (Huang et al., 2018). Therefore, future research should consider collecting data from different countries in order to understand the differences in the impact of individual personality traits on SEO (Chang and Park, 2018).

Second, self-reported questionnaires may lead to a certain degree of CMV (Do and Dadvari, 2017). This study controlled for this by adjusting the order of questions and reducing participants' guesswork about the purpose of measurement; moreover, the low-risk setting of this study was sufficient to rule out forgery (i.e., participants had no motive to falsify their responses) (Akhtar et al., 2013). However, in order to control the effect of CMV more strictly, future research may consider having participants answer the same questions at different time points or adopting different methods to measure personality characteristics more objectively and comprehensively, and thus provide more powerful support for the research hypotheses.

Third, our study lacked a detailed classification of narcissism. Our study only analyses narcissism in the dark triad, which is indeed a limitation. Because different types of narcissism have different characteristics, we need to further analyze how different types of narcissism affect SEO in future research. Considering that narcissism is generally divided into grandiose and vulnerable narcissism (Wink, 1991; Miller et al., 2011), future research should focus on narcissism in subdivision studies and comparative studies to further reveal the influence mechanism of distinct types of narcissism on SEO.

## ETHICS STATEMENT

Ethics approval for this research was not required as per institutional and national guidelines. Consent from all research participants was obtained by virtue of survey completion.

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## AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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# Farmers' Work-Life Quality and Entrepreneurship Will in China

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New-generation farmers have become a vital force for entrepreneurship in their hometowns. To better promote farmers to start businesses, it's important to know about their quality of work life. Based on a survey of the quality of work life and entrepreneurship will of farmers from three cities and eight counties in Shandong province of China, this paper analyzed the effects of farmers' quality of work life on their entrepreneurship will in their hometowns using a Logistic regression model. Our findings show that farmers have a relatively low cognition level of their quality of work life, and their interpersonal relationship, work characteristics, material security, and family demands have significant effects on their entrepreneurship will. According to the findings, this paper proposed some suggestions for promoting farmers' entrepreneurship will in their hometowns from the perspectives of organizational management, extrinsic entrepreneurship stimulus, and internal demand.

**Keywords:** work-life quality, farmers, entrepreneurship will, China, positive psychology

## INTRODUCTION

Mass entrepreneurship has become a medium- and long-term development strategy in China (Ni and Lu, 2016), and farmers are unquestionably an important component of mass entrepreneurship. According to the statistics, China has 282 million farmers by the end of 2016, a figure occupying 31.6% of the total working-age population and continuing to rise slowly. As the number of farmers goes up, Chinese governments at various levels have issued some policies to encourage and support farmers to return home to start their business. In 2015, the State Council of China issued Opinions on Supporting Farmers to Return Home to Start their Business with an aim to establishing a diversified entrepreneurship atmosphere. A prosperous landscape of farmers returning home to start their business shows up, but the number of farmers who really start their business is not optimistic. According to statistics issued by the Ministry of Agriculture of China, the number of farmers returning home to start their business totals 4.5 million, occupying about 2% of the total number of farmers in the end of 2015. This figure is far lower than the percentage (70.3%) of people believing entrepreneurship is a good career choice to the general public, also lower than the that of college students (1%) starting their business and employees in urban companies (1.2%). Such phenomenon shows that there is a big gap between farmers' cognition of entrepreneurship and their actual practice in entrepreneurship. Thus, how to narrow such gap becomes especially important for the promotion of farmers to return home to start their businesses.

Much of existing literature on farmers' entrepreneurship focuses on the macro-level issues (Collins, 2003; Wu and Zhang, 2012; Peroni et al., 2016). Existing research and practice show



that knowledge, skill, and capital do not necessarily stimulate entrepreneurial behavior, whereas strong entrepreneurship intention is a precondition for the potential entrepreneurship behavior. Entrepreneurship is in nature a career path to realize one's life objective, and an individual's current living status influences its future work motivation and career development. In other words, farmers' current living quality might be an important factor influencing their motivation for future entrepreneurship – an issue that is seldom touched on in existing literature. Hence, this paper investigates farmers' cognition of their present quality of work life and analyzes its effect on farmers' wills of returning home to start their businesses to identify the key factors influencing farmers' entrepreneurship and promote the development of farmers' entrepreneurship.

## THEORETICAL BASIS

### Connotation of Quality of Work Life

Quality of work life, a cognitive concept, was often observed or investigated in existing literature, subject to researchers' experience and the respondents' personal cognition. Consequently, there is no unified definition of quality of work life. Quality of work life refers to employees' perception and experience of their working environment which involves employees' perception of physical and psychological well-being obtained from their work (Magid, 1994; Cascio, 1998). The definition of quality of work life that was proposed by Kirkman goes beyond the work itself and covers employees' work, family, and leisure (Kirkman, 1989). In other words, quality of work life means employees have the right to influence decisions and improve their own work through an open communication channel adaptable to the organizational objective, thus leading to a sense of more participation, higher satisfaction, and less spiritual depression. Based on the above definitions, quality of work life can be defined in narrow and broad senses. In a narrow sense, it refers to the quality of the work itself. In a broad sense, it includes interpersonal relationship, management system, work-family relation, and concerns about employees' balanced relationship with the organization, work, and family. It should be noted that despite the different definitions, the ultimate objective of quality of work life is to improve employees' performance and satisfy employees' personal demands through their perception of the work environment, management system, and interpersonal relation, and such definition is adopted by this paper. This paper will evaluate farmers' quality of work life in a broad sense.

### Research on the Quality of Work Life of Farmers'

Research on quality of work life in western countries started in the 1930s. Chinese scholars started to study quality of work life of teachers and firm employees in the 1990s. Toward the 21st century, as default in the payment to farmers happens frequently. Up to present, farmers have become an important component of the urban labor force. Thus, the quality of work life of farmers has received increased concerns. An increasing number of Chinese scholars begin to analyze the status quo of quality of work life

of farmers and propose corresponding measures to improve the quality of work life of farmers. Research shows that nearly two thirds of farmers are not satisfied with their present quality of work life which is significantly affected by factors such as their marriage status, incomes, residing location, health, family structure, and age (Jiao et al., 2008; Xu, 2016). To improve farmers' quality of work life, the government should perfect relative laws and policies to sweep away the institutional obstacles to farmers becoming urban residents, and firms should innovate their management systems to provide equal opportunities for farmers (RaoHuixia, 2012). Some other scholars explored the potential relationship between farmers' quality of work life and their future behaviors (Bravo-Olivas et al., 2015; Gosetti, 2017).

## Research on Entrepreneurship of Farmers

Research on entrepreneurship of farmers started in the 1990s when many farmers returned to their hometowns. Since then, Chinese scholars have conducted much fruitful research on farmers returning home to start their businesses. Such research focused on farmers' individual characteristics, constraining factors, and policy environment. Farmers having school-age children parents in need of caring are more likely to return home to start their businesses (Liu and Song, 2002). Young male farmers who are fairly well educated and have keen insights of the market demands constitute the major entrepreneurship force (Shi et al., 2010). Besides, factors such as working experience, working years, technical skills, marriage status, family financial situations, and cognition of risks are important individual factors affecting farmers returning home to start businesses. In reality, local economic development levels, financing difficulty, entrepreneurship education, and poor training on entrepreneurship are all factors constraining farmers to return home to start businesses (Hu, 2010; Liu and Lai, 2016). A perfect entrepreneurship environment is essential for farmers to return home to start businesses. At present, there are many environmental constraints for farmers to return home to start businesses. To facilitate farmers to return home to start businesses, it's important to create a good policy environment to provide policy support for them (Liang and Li, 2013). Meanwhile, efforts should be made to make policy information available and carry out the policies issued in an effective manner and to improve the policy service quality so as to guide and support farmers' entrepreneurship will (Hou and Ding, 2016).

## INVESTIGATED RESPONDENTS AND DATA ANALYSIS

### Investigated Respondents and Data Sources

Shandong, an agriculture province of China, has 24.2 million farmers, accounting for about 10% of the total farmers in China. In terms of geographical distribution, Shandong farmers are not evenly distributed. Farmers are densely populated in eastern Shandong while sparsely inhabited in western Shandong.

To make our research findings more telling, we selected farmers living in both eastern and western Shandong. We investigated entrepreneurship will and cognition of present quality of work life of farmers returning home to start businesses through interviews and questionnaires in January through March of 2017. We sent 560 questionnaires with 496 recycled. After deleting the ineffective questionnaires, we finally obtained 467 ones, accounting for 83.4% of the total questionnaires sent.

GEM2016-17 report shows that young people are the major entrepreneurship groups in China. Thus, our investigation focused on young farmers who are between 18 and 35 years old, representing 78.2% of the total respondents and the remaining 21.8% are over 35 years old. Among all of the respondents, male farmers account for 62.6%, married farmers including divorced and widowed for 72.6%, and farmers having finished their junior middle schools for 52.4% while those having finished their senior middle schools for 21.8%. Moreover, to have a better understanding of their entrepreneurship wills, we made a deep interview of those farmer workers having entrepreneurship wills in their hometowns.

The ethic regulation of conducting human subject research is at a premature stage in the researched economy. Thus, the researchers were not asked to send the research detail to a specific institution (IRB) for ethic approval, nor was it asked to gain written informed consent from questionnaire raters. This study has exempted from ethical approval in accordance to national guidelines. However, we have done every possible effort to maintain justice and rights of the researched subjects.

## Variable Selecting and Analysis Methods

International scholars usually adopt the binary variables (Yes/No that were assigned 1/0 as scores in this paper) to measure entrepreneurship will (Choo and Wong, 2006). Scholars have different understanding of quality of work life, and measuring indexes are also differentiated. However, in a broad sense, quality of work life generally involves working environment, job content, organizational management, and relationship between work and life. Quality of work life is composed of job dimension, organizational dimension, and social family and psychological dimension (Bravo-Olivas et al., 2015; Gosetti, 2017). Based on existing literature, it's feasible to measure quality of work life from the perspectives of job, organization, and family. Hence, we selected colleague relationship, superior relationship, working environment, job content, job incomes, spare-time life, and family demands as the measuring variables, each of which consists of three questions. The respondents are asked to assign a score to each question, and the average of the scores on the three questions forms the variable score, representing farmers' quality of work life level. Scores 1 through 5, respectively stand for very unsatisfactory, unsatisfactory, having no opinions, satisfactory, very satisfactory.

This paper aims to analyze the status quo of farmers' quality of work life. What's more important, it attempts to explore the relationship between farmers' quality of work life and their

entrepreneurship will. To test the relationship, we constructed a regression model in which farmers' entrepreneurship will is expressed as the dependent variable while quality of work life as the explanatory variable. As we adopted Yes and No to measure farmers' entrepreneurship will, we here selected the Logistic regression model, expressed as follows:

$$P_i = F(Z_i) = f(\alpha + \beta X_i + \delta) = \frac{1}{1 + e^{-Z_i}} = \frac{1}{1 + e^{-(\alpha + \beta X_i)}} \quad (1)$$

$$\ln \frac{1}{1 - P_i} = \alpha + \beta X_i + \delta \quad (2)$$

In the above formula,  $P_i$  stands for the probability of farmers' entrepreneurship will,  $F(Z_i)$  for the estimate function,  $\alpha$  for the constant term of the estimate function,  $X_i$  ( $i = 1, 2, \dots, 7$ ) for the  $i$ th explanatory variable,  $\beta$  for the coefficient to be estimated of the explanatory variable, and  $\delta$  for the error term.

## EMPIRICAL ANALYSIS

### Analysis of the Status Quo of New-Generation Farmers' Quality of Work Life

#### General Situations of New-Generation Farmers' Quality of Work Life

**Table 1** shows the scores for the seven variables of farmers' quality of work life. Colleague relationship got the highest score above the average satisfactory level, a finding probably due to the fact that most of farmers' colleagues are relatives and fellow-villagers, so they trust each other and have no conflicts of interest. Working environment and job content got scores between unsatisfactory and satisfactory levels, probably because farmers are usually engaged in mechanical routine jobs with repetitive job contents and long working time. Scores for superior relationship, job incomes, spare-time life, and family demands are between 3 and 4 at the satisfactory level with much room to be improved. In general, the average score for farmers' quality of work life is 3.18 at the having no opinion level, indicating a dilemma state.

#### Analysis of the Difference of Quality of Work Life Among Different Groups of New Generation Farmers

We made  $T$ -test and  $F$ -test to find if there are demographic differences among farmers' cognition of quality of work life. Our findings are shown in **Table 2**.

It follows from **Table 2** that gender affects farmers' cognition of their quality of work life. Except working environment, other six variables' differences reach the significance level. In terms of colleague relationship, superior relationship, and working environment, male farmers got higher scores than female farmers, suggesting that male farmers are better at dealing with interpersonal relations and more adaptive to the environment than female farmers, a finding consistent with existing conclusions. In terms of job incomes, spare-time life, and family demands, female farmers got higher scores than male



**TABLE 1** | Farmers' quality of work life level.

| Variable | Colleague relationship | Superior relationship | Working environment | Job content | Job incomes | Spare-time life | Family demands |
|----------|------------------------|-----------------------|---------------------|-------------|-------------|-----------------|----------------|
| Score    | 4.12                   | 3.22                  | 2.67                | 2.44        | 3.25        | 3.02            | 3.53           |

**TABLE 2** | Differences of farmers' quality of work life and demographic variables.

| Variables       | Demographic variable | Colleague relationship | Superior relationship | Working environment | Job content     | Job incomes     | Spare-time life | Family demands  |
|-----------------|----------------------|------------------------|-----------------------|---------------------|-----------------|-----------------|-----------------|-----------------|
| Gender          |                      | <i>T</i> -test*        | <i>T</i> -test*       | <i>T</i> -test      | <i>T</i> -test* | <i>T</i> -test* | <i>T</i> -test* | <i>T</i> -test* |
| Male            |                      | 4.35                   | 3.28                  | 2.62                | 2.56            | 2.89            | 2.79            | 3.46            |
| Female          |                      | 3.89                   | 3.16                  | 2.72                | 2.12            | 3.61            | 3.25            | 3.6             |
| Age             |                      | (1.89)                 | (3.01)*               | (4.38)**            | (4.32)**        | (5.12)***       | (4.46)**        | (4.06)**        |
| 18–25           |                      | 4.08                   | 3.01                  | 2.13                | 2.01            | 3.14            | 3.52            | 3.62            |
| 26–35           |                      | 4.11                   | 3.26                  | 2.31                | 2.12            | 2.89            | 3.23            | 2.86            |
| Above 35        |                      | 4.17                   | 2.31                  | 3.39                | 3.57            | 3.19            | 3.72            | 4.11            |
| Marriage status |                      | <i>T</i> -test         | <i>T</i> -test*       | <i>T</i> -test*     | <i>T</i> -test* | <i>T</i> -test* | <i>T</i> -test* | <i>T</i> -test* |
| Married         |                      | 4.14                   | 3.31                  | 2.75                | 2.51            | 2.95            | 2.76            | 2.88            |
| Single          |                      | 4.10                   | 3.13                  | 2.59                | 2.37            | 3.55            | 3.28            | 4.18            |
| Educational     |                      | (2.21)                 | (2.32)                | (7.38)***           | (8.24)***       | (4.26)*         | (6.11)**        | (4.06)*         |
| <junior school  |                      | 4.11                   | 3.11                  | 3.12                | 3.01            | 3.33            | 3.30            | 3.62            |
| Junior school   |                      | 4.12                   | 3.32                  | 2.99                | 2.89            | 3.21            | 2.98            | 3.51            |
| Senior school   |                      | 4.14                   | 3.20                  | 2.44                | 2.42            | 3.22            | 2.96            | 3.54            |
| > senior school |                      | 4.11                   | 3.25                  | 2.13                | 1.44            | 3.24            | 2.84            | 3.45            |

\*Represents that the inter-group difference reaches the significance level of 0.05; the value within the bracket is *F*-test value, \*\*\*represents that  $p < 0.001$ , \*\*represents that  $p < 0.01$ , and \*represents that  $p < 0.05$ .

farmers, a finding possibly caused by traditional Chinese local culture that husband is responsible for earning money to support the family while wife mainly does housework and takes care of children.

Age affects farmers' cognition of their quality of work life. Except colleague relationship, other six variables' inter-group differences reach the significance level. The older, the better farmers know about superior relationship, working environment, and job content, indicating that farmers come to be used to the environment where they work though reluctantly over time. In terms of job incomes and family demands, farmers 26 through 35 years old have the lowest cognition level, because most of them were married and need more material incomes and time to take care of their children and family. Farmers' cognition of spare-time life declines as they grow older, a finding possibly due to the fact that they are in nature lively and active.

Marriage status is also an important factor affecting farmers' cognition of their quality of work life. Married farmers got higher scores than those unmarried in colleague relationship, but the difference do not reach the significance level. The difference in other six variables reaches the significance level. Married farmers got higher scores in superior relationship, working environment, and job content but lower scores in job incomes, spare-time life, and family demands than those unmarried, a finding possibly due to the fact that married farmers have rich life experiences, so they can analyze and

understand what they have seen, heard, and met in a rational manner; meanwhile they need more money to meet their family demands, so they have to work hard at the expense of their spare time.

Educational background is another important factor affecting farmers' cognition of their quality of work life. Except colleague relationship and superior relationship, other five variables reach the significance level. Those farmers below junior middle school have the highest cognition level of their quality of work life. Especially in working environment and job content, the higher the educational background, the lower the cognition level, possibly because farmers with a lower educational background have lower expectations and are thus better to be satisfied than those with a higher educational background. What's worthwhile to be noted, farmers below junior middle school have the highest cognition level of spare-time life, whereas those above senior middle school have the lowest cognition level, and those with junior-middle-school and senior-middle-school backgrounds are just the above two groups. According to the interview results, farmers, male in particular, below senior middle school have lower needs of spare-time life, and they mainly center on daily life such as fellow villager gathering and entertainment such as playing cards or mahjong, whereas those with higher educational backgrounds have higher spiritual needs which are difficult to be met under heavy working pressure, thus their cognition level of the present state is lowered.

## Analysis of the Effects of New-Generation Farmers' Cognition of Quality of Work Life on Their Entrepreneurship Will

To test the effects of new-generation farmers' cognition of quality of work life on their entrepreneurship will, we made a binary regression analysis adopting SPSS20.0 according to the above formula. According to prior conclusions, the demographic variable may affect farmers' entrepreneurship will, so it was taken as a control variable to prevent deviation of the research findings during the regression analysis. Values of Cox & Snell  $R^2$  and Nagelkerke  $R^2$  are respectively 0.379 and 0.413, the fitting effect being good as shown in **Table 3**. The regression results show that farmers' cognition of quality of work life significantly affects their entrepreneurship will. Specifically speaking, the regression coefficient of colleague relationship is 5% and positive, indicating that colleague relationship has a positive correlation to entrepreneurship will, i.e., the better the colleague relationship, the stronger the entrepreneurship will. Our interview results also demonstrate that part of the respondents' entrepreneurship will positively be affected by their colleagues and fellow villagers, and farmers with similar entrepreneurship wills are closer to each other trust each other more than those without similar entrepreneurship wills do. The regression coefficient of superior relationship is also 5% but negative, denoting that superior relationship has a negative correlation to entrepreneurship will, i.e., the poorer the farmers' relationship with their superiors, the stronger the farmers' entrepreneurship will in their hometowns. Our interview results show that poor superior relationship is not the major reason but a blasting fuse for farmers' entrepreneurship will, as they think they will also return home to start their businesses even if they have a good relationship with their superiors.

In terms of the job itself, the regression coefficient of job content is 10%, whereas the regression coefficient of working environment is insignificant yet negative, indicating that farmers' being unsatisfied with the job content is one of the factors pushing

them back home to start businesses and that farmers care more about job content than working environment. In recent years, the government has promulgated some policies aiming to protect farmers' interests, so farmers' working environments become better than ever before. On the other hand, as the national free education becomes popular, farmers are better educated and have greater demands correspondingly. Meanwhile, as the government invests more in agriculture, rural areas, and farmers, farmers' incomes have increased dramatically. Thus, most of farmers do not consider job incomes as their first demand any more. Instead, they care more about the job significance and their own interests.

Entrepreneurship needs capital inputs. Lack of capital is an obstacle to farmers' starting businesses, so better job incomes may push farmers back home to start their businesses. The regression results show that the regression coefficient of job incomes is 10% and positive, indicating that the better the job incomes, the stronger the farmers' entrepreneurship will. Further interview shows that better job incomes help to resolve farmers' problem of capital shortage in the early stage of their entrepreneurship as well as relieve their family financial difficulties once they fail in entrepreneurship. Part of the respondents maintain that starting businesses in hometown is not only a personal issue but also a behavior which can bring glory on their ancestors and improve their family's position and reputation in their hometowns. The regression coefficient of spare-time life is also 10% but negative, indicating that spare-time life has a negative correlation to entrepreneurship will, possibly because rich spare-time life needs steady incomes, but entrepreneurship faces great uncertainties.

The regression coefficient of family demands is 1% but negative, suggesting that family demands have the greatest effect on farmers' entrepreneurship will. Family demands here mean educating children and taking care of old parents, so farmers having children left at home and old parents waiting to care about are more likely to return home to start businesses. In general, entrepreneurship needs energy and time inputs. Even if farmers starting businesses in their hometown do not have enough time to take care of their family, they can meet their family members' emotional demands in case of emergency, and this might be

**TABLE 3 |** Regression model of Entrepreneurship will of farmers returning home to start businesses.

| Independent variables  | Regression coefficient | S.E.  | Wald   | Significance level |
|------------------------|------------------------|-------|--------|--------------------|
| Colleague relationship | 0.325**                | 0.207 | 6.781  | 0.029              |
| Superior relationship  | -0.378**               | 0.217 | 7.016  | 0.032              |
| Working environment    | -0.112                 | 0.103 | 0.992  | 0.177              |
| Job content            | -0.231*                | 0.187 | 4.997  | 0.068              |
| Job incomes            | 0.248*                 | 0.221 | 5.577  | 0.076              |
| Spare-time life        | -0.251*                | 0.167 | 5.975  | 0.079              |
| Family demands         | -0.467***              | 0.374 | 9.172  | 0.000              |
| Constant item          | 3.152***               | 1.971 | 37.267 | 0.000              |
| No. of samples         |                        | 467   |        |                    |
| Nagelkerke $R^2$       |                        | 0.413 |        |                    |
| Cox & Snell $R^2$      |                        | 0.379 |        |                    |
| Overall Percentage     |                        | 91.2% |        |                    |

\*\*\*, \*\*, \* respectively represents that it is significant at 1, 5, and 10%.

the most important reason for farmers to return home to start businesses.

## CONCLUSION AND SUGGESTIONS

At present, young adult farmers have become the major force of returning-home entrepreneurship. The results presented in this study is a good reference for the steady development of the rural areas. In general, the major motivation for young adult farmers to return home and start businesses stemmed from external stimulus and internal demands. To encourage farmers to return home to start businesses, efforts should be made to stimulate their entrepreneurship will and enthusiasm and improve their quality of work life.

Furthermore, farmers' starting new ventures should constantly optimize their organizational management and improve the interpersonal relationship. A harmonious interpersonal relationship within the organization helps to improve farmers' commitments to the organization, better understand their occupational expectations, get ready for possible vacant positions in advance, and reduce the potential resultant organizational losses. Our empirical analysis shows that farmers have a low cognition of the superior relationship, which in turn affects their quality of work life. Thus, managers should constantly optimize the internal organizational management systems and create harmonious interpersonal relations to enhance the overall organizational performance and facilitate potential entrepreneurs to return home to start businesses.

As for entrepreneurship stimulus, the government should take practical measures to stimulate and support farmers to start businesses at their hometown. Besides, the government should also provide information, technical training, and policy guidance on entrepreneurship for farmers to prevent them from starting businesses in an aimless way. Moreover, the government should also endeavor to perfect policies on capital support, favorable taxation, and medical care to improve farmers' entrepreneurship expectations and in turn intensify their entrepreneurship will.

As for internal entrepreneurship demands, efforts should be made to create a multi-level educational and training system to stimulate farmers' internal entrepreneurship will. Our findings

show that current farmers have a low cognition level of entrepreneurship and active entrepreneurship based on internal motive is rare. Thus, efforts should be made to create a multi-level educational and training system to improve farmers' cognition level of entrepreneurship and inspire their internal entrepreneurship will to transfer the passive idea of "I am wanted to start business" to an active idea of "I want to start business."

## DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

## ETHICS STATEMENT

An ethics approval was not required as per applicable institutional and national guidelines and regulations. The informed consent of the participants was implied through survey completion.

## AUTHOR CONTRIBUTIONS

F-ZK led the project and wrote for the Introduction and Literature Review. LZ and X-BZ collected the data and conducted analysis, and worked with C-HT and DL to write up the Results and Discussions, and Conclusion sections.

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# Intrapreneurial Self-Capital: A Primary Preventive Resource for Twenty-First Century Entrepreneurial Contexts

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This article discusses the role of intrapreneurial self-capital (ISC) as a possible primary preventive resource to effectively deal with the complexity of the current entrepreneurial environment. The article deepens both the similarities and differences between ISC and psychological capital and thus proceeds to present the most recent empirical evidence that connects ISC to (1) employability and career decision making, (2) innovative behavior, and (3) well-being. The possibilities for further research and interventions are additionally discussed.

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## INTRODUCTION

Due to globalization and rapid economic changes, the current labor market is becoming a more unpredictable and challenging environment (Savickas, 2011; Blustein et al., 2018). In the framework defined by Industry 4.0 (Palazzeschi et al., 2018) and by the newborn Industry 5.0 (Özdemir and Hekim, 2018), the psychological aspects of human capital (Luthans et al., 2006) are fundamental for competing in the global market in terms of healthy business (De Smet et al., 2007; Raya and Panneerselvam, 2013; Grawitch and Ballard, 2015; Di Fabio, 2017a) as well as for achieving twenty-first-century sustainability challenges (United Nations, 2018). Modern workers must engage in continuous learning processes, develop flexibility, and create their own opportunities within and outside their organizations (i.e., intrapreneurship and entrepreneurship, respectively) in order to successfully adapt to global economic and technological changes (Standing, 2014; Di Fabio and Gori, 2016b). Since coping with change is often very demanding for certain individuals (Wanberg and Banas, 2000), primary prevention is crucial for building individuals' strengths and resources as well as reducing risks (Hage et al., 2007; Kenny and Hage, 2009; Di Fabio and Kenny, 2016b) to preserve workers' well-being and strengthen healthy businesses (De Smet et al., 2007; Raya and Panneerselvam, 2013; Grawitch and Ballard, 2015; Di Fabio, 2017a). Indeed, individuals who manage to perceive and experience change as opportunities to grow are more likely to respond positively to postmodern society's demands (Wanberg and Banas, 2000; van den Heuvel et al., 2013). From this framework, the new construct of intrapreneurial self-capital (ISC) has been developed (Di Fabio, 2014). The aim of the article is to offer a review of the most recent empirical evidence that connects ISC to (1) employability and career decision making, (2) innovative behavior, and (3) well-being, also discussing possibilities for further research and interventions in a primary prevention perspective.



## INTRAPRENEURIAL SELF-CAPITAL CONSTRUCT

ISC refers to a career and life construct, a measurement scale (Di Fabio, 2014), and an intervention typology (i.e., specific training to build and improve the construct) (Di Fabio and Van Esbroeck, 2016). ISC is defined as the positive self-evaluation of the self-concept characterized by one's own ability to be committed, to identify significant objectives, to feel in control over life events, to creatively solve problems, to change constraints into resources, to develop one's own skills, to apply decision-making skills to every aspect of life, and to make decisions carefully, vigilantly, and adaptively (Di Fabio, 2014). Basing on the previous literature concerning intrapreneurship, ISC has been conceived as a higher-order construct (i.e., a core of individual resources) that includes seven first-order constructs: *core self-evaluation*, *hardiness*, *creative self-efficacy*, *resilience*, *goal mastery*, *decisiveness*, and *vigilance*. **Table 1** illustrates the definition and reference literature of each first-order construct.

The scale developed to measure the ISC construct consists of 28 items measured *via* a 5-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). The ISC scale items were selected starting from a pool of items adapted from existing and relevant scales:

- The Core Self-Evaluation scale (Judge et al., 2003).
- The Hardiness Scale (Bartone, 1995).
- The Creative Self-Efficacy (Tierney and Farmer, 2002).
- The Connor-Davidson Resilience Scale (Campbell-Sills et al., 2006).
- The Goal Mastery Orientation Scale of the Patterns for Adaptive Learning Survey (Midgley et al., 2000).
- The Indecisiveness Scale (Frost and Shows, 1993).
- The Melbourne Decision Making Questionnaire (Mann et al., 1997).

The pool was statistically tested and the items that best fitted each ISC's dimension were chosen to compose the final version of the ISC measurement. Below are presented some item examples coming from the final version of the ISC scale: "Sometimes when I fail, I feel worthless" (Core Self-Evaluation), "Planning in advance can help avoid most future problems" (Hardiness), "I'm able to solve problems creatively" (Creative Self-Efficacy), "I'm able to achieve objectives despite obstacles" (Resilience), "One of my goals in training is to learn as much as I can" (Goal Mastery), "It's simple for me to decide" (Decisiveness), "When I must to take a decision, I like to stop and consider all possible options" (Vigilance).

## ARTICLE METHODOLOGY

We adopted an adapted version of the systematic qualitative review approach (Higgins and Green, 2011) to select which sources involving ISC are discussed in our article. First, we asked to academic information specialists to search for

**TABLE 1** | Definition and reference literature for each ISC first-order construct.

| First-order construct  | Definition  | Reference literature        |
|------------------------|---|-----------------------------|
| Core Self-Evaluation   | A positive self-concept in terms of self-esteem, self-efficacy, locus of control, and the absence of pessimism.   | Judge et al., 2003          |
| Hardiness              | Individual's beliefs about the self, the world, and how one should remain connected with this world using three dimensions: commitment, control, and challenge.     | Maddi, 1990; Bartone, 1995  |
| Creative Self-Efficacy | One's perception of one's own ability to creatively solve problems, including the perception of one's own problem-solving skills and ability to generate new ideas. | Tierney and Farmer, 2002    |
| Resilience             | The perceived ability to cope with adversity in an adaptive way and use adaptive strategies to deal with discomfort and/or adversity.                               | Campbell-Sills et al., 2006 |
| Goal Mastery           | The continuous development of skills and attainment of the highest possible level of performance.   | Midgley et al., 2000        |
| Decisiveness           | The perceived ability to make decisions in a timely manner in any life context.   | Frost and Shows, 1993       |
| Vigilance              | The adaptive decision-making style defined as a careful and adaptive search for relevant information to evaluate options before making a decision.                  | Mann et al., 1997           |

*The scale developed to measure the ISC construct has a reliability (i.e., Cronbach's alpha) of 0.86 and indicates appropriate and adequate dimensionality indices [ $\chi^2/df = 1.43$ ; Tucker Lewis index or non-normed fit index (NNFI) = 0.90; comparative fit index (CFI) = 0.90; root mean square error of approximation (RMSEA) = 0.05; standardized root mean square residual (SRMR) = 0.04] (Di Fabio, 2014).*

ISC scientific studies encompassing international books, articles, reference works, and conference papers. The specialists conducted their research using EBSCOhost platform and consulting the databases of PsycInfo, PsycArticles, PubMed, Science Direct, Sociological Abstracts, and Academic Search complete. The authors also contributed to the search undergoing a simultaneous check on Google and Google Scholar to improve the chances of identifying the widest range of sources possible. Finally, the authors also inserted in their list all the scientific works that cited the article in which ISC construct has been presented for the first time (Di Fabio, 2014) using Web of Science, Scopus, and Google

Scholar tracking system. The sources coming from academic information specialists and authors have been merged in a single dataset and the duplicate sources were removed. At this stage, the sources' appropriateness were examined and full-text required. For our purposes, we decide to include only peer-reviewed sources in which ISC was discussed or empirically tested along with constructs and measures meaningfully related to work and entrepreneurial research field (e.g., employability, innovation, and well-being). We included only sources written in Italian or English and published between 2014 and January 2019.

## INTRAPRENEURIAL SELF-CAPITAL AND PSYCHOLOGICAL CAPITAL

Albeit similar and partially overlapping, psychological capital (Luthans et al., 2006) and ISC are two different constructs. ISC refers to a personal wealth in terms of characteristics, abilities, attitudes, and specific skills. This core of resources forms individuals' selves and promotes an effective management of personal and professional life (Di Fabio and Van Esbroeck, 2016). Psychological capital (PsyCap) is instead an individual's psychological state characterized by positive psychological resources of efficacy, hope, optimism, and resilience that contribute to the development of the self—including not only who one actually is but also who one may become in the future. Both constructs do share some aspects; for instance, the common features between PsyCap and ISC are the individual's confidence in his or her own ability to complete an assigned task as well as his or her openness to the future. Moreover, the perception of having enough motivation and energy to optimally plan and realize projects is another shared aspect between ISC and PsyCap. However, it is possible to distinguish between ISC and PsyCap on a theoretical basis, as ISC includes aspects not represented in PsyCap: (1) the careful and adaptive research of the different information available for decision making; (2) the exploration of diversified situations and contexts as opportunities for growth and continuous learning; and (3) the identification of medium- and long-term objectives (Bucci and Di Fabio, 2017). Meanwhile, PsyCap is distinguished by the possibilities: (4) in the present, to experience future paths and outcomes by means of optimistic prefiguration; and (5) to internalize positive elements of the present experiences to nurture a positive vision useful for alternative action strategies in response to contextual stimuli (Bucci and Di Fabio, 2017).

Empirically, the two constructs indicate a strong and positive relationship among both university students and workers: Pearson's  $r$  ranged from 0.43 to 0.59 among university students and 0.44 to 0.60 among workers (Bucci and Di Fabio, 2017). Nevertheless, the magnitude of the relationship indicates that, despite ISC and PsyCap belonging to the positive preventive perspective framework (Hage et al., 2007; Kenny and Hage, 2009; Di Fabio and Kenny, 2016a,b; Di Fabio, 2017a), the two constructs differ from each other (Bucci and Di Fabio, 2017).

## INTRAPRENEURIAL SELF-CAPITAL, EMPLOYABILITY, AND CAREER SELF-EFFICACY

Employability is a valuable, individual resource on which individuals can rely to face the current world of work (Di Fabio and Kenny, 2015; Blustein et al., 2018). Several definitions of employability have been produced by employability scholars (Hillage et al., 1998; Fugate et al., 2004; van Dam, 2004; Van Der Heijde and Van Der Heijden, 2006; Rothwell and Arnold, 2007; Fugate and Kinicki, 2008; De Cuyper and De Witte, 2011).

More recently, the concept of sustainable employability has been introduced (van der Klink et al., 2016). Sustainable employability emphasizes the role of the work context in providing workers with new skills and capabilities throughout their working lives. In any case, to increase their employability and thus positively adapt to the labor market, prospective workers should improve their individual resources and qualifications (Di Fabio, 2017a). For this reason, ISC has been studied in relation to employability because, on a theoretical basis, ISC may be considered a possible driver to enhance individuals' employability. Table 2 summarizes the results originating from correlational studies that account for ISC and employability.

Despite their presenting of different Pearson's  $r$  correlation coefficients that may be understood in terms of the relationships among two different measures of employability, a positive relationship between ISC and employability emerged in both studies. The ISC appeared to be related to a greater perception of employability. In other words, individuals who have a higher ISC seem more likely to possess personal resources capable of facilitating the identification and achievement of professional opportunities. The different linear relationship strength between ISC and employability expressed through Pearson's  $r$  can be due to the different targets for which the two measures of employability have been built, considering the differences between the two constructs of employability. Indeed, the Self-Perceived Employability scale (Rothwell et al., 2008) is intended to

**TABLE 2 |** Correlations between ISC and employability.

|               | Di Fabio (2014)                                      |               | Di Fabio et al. (2019)  |               |
|---------------|--|---------------|---|---------------|
|               | Measured with  | Pearson's $r$ | Measured with   | Pearson's $r$ |
| Employability | Self-Perceived Employability (Rothwell et al., 2008) | 0.36          | Dispositional Measure of Employability (Fugate and Kinicki, 2008) | 0.63          |

*This table refers to ISC relationships with two different measures of employability, one developed and administered to students (left) and the other one dedicated to adult workers (right). The first measure (left) encompasses students' beliefs of their future employability, while the second one (right) investigates five employability's dimensions of adult workers (i.e., work and career resilience, openness to changes at work, work and career proactivity, career motivation, and work identity).*

investigate students' beliefs related to employability, while the Dispositional Measure of Employability (Fugate and Kinicki, 2008) encompasses work and career resilience, openness to changes at work, work and career proactivity, career motivation, and work identity of adult workers.

Another construct that is crucial in helping individuals develop protective factors capable of decreasing the probability of careers' undesirable outcomes is career decision-making self-efficacy (CDMSE) (Di Fabio et al., 2013). CDMSE has been defined as the level of confidence individuals have in their ability to successfully perform and accomplish tasks during their career decision-making processes (e.g., gathering occupational information, selecting goals, and making plans for the future) (Betz et al., 1996; Betz and Luzzo, 1996; Paulsen and Betz, 2004). The relationship between CDMSE and ISC has been empirically explored (Table 3) among both university students (Di Fabio, 2014) and workers (Di Fabio et al., 2019).

As we may gather from Table 3, the ISC was associated with individuals' greater perceptions of being capable of making decisions regarding their own careers. In this sense, ISC seems capable of promoting workers' decision-making self-efficacy using a positive primary preventive perspective.

## INTRAPRENEURIAL SELF-CAPITAL AND INNOVATIVE BEHAVIOR

The psychological aspects of innovation are particularly important for organizations' success (García-Goñi et al., 2007; Anderson et al., 2014). Organizations try to respond to the uncertainty of the twenty-first century's labor market through innovation. Traditionally, the scientific literature conceived innovative work behavior as "the intentional introduction and application within a role, group or organization of ideas, processes, products, or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization, or wider society" (West and Farr, 1990). Intrapreneurs frequently generate and implement new ideas within their organizations even in unfavorable situations (e.g., when facing organizational change and/or conflict) (Pinchot and Pellman, 1999). In this sense, ISC appears to be strongly related to innovative behavior because it includes individuals' capabilities of coping with

work-related issues through innovative solutions (Di Fabio et al., 2017). Recently, the relationship between ISC and innovative behavior has been empirically tested (Duradoni and Di Fabio, 2019). ISC exhibited a positive linear relationship with innovative behavior (Pearson's  $r = 0.54$ ) measured through the Innovative Behavior Inventory (Lukes and Stephan, 2016). Moreover, higher ISC scores appeared to be related to an increased level of individuals' abilities to implement innovation (Pearson's  $r = 0.32$ ). Overall, ISC seems reasonably capable of increasing workers' innovative behaviors.

## INTRAPRENEURIAL SELF-CAPITAL AND WELL-BEING

Traditionally, the multi-dimensional construct of well-being (Diener, 2003) has been distinguished by positive psychology scholars (Seligman and Csikszentmihalyi, 2000) using two main aspects: hedonic well-being (HWB) and eudaimonic well-being (EWB) (Ryan and Deci, 2001; Ryff and Singer, 2008; Waterman et al., 2010). HWB is characterized by a cognitive evaluation component (i.e., satisfaction with life) (Diener et al., 1985) and an affective evaluation component (i.e., the prevalence of positive emotions over negative emotions) (Watson et al., 1988), whereas EWB is rather defined in terms of optimal functioning and self-realization (e.g., meaning in life) (Vázquez et al., 2006; Ryff and Singer, 2008). Within the EWB framework, flourishing has received growing attention; this aspect includes purpose in life, positive relationships, engagement, competence, self-esteem, optimism, and contribution toward the well-being of others (Diener et al., 2010; Seligman, 2012; Huppert and So, 2013).

The scientific literature suggests that individual and relational resources are crucial for accessing decent work and maintaining well-being when faced with the new and everchanging world of work (Di Fabio and Kenny, 2016a, 2018). Since ISC is defined in terms of a core of individual intrapreneurial resources, its relationships with both HWB and EWB have been empirically explored. Table 4 illustrates a summary of the results from recent empirical studies concerning ISC in regard to EWB and HWB.

Higher HWB scores on ISC resources were associated with higher levels of positive affect and global life satisfaction as well as lower negative affect. ISC also resulted in being strongly

**TABLE 3 |** Correlations between ISC and CDMSE.

|       | Di Fabio (2014)   |               | Di Fabio et al. (2019)  |               |
|-------|---|---------------|---|---------------|
|       | Measured with   | Pearson's $r$ | Measured with   | Pearson's $r$ |
| CDMSE | Career Decision Self-Efficacy Scale Short Form (Betz et al., 1996; Betz and Taylor, 2000) | 0.46          | Career Decision Self-Efficacy Scale Short Form (Betz et al., 1996; Betz and Taylor, 2000) | 0.58          |

**TABLE 4 |** Study results considering ISC in regard to HWB and EWB.

| Correlation with ISC  |                   |                           |                        |                           |
|-----------------------|-------------------|---------------------------|------------------------|---------------------------|
|                       |                   | Di Fabio and Gori (2016c) | Di Fabio et al. (2017) | Di Fabio and Kenny (2018) |
| Hedonic well-being    | Life satisfaction | n/a                       | $r = 0.44$             | $r = 0.60$                |
|                       | Positive affect   | n/a                       | n/a                    | $r = 0.61$                |
|                       | Negative affect   | n/a                       | n/a                    | $r = -0.50$               |
| Eudaimonic well-being | Meaning in life   | n/a                       | n/a                    | $r = 0.69$                |
|                       | Flourishing       | $r = 0.68$                | $r = 0.52$             | $r = 0.70$                |

n/a, not available (i.e., the measure was not considered in the study).

and positively associated with EWB. Therefore, these recent works suggest that an increase and building up of intrapreneurial resources (i.e., ISC) may be useful in helping individuals achieve and maintain well-being when facing the rapid changes related to our post-modern era (Blustein et al., 2018; Özdemir and Hekim, 2018).

## INTRAPRENEURIAL SELF-CAPITAL AS A CORE OF PREVENTION RESOURCES

Historically, prevention has been articulated with three components (Caplan, 1964): primary prevention—i.e., avoiding the emergence of a problem before it begins; secondary prevention—i.e., intervening when first symptoms emerge; and tertiary prevention—i.e., reducing the impact of a problem. The contemporary prevention approach (Hage et al., 2007; Kenny and Hage, 2009) is focused on both reducing risks and building strengths among individuals (e.g., promoting individual resources) (Di Fabio and Saklofske, 2014) as well as within organizations (Hage et al., 2007; Di Fabio, 2017b). Nowadays, the development and increase of specific workers' strengths are priorities meant to avoid detrimental effects on organizations and workers mainly due to the new entrepreneurial context in which we live, which is characterized by continuous changes and a high degree of uncertainty. Entrepreneurs must continuously face and successfully respond to the challenges inherent to our contemporary entrepreneurial environment (Di Fabio and Gori, 2016b; Özdemir and Hekim, 2018; Palazzeschi et al., 2018). Enhancing innovation and adaptation for changing environments (Renko et al., 2015; Di Fabio et al., 2016) is crucial for successful entrepreneurial behaviors. Nevertheless, it is no longer possible to consider entrepreneurship as a feature detached from other aspects that contribute to shape and define concrete success (Di Fabio et al., 2016) in a liquid and accelerating society, such as our current post-modern society (Bauman, 2000; Rosa, 2015). For instance, the High Entrepreneurship, Leadership, and Professionalism model (HELP) presents entrepreneurship, leadership, and professionalism as integrated, fundamental, and necessary aspects to help workers achieve success in the turbulent twenty-first-century labor market (Di Fabio et al., 2016).

It follows that a primary prevention resource such as ISC, which exhibited positive relationships with innovative behavior, employability, and well-being, is crucial in this new entrepreneurial environment of the twenty-first century. ISC, as a core of individual intrapreneurial and preventive resources, appears to be a primary and vital strength for adaptively dealing with changes and thus increasing the likelihood of successful entrepreneurial behaviors as well as concretely contributing to building healthy businesses (De Smet et al., 2007; Raya and Panneerselvam, 2013; Grawitch and Ballard, 2015; Di Fabio, 2017a).

## CONCLUSION

The primary prevention approach (Kenny and Hage, 2009) and the psychology of sustainability and sustainable development

(Di Fabio, 2017a,b; Di Fabio and Rosen, 2018) benefit from constructs that are likely to be affected by interventions. For instance, personality traits are intrinsic psychological features that slightly change over time and are traditionally considered by literature as being stable (Costa and McCrae, 1992). On the contrary, in regard to the psychological aspects on human capital that emerged in studies subject to modifications (Luthans and Youssef-Morgan, 2017), ISC is an increasable resource (McIlveen and Fabio, 2018). Thus, ISC may potentially introduce new and precious psychological resources to more adaptively handle the changes inherent to our century (Di Fabio and Kenny, 2018). In terms of a primary prevention framework, intervention to enhance ISC could allow to reinforce key aspects in relation to the liquid entrepreneurial environment of the twenty-first century in different targets in a lifelong perspective. ISC could also be applied by practitioners in a career counseling and/or coaching context as well as in other applied contexts. The potentially usefulness of the ISC scale for practitioners working in guidance, career counseling, career planning, life construction, human resources, and organizational development and management is related to the following considerations. People who will receive help in strengthening a set of preventive individual resources as an intrapreneurial core could have more opportunities for handling and succeeding in a constantly changing labor market. Furthermore, an intrapreneurial core could be very important to design one's own future, to share one's own opportunities, to improve adaptability skills, to reinforce employability and proactivity, and to construct and manage one's self, identity, and life (Guichard, 2005; Savickas, 2011). Underlining the value of personal intrapreneurship as a primary preventive resource, ISC is also a key resource for flexibly, adaptively, and proactively build one's own personal and professional development path, enhancing their individual potentialities and talents (Kenny and Hage, 2009; Blustein, 2011). On one side ISC provides career counselors as well coaches with a construct, a scale and an intervention able to inspire and detect a core of primary resources for individuals and workers. On the other side, ISC is promising as a mean to prevent potential career problems instead of focusing on remediation. The new construct calls for early intervention to promote intrapreneurship at school, at the college, in the early transitions to the labor market, in career services but also at organizational and community level, in particular considering entrepreneurial contexts. ISC could be suitable in terms of primary prevention perspective for enhancing people's early entrepreneurial intentions and possible success of their start-ups (Baluku et al., 2016) as well as in terms of primary and secondary prevention during the construction of the entrepreneurial success.

Nevertheless, a large number of the ISC-related studies present in the literature are correlational. Correlational findings do not offer evidence of causality; thus, longitudinal studies are recommended for assessing change over time and determining the degree of ISC's and ISC intervention's impact on the four main areas outlined in this perspective article: (1) employability, (2) career decision making, (3) innovative behavior, and (4) well-being.



Future research should consider additionally possible relationships between ISC and other constructs. For instance, workplace relational civility (Di Fabio and Gori, 2016a) may potentially sustain and amplify the impact of ISC interventions (e.g., establishing a work climate more suitable to face change). Moreover, leadership's (Di Fabio and Peiró, 2018) (e.g., human capital sustainability leadership) influence on workers' ISC should be explored, and finally, the possibility to intervene on ISC by means of dedicated web-based training must be tested (Luthans et al., 2008).

Overall, although different, both ISC and PsyCap appear useful for affecting workers' behaviors and well-being (Avey et al., 2011; Youssef-Morgan and Luthans, 2015; Saks and Gruman, 2017). However, it is crucial that individuals remain aware of the differences between the two constructs. For this reason, one of this article's aims was to both disambiguate the two constructs by underlining the similarities and differences between them (Bucci and Di Fabio, 2017) and provide scholars and practitioners with useful scientific evidence regarding ISC.

ISC contributes to both HWB and EWB (Di Fabio and Kenny, 2018) as well as other aspects of career development,

such as career self-efficacy, career decision making, employability (Di Fabio, 2014; Di Fabio et al., 2019), and innovative behavior (Duradoni and Di Fabio, 2019). Since the entrepreneurial environment is inescapably tied to important, individual psychological needs (i.e., identity, meaning, and personal connection) (Blustein, 2013), the uncertainty and instability ingrained in the current world of work may threaten individuals' well-being in the workplace (Grawitch and Ballard, 2015; Di Fabio, 2017a; Di Fabio and Kenny, 2018; Duradoni et al., 2018; Giorgi et al., 2019). To successfully handle the current entrepreneurial environment, a broad array of psychological resources and new skills are required. In this sense, ISC may potentially and broadly affect entrepreneurial contexts as a primary preventive resource for building a healthy business that allows individuals to positively cope with threats and challenges inherent to the new, ever-evolving work era.

## AUTHOR CONTRIBUTIONS

AD and MD ideated the structure, analyzed the literature, and wrote the manuscript.

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# Do Entrepreneurs' Developmental Job Challenges Enhance Venture Performance in Emerging Industries? A Mediated Moderation Model of Entrepreneurial Action Learning and Entrepreneurial Experience

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Drawing on work experience theory and human capital theory, we developed a model of how developmental job challenges (DJC) enhance venture performance. Specifically, we developed and tested a mediated moderation model of DJC linking entrepreneurial action learning (EAL), entrepreneurial experience and venture performance. Based on a sample of Chinese entrepreneurs in emerging industries, we demonstrated that the developmental quality of entrepreneurial tasks had a positive relationship with venture performance and that this relationship was mediated by EAL. Furthermore, we found that entrepreneurs with prior entrepreneurial experience were more likely to engage in EAL behaviors and achieved better venture performance.

**Keywords:** developmental job challenges, entrepreneurial experience, entrepreneurial action learning, venture performance, mediated moderation model

## INTRODUCTION

It is increasingly acknowledged that new ventures suffer a great deal in emerging industries (Dinlersoz and MacDonald, 2009; Forbes and Kirsch, 2011), as the context exposes them to high uncertainty, many challenges and few imitations (Forbes and Kirsch, 2011). Entrepreneurs must learn to quickly adapt to rapid changes, deal with diverse and major responsibilities, perform multiple roles, and resolve complex problems. It is well accepted that entrepreneurs learn from experience (Cope and Watts, 2000; Cope, 2011; Keith et al., 2016; Lafontaine and Shaw, 2016). Increasing research has proposed that entrepreneurial experience is important for the development of ventures (Ucbasaran et al., 2009; Cope, 2011). However, empirical research has given inconsistent results (Ucbasaran et al., 2009; Grégoire et al., 2010).

Prior research has enhanced our understanding of the importance of entrepreneurial experience, and there are some limitations. First, the majority of the studies have focused on the static stock of experience (Cope, 2005; Grégoire et al., 2010), neglecting the dynamic effects of job assignments. Second, researchers are mainly examining quantitative types of experience, such as the number of prior entrepreneurial experiences (Forbes, 2005) or the types of functional experiences (Dimov, 2009), which lead to inconsistent results. According to work experience theory

(Tesluk and Jacobs, 1998), the quantitative component of work experience does not directly relate to complex (inconsistent) tasks. Third, the research so far has examined either the quantitative form of entrepreneurial experience (Ucbasaran et al., 2009) or the on-the-job experience (Keith et al., 2016) but not both in the same study. It is important to take an integrative perspective to better understand the mechanisms that underlie the relationship between entrepreneurial experience and venture performance.

Drawing on work experience theory (Tesluk and Jacobs, 1998) and human capital theory (Becker, 1964), we sought to propose and test a model of how developmental job challenges (DJC) affect the performance of new ventures in a sample of entrepreneurs from emerging industries in China. We conceptualized the entrepreneurs' experience not only in quantitative terms, such as the number of start-ups they had begun or the number of years of functional job experience they had, but also in the developmental quality of the entrepreneurial tasks. We defined DJC as the extent to which start-up activities had developmental components that challenged and improved an entrepreneur's skills and knowledge. We first developed and tested a mediation model linking DJC to entrepreneurial action learning (EAL) and venture performance. Then, we examined the moderating role of prior entrepreneurial experience in the mediation relationship.

The research makes three important contributions to extending a theory of entrepreneurial experience. First, the research extends existing understanding of entrepreneurial experience. We go beyond the traditional approaches of conceptualizing entrepreneur's experience in terms of quantitative stock-like prior experience to the developmental quality of the entrepreneurial tasks. Second, the research advances our understanding of the impact of the interaction between quantitative and qualitative components of an entrepreneur's experience. We did so by examining an integrated model of entrepreneurial experience by utilizing the work experience theory. The research not only examines the outcomes of the developmental quality of entrepreneurs' on-the-job experience but also empirically analyzes the influence of its interaction with a quantitative component of entrepreneurial experience. Third, it extends research on DJC not only to entrepreneurs in the emerging industry but also to a non-Western cultural context, China. Given that the entry of new ventures is more common than that of mature firms in China's emerging industries but with a higher failure rate (Dinlersoz and MacMillan, 2009; Forbes and Kirsch, 2011), it is important to help new ventures better perceive the developmental component of on-the-job experience and take more effective learning behaviors that lead to better venture performance.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Work Experience Theory

Work experience is a critical variable in predicting work performance. Many studies have operationalized it in

quantitative terms such as job tenure. Tesluk and Jacobs (1998) argued that this approach could not reflect the level of complexity and challenge encountered at work. In their research on the conceptualization of work experience, they identified three dimensions of the quantitative component (length of time or number of times that an assignment has been performed), qualitative component (perceptions of challenge and complexity), and interaction between qualitative and quantitative component (density and timing of an experience). Moreover, they provided a nomological net for work experience: contextual and individual factors are the antecedent variables; work motivation, knowledge and skills development, and work-related attitudes are immediate outcomes; work performance and career development are secondary outcomes.

### Developmental Job Challenge

A developmental job challenge, also referred as a challenging job experience, refers to one kind of on-the-job experience in which individuals are exposed to challenging jobs (McCauley et al., 1994; De Pater, 2009; Dragoni et al., 2009; Seibert et al., 2017). The term originates in the field of leadership development and is now popular in management and employee development (De Pater, 2009; Preenen et al., 2011; Carrette et al., 2013). DJC shows individuals that there are gaps between expected states and present skills. To close the gaps, individuals are motivated to acquire new skills and knowledge and to adopt new approaches (Aryee and Chu, 2012). Thus, DJC refers to the developmental quality of a job as it provides opportunities for on-the-job learning (Dragoni et al., 2009).

The original research on DJC identified ten elements (McCauley et al., 1994). However, the majority of studies tend to use a condensed version with five elements: unfamiliar responsibilities, high levels of responsibility, creating changes, working across boundaries, and managing diversity (DeRue and Wellman, 2009; Dragoni et al., 2009; Cao and Hamori, 2016). Empirical findings have consistently linked DJC to many positive outcomes in different levels of the organization, such as supervisors' leadership effectiveness (Seibert et al., 2017), employees' task performance (Aryee and Chu, 2012), managers' end-state competencies (Dragoni et al., 2009), and professionals' organizational commitment (Cao and Hamori, 2016). While DJC boosts individual competencies and performance in an organizational context, whether DJC will enhance an entrepreneur's performance needs more exploration.

### Entrepreneurial Action Learning in an Emerging Industry

EAL refers to how entrepreneurs learn from the problem solving process with the help of social interaction (Chen and Wang, 2015). While the definitions of entrepreneurial learning reflect a wide range of focuses (Wang and Chugh, 2014), EAL depicts learning behaviors in emerging industries with characteristics of high uncertainty, complexity, and unpredictability (Forbes and Kirsch, 2011). Although studies argue that entrepreneurial learning is a kind of learning-by-doing (Cope and Watts, 2000; Lafontaine and Shaw, 2016), some studies insist that



entrepreneurs learn from social networks (Soetanto, 2017; Zozimo et al., 2017). EAL emphasizes that entrepreneurs not only learn through the actions toward challenges but also learn from interactions with other people, either through observation or through communication.

EAL is built upon the theory of action learning, which asserts that adults learn from solving complex problems with the help of learning sets (Pedler, 1991). Compared to traditional industries, emerging industries usually initiate new enterprises into a context characterized by higher uncertainty, fewer benchmarks, and more time pressure (Forbes and Kirsch, 2011). Under these conditions, entrepreneurs often face ill-structured problems that need to be responded to quickly. Entrepreneurs are so busy coping with difficulties that they have little time to join in formal learning. On-the-job learning comes to be their main learning source (Keith et al., 2016). Meanwhile, entrepreneurs have to interact with their context as they are located at the boundary between the internal venture and the external business networks. Through direct observation or communication with customers/suppliers/employees and other stakeholders, entrepreneurs can reframe the situation and develop better alternatives.

Chen and Wang (2015) have identified four elements of EAL: (a) information acquisition, in which entrepreneurs actively acquire new information, excellent practices and action-generated cues through various activities with the purpose of being able to better diagnose problems; (b) critical reflection, which refers to entrepreneurs recursively interpreting the collected information to infer the most plausible hypothesis; (c) systematic integration, which refers to the mental simulation in which entrepreneurs integrate the new hypothesis with reality, which generates new solutions to the problem; and (d) active verification, in which entrepreneurs make an effort to implement and verify the new solution with dedicated actions (Chen and Wang, 2015).

## Developmental Job Experience and Venture Performance

It is extensively supported in the literature that DJC is positively related to an individual's performance (DeRue and Wellman, 2009; Dragoni et al., 2009; Carette et al., 2013). However, researchers thus far have not directly examined the relationship between developmental jobs and venture performance. New companies are generally small (Lans et al., 2008). Entrepreneurs are the main decision makers and managers, so they are important, as the venture needs them to recognize opportunities, assemble resources and exploit opportunities (Frese and Gielnik, 2014). According to upper echelon theory (Hambrick and Mason, 1984; Hambrick, 2007), we suggest that venture performance can be represented by an entrepreneur's performance.

The following two reasons describe why challenge assignments are believed to augment venture performance. First, DJC forces entrepreneurs to increase their effort level to match the demanding tasks, which will result in better venture performance. Entrepreneurs' actions are goal-oriented behaviors (Frese, 2011). Challenging job experiences indicate

that entrepreneurs have perceived the difficulties they face in achieving their goals. According to goal-setting theory, difficult goals force individuals to focus on the selected task, exert a higher level of effort, persist in achieving the selected goal and develop new strategies, which will lead to better venture performance (Locke, 1968).

Second, according to work experience theory (Tesluk and Jacobs, 1998), the developmental dimension of qualitative experience will lead to work performance (Aryee and Chu, 2012). Oftentimes, entrepreneurs have to play different roles that have unfamiliar responsibilities (Zahra et al., 2018). Entrepreneurs have to face novel and complex assignments that might force them to consider the pros and cons of different options, to try new ways of acting and to reflect on feedback. These activities provide them with more opportunities to acquire new knowledge, practice skills and augment competencies (Dragoni et al., 2009). Therefore, compared to consistent tasks, these activities are more strongly related to performance on more inconsistent tasks (Tesluk and Jacobs, 1998; Aryee and Chu, 2012). Therefore, we propose the following:

*Hypothesis 1.* Developmental job challenge is positively related to venture performance.

## The Mediation Effect of Entrepreneurial Action Learning

DJC represents the learning opportunities in the areas of management and leadership development. Many empirical studies have consistently shown that DJC facilitates on-the-job learning (McCauley et al., 1994; DeRue and Wellman, 2009; Preenen et al., 2011). This is because such experience forces individuals to step out of their comfort zones to develop new ways of coping with problems (Dragoni et al., 2009). Moreover, this kind of experience also provides them with abundant learning resources, such as experimentation opportunities and diverse feedback.

According to work experience theory, learning behaviors are the direct outcome of work experience (Tesluk and Jacobs, 1998). Therefore, we suggest that DJC facilitates EAL. It is increasingly acknowledged that entrepreneurs learn from experience (Keith et al., 2016). However, two entrepreneurs may not learn equally from carrying out a similar job, as they may be presented with different challenging opportunities. In developmental jobs, one entrepreneur may learn more, as he/she has a greater "density" of experiences (Tesluk and Jacobs, 1998). The more entrepreneurs perceive the challenges they face, the more they will learn to reduce them, as any challenge may influence a venture's survival. We suggest that this relationship will be significant in an emerging industry because the learning environment of an emerging industry is very dynamic, complex and uncertain. Empirical studies show that in traditional industries characterized by stability and redundancies, entrepreneurs' ability to acquire new information and make creative ideas declines as their entrepreneurial experiences increase (Ucbasaran et al., 2009).

EAL benefits a venture's growth because it helps an entrepreneur acquire knowledge and opportunities. According to



work experience theory, learning is the immediate outcome of on-the-job experience, and work performance is the secondary outcome (Tesluk and Jacobs, 1998). This is consistent with human capital theory, in which skills and knowledge from learning is closely related to job performance (Becker, 1964). EAL refers to how entrepreneurs learn through problem solving in an emerging industry. With little time and energy, EAL represents the main forms of on-the-job learning behavior. EAL helps entrepreneurs to accumulate task-related human capital, which has a positive effect on success (Unger et al., 2011). Therefore, we postulate our second hypothesis.

*Hypothesis 2.* Entrepreneurial action learning mediates the relationship between developmental job challenges and venture performance.

## Entrepreneurial Experience's Moderating Effect

What knowledge and experience entrepreneurs have will impact the process of opportunity recognition and exploitation (Shane and Venkatarman, 2000). Therefore, we incorporate entrepreneurial experience into our model. According to human capital theory, prior experience as an entrepreneur is an important domain-specific knowledge (Hmieleski et al., 2015). Such experience helps entrepreneurs be more familiar with the "liability of newness" and affects how they interpret and resolve problems (Forbes, 2005). A case study shows that entrepreneurs with prior entrepreneurship experience will be more product oriented, have better financing skills and be more balanced in essential business skills (Lamont, 1972). Therefore, it is important to study the impact of entrepreneurial experience.

However, the empirical findings have been inconsistent, as some studies have supported the expected relationship (Grégoire et al., 2010), while others have shown that prior experience could be negatively associated with entrepreneurial success (Rerup, 2005; Hmieleski et al., 2015). According to work experience theory, Tesluk and Jacobs (1998) propose that the interaction of the quantitative components and qualitative components of work experience are likely to impact subsequent outcomes, such as learning. Therefore, we propose that prior entrepreneurial experience, as a quantitative component of work experience, has a buffering effect on the relationship between DJC and EAL.

Previous research indicates that entrepreneurs have to make fast decisions and take quick actions in highly uncertain context (Mcmullen and Shepherd, 2006). In fact, top managers utilize more information and develop more alternatives in the high-velocity environment than the ones in a stable environment (Eisenhardt, 1989). Following this logic, on-the-job experiences abundant with DJC would place entrepreneurs at a high risk for cognitive overload in emerging industries, not only because such experiences induced off-task anxieties but because they require entrepreneurs to take judgmental decisions and respond to changing environment simultaneously. Entrepreneurs with prior entrepreneurial experience will demonstrate higher tolerance for the uncertainty and risks that come from challenges (Dimov, 2009). When faced with challenging situations, they would respond with more cautious behaviors that contribute to

finding more information and deriving more insights. Indeed, entrepreneurs with prior entrepreneurial experience will be more effective in searching information and identifying opportunities than novice entrepreneurs (Ucbasaran et al., 2003). In contrast, novice entrepreneurs would be more likely to view challenging situations as risky and overwhelming and thus easily divert their attention away from the task. They worry about possible failures and evaluation anxieties, rather than address to the challenges and learn from the process. For these reasons, we hypothesized as follows:

*Hypothesis 3.* Entrepreneurial experience will strengthen the relationship between developmental job challenges and entrepreneurial action learning.

Again, using the theory of work experience, we propose that entrepreneurial experience moderates the relationship between DJC and venture performance. This is because work performance is the indirect outcome of the interaction between quantitative and qualitative components of work experience. Building on the above analysis, we hypothesize the following:

*Hypothesis 4.* Entrepreneurial experience will strengthen the relationship between developmental job challenges and venture performance.

Combining Hypotheses 3 and 4 together, we suggest that the effect of moderation is mediated by EAL. This is because on-the-job learning such as EAL is the immediate outcome of work experience (Tesluk and Jacobs, 1998). This implies that entrepreneurial experience has an overall moderation effect on venture performance, produced by the mediating process. When we control for the mediation effect of EAL, the residual moderation of the entrepreneurial experience's effect on the dependent variable is reduced compared to the moderation effect for the original main effect. This means that the moderation effect of entrepreneurial experience is mediated by the EAL. This implies that there is a mediated moderation effect (Muller et al., 2005). Based on our analysis, we propose a mediated moderation model containing both moderation and mediation effects.

*Hypothesis 5.* Entrepreneurial action learning mediates the moderating effect of entrepreneurial experience on the relationship between developmental job challenges and venture performance.

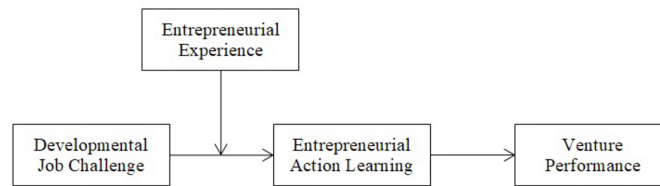
Figure 1 shows the complete model of this research.

## MATERIALS AND METHODS

### Data Collection and Sample Demographics

We selected entrepreneurs from emerging industries in China as our sample. Their industries had to meet the standards of China's strategic emerging industries policy.<sup>1</sup> The age of the respondents' ventures had to be less than 8 years. This time

<sup>1</sup>In order to structure the economy and develop the promising industries, China has released the catalogs of strategic emerging industries (SEIs) in her Five-Year



**FIGURE 1 |** The hypothesized model.

period was chosen because previous research indicated that new ventures would become a mature business within the first 8 years (Chrisman et al., 1998). This study was carried out in accordance with the recommendations of “Ethic of guidelines, The Institutional Review Board of the Department of E-Commerce at Huaqiao University” with written informed consent from all participants. The Institutional Review Board of the Department of E-Commerce at Huaqiao University approved the protocol for this study.

We mainly collected data from the city of Hangzhou, which is named by “Chinese Silicon Valley.”<sup>2</sup> Because respondents were very busy and hard to find, we used convenience sampling. We chose opportunities where entrepreneurs were already getting together, such as at emerging industrial parks, venture capital Roadshow competitions, training programs for emerging industrial entrepreneurs and so on. Specifically, we collected data mainly from 12 parks, two VC roadshows and two training programs. After getting permissions from the park’s management committee, we knocked at the door of every company there. On average, there were nearly 80 new ventures in each park, 25 entrepreneurs were in the office when we got there, and 14 of them were available and accepted the survey. When we surveyed from training programs and VC roadshows, almost all entrepreneurs accepted the survey.

For every respondent, we first asked her/him whether s/he was an entrepreneur. If s/he was, we introduced ourselves and described the purpose of the survey. After the respondents agreed to participate, we informed them of the rules and notices in filling out the forms. We also provided each of them a gift to represent our gratitude. Each questionnaire was completed within 1 h. As venture performance was an important variable in our model, we asked the respondent to report his/her role in the questionnaire. There were three options: individual entrepreneur, team leader of entrepreneurial team and team member of entrepreneurial team. If s/he chose the third option, the following sentence indicated that s/he should terminate the survey.

We gathered data from 230 ventures: 163 of them came from parks, 14 from roadshows and 43 from training programs.<sup>3</sup>

**Development Plan.** The 13th Plan in 2016 released the SEI catalog with nine sectors.

<sup>2</sup>There are nearly 20 big industrial/science parks and many small start-up incubators in this city. VC roadshows are very hot in this city. And the government there provides many free training programs for young entrepreneurs with good potential.

<sup>3</sup>There are nearly 30 entrepreneurs in each training program. All of them are selected from entrepreneur alliance of Zhejiang province. This alliance has more than 5,000 entrepreneurs.

We eliminated surveys that had large portions of missing data and limited samples to emerging industries, resulting in 197 entrepreneurs. The final sample consisted of 51.30% male entrepreneurs. 33.0% of them were individual entrepreneurs. All respondents were, on average, 30.16 years old, and 59.5% had obtained a bachelor’s degree. The average age of the ventures was 29.96 months old, 44.20% ventures’ revenues were between RMB 30 million yuan and RMB 100 million yuan, and 70.10% ventures had fewer than 10 employees. In addition, 35.0% ventures belonged to digital innovation industry, 23.4% belonged to new generation information technology industry, 18.8% belonged to new energy industry and new material industry and 16.2% belonged to related services industry.

## Measures

We used a Chinese language version of the questionnaire. All original English versions of the items followed the translation-back-translation procedure.

### Developmental Job Challenges

This variable was measured by seven items developed by McCauley et al. (1994). Two example items are “You have to manage something with which you are unfamiliar” and “You have to lay off a significant number of your people.” A 5-point Likert scale was used to measure the items, ranging from 1 (*very little*) to 5 (*a great deal*). The Cronbach’s alpha was 0.82.

### Entrepreneurial Action Learning

The EAL scale used in this research was originally in Chinese. Fourteen items measured the four elements of information acquisition (e.g., “I frequently interact with others to acquire entrepreneurial information”), critical reflection (e.g., “I often adopt advice from others to rethink the problems that I have met”), systematic integration (e.g., “I adjust my plan systematically when I get new information”) and active verification (e.g., “I overcome difficulties to get my entrepreneurial ideas realized the best way possible”). We averaged the fourteen items to form a single score. Each entrepreneur indicated the frequency of each of these behaviors on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The reliability was 0.85.

### Venture Performance

All of our respondents were from private firms, and there was little or no published financial data. Moreover, entrepreneurs are reluctant to share their objective data (Smart and Conant, 1994). So we have to use subjective measure to assess venture

performance. Although Reiter-Palmon et al. (2012) argue that whether self-perception of creative/work performance is correlated with objective measures depends on two assumptions. One is that the respondents are aware of questions. The other is that the respondents are willing to report them accurately. Our research met these two assumptions. First, when crafting the questionnaire, we have conducted a pretest with five entrepreneurs and interviewed them after that. We found that they comprehend the measurement correctly. Second, we guaranteed the confidentiality and anonymity of the survey. We believed our respondents would be willing to report them accurately.

Recognizing that new ventures failed a lot in emerging industries, we assessed financial performance by asking respondents to rate profitability growth, sales growth and market share growth on a 5-point Likert scale from 1 = *not at all* to 5 = *very much* (Poon et al., 2006; Keh et al., 2007). Respondents reported the data by benchmarking their own venture performance to their major competitors. Although there are limitations to the subjective, self-report measurement method, earlier research shows that top manager's perceptions of the performance are highly consistent with objective measurement (Wall et al., 2004). The Cronbach's alpha was 0.79.

### Prior Entrepreneurial Experience

There are two methods of measuring entrepreneurial experience: (1) the number of new ventures founded previously, and (2) whether they have ever started a venture, indicated by a dummy variable. Both of them were widely used in previous research (Davidsson and Honig, 2003; Hmieleski and Baron, 2009; Farmer et al., 2011). However, whether prior entrepreneurial experience would impact the learning behaviors or venture performance depends on the external environment conditions (Ucbasaran et al., 2003). Experienced/habitual entrepreneurs would be quite dangerous when they transfer past experience to a different context or when the environment changes (Dawes, 1988). As our research focused on emerging industries characterized by higher uncertainty, fewer benchmarks, and more time pressure (Forbes and Kirsch, 2011), we took the second approach because the task-specific human capital provided by the first new venture experience had a greater impact than each subsequent experience (Brüderl et al., 1992). Following Forbes (2005), entrepreneurs with prior startup experience were allocated a value of "1," while entrepreneurs with no such experience were allocated a value of "0."

### Control Variable

To examine each entrepreneur's unique contribution in the model, we controlled for the effects of the gender ("male" = 0, "female" = 1), age (in years) and educational attainment (1 = "middle school," 2 = "high school," 3 = "associate's degree," 4 = "bachelor's degree," 5 = "master's degree or above") of each respondent. Additionally, because entrepreneurs who have a parent with entrepreneurial experience might have special business experience that influences their learning behaviors and performance (Kim et al., 2006), we dummy-coded parent entrepreneurship as 1 when a respondent had one parent as an

entrepreneur and 0 when they did not. We also controlled for firm age as the number of months between the time when the venture was started and the time of our survey.

### Common Method Variance

Despite the variables we measured are not personally sensitive questions, and the variables are relevant to job characteristics which are partially independent of method effects (Glick et al., 1986), the method we used might lead to common method bias. According to Podsakoff et al. (2003), we adopted three procedural remedies to reduce the plausibility of the method bias.

First, a pretest was conducted to reduce item ambiguity by asking five entrepreneurs to fill out the questionnaire. They were interviewed afterward for feedback regarding the items and the questionnaire as a whole. The questionnaire was then modified accordingly to ensure item clarity. Second, we used different scale anchors in different variables' measurement to avoid the respondents' mapping judgements. Third, when we informed the rules to the respondents, we guaranteed the confidentiality and anonymity of the survey. And also, we emphasized that there were no right or wrong answers.

As procedural remedies are impossible to eliminate all forms of common variance bias, we also took statistical remedies to control for CMV. We conducted a one-factor model (see Harman, 1967) to make sure that common method bias would not nullify our findings. The poor results ( $\chi^2 = 1215.25$ , CFI = 0.47, TLI = 0.38, RMSEA = 0.14, and SRMR = 0.15) indicated that no single factor can explain a majority of the variance.

## RESULTS

### Descriptive Statistics

**Table 1** presents the means, standard deviations, and bivariate correlations among the variables. DJC was significantly related to EAL ( $r = 0.54$ ,  $p < 0.001$ ) and venture performance ( $r = 0.43$ ,  $p < 0.001$ ), suggesting that DJC facilitated the learning behaviors and performance. The linkage between EAL and venture performance was significant ( $r = 0.47$ ,  $p < 0.001$ ). Entrepreneurial experience was not significantly correlated with DJC and venture performance. According to Hayes (2013), a moderator does not necessarily correlate with independent and mediating variables.

### Hypotheses Testing

We conducted a multivariate multiple regression technique to analyze Hypothesis 1. **Table 2** presents the estimates of the relationship between DJC and venture performance. Model 4 comprised five control variables. We added DJC in Model 5; this addition provided a significantly better fit over Model 4. The result indicated that DJC was significantly related to venture performance ( $\beta = 0.41$ ,  $p < 0.001$ ). Therefore, the findings offer support for Hypothesis 1.

To test the mediation effect, we followed the steps proposed by Baron and Kenny (1986). As shown in Model 2, DJC was significantly related to EAL ( $\beta = 0.52$ ,  $p < 0.001$ ). After

controlling for the effect of DJC, EAL was significantly related to venture performance ( $\beta = 0.32, p < 0.001$ ; Model 7). Meanwhile, the effect of DJC on venture performance decreased to ( $\beta = 0.24, p < 0.001$ ; Model 7), indicating partial mediation. As our sample size was small, we also used Preacher and Hayes's (2008) SPSS macro PROCESS to test the indirect effect. We conducted a bootstrapping method to respond to the normal distribution hypothesis. As presented in **Table 3**, the results showed that there was a significant indirect effect via EAL with 95% bias-corrected confidence intervals [0.10, 0.24] based on 2,000 bootstrapped samples. The outcomes supported Hypothesis 2.

For Hypotheses 3 and 4, we tested the moderating role of entrepreneurial experience. The data (see Model 3 and Model

6 in **Table 2**) revealed that entrepreneurial experience had a significant moderating effect on the relationship between DJC and EAL ( $\beta = 0.20, p < 0.05$ ) and on the relationship between DJC and venture performance ( $\beta = 0.23, p < 0.05$ ). As hypothesized, the effect of DJC was greater for entrepreneurs with entrepreneurial experience (see **Figures 2A,B**), as indicated by the steeper slopes for these entrepreneurs than for new entrepreneurs. Both moderation effects were confirmed by bootstrapping tests with 95% BCCI of [0.03, 0.55] and [0.01, 0.40]. Therefore, the results support Hypotheses 3 and 4.

We proposed that the overall effect of DJC on venture performance would be moderated by entrepreneurial experience and that this interaction would be due to the effect of the mediator

**TABLE 1 |** Descriptive statistics and correlation.<sup>a</sup>

| Variables <sup>b</sup>             | M     | SD    | 1     | 2       | 3     | 4     | 5     | 6       | 7     | 8       |
|------------------------------------|-------|-------|-------|---------|-------|-------|-------|---------|-------|---------|
| 1. Gender                          | 0.52  | 0.50  |       |         |       |       |       |         |       |         |
| 2. Age of entrepreneur             | 30.16 | 5.15  | 0.07  |         |       |       |       |         |       |         |
| 3. Parent entrepreneurship         | 0.44  | 0.50  | -0.01 | -0.12   |       |       |       |         |       |         |
| 4. Education                       | 3.68  | 0.68  | 0.08  | -0.01   | -0.00 |       |       |         |       |         |
| 5. Firm age (months)               | 29.96 | 16.02 | 0.12  | 0.35*** | -0.13 | -0.08 |       |         |       |         |
| 6. Developmental job challenges    | 3.77  | 0.60  | -0.07 | -0.03   | -0.07 | -0.09 | -0.05 |         |       |         |
| 7. Entrepreneurial experience      | 0.45  | 0.50  | 0.05  | 0.15*   | -0.06 | 0.06  | 0.05  | -0.00   |       |         |
| 8. Entrepreneurial action learning | 3.81  | 0.48  | -0.07 | 0.07    | -0.06 | -0.11 | -0.00 | 0.54*** | 0.08  |         |
| 9. Venture performance             | 3.45  | 0.61  | -0.10 | -0.08   | -0.02 | -0.07 | -0.03 | 0.43*** | 0.15* | 0.47*** |

<sup>a</sup> $n = 197$ . <sup>b</sup>For gender, 0 = male, 1 = female; parent entrepreneurship, 1 = at least one parent has entrepreneurial experience, 0 = both parents have no entrepreneurial experience. \* $p < 0.05$ ; \*\*\* $p < 0.001$ ; two-tailed tests.

**TABLE 2 |** Hierarchical multiple regression analysis.<sup>a</sup>

| Variables                   | Entrepreneurial Action Learning |          |          | Venture Performance |          |         |                   |                   |
|-----------------------------|---------------------------------|----------|----------|---------------------|----------|---------|-------------------|-------------------|
|                             | Model 1                         | Model 2  | Model 3  | Model 4             | Model 5  | Model 6 | Model 7           | Model 8           |
| <b>Step 1 (controls)</b>    |                                 |          |          |                     |          |         |                   |                   |
| Gender                      | -0.09                           | -0.05    | -0.04    | -0.06               | -0.05    | -0.07   | -0.05             | -0.10             |
| Age of entrepreneur         | 0.09                            | 0.10     | 0.09     | -0.10               | -0.07    | -0.06   | -0.08             | -0.05             |
| PE                          | -0.08                           | -0.03    | -0.02    | -0.04               | 0.00     | 0.01    | 0.01              | 0.02              |
| Education                   | -0.11                           | -0.06    | -0.07    | -0.05               | -0.02    | -0.04   | 0.03              | -0.02             |
| Firm age                    | -0.05                           | 0.01     | -0.01    | -0.02               | 0.00     | -0.01   | -0.02             | 0.01              |
| <b>Step 2 (main effect)</b> |                                 |          |          |                     |          |         |                   |                   |
| DJC                         |                                 | 0.52***  | 0.36***  |                     | 0.41***  | 0.23*   | 0.24***           | 0.13              |
| <b>Step 3 (moderator)</b>   |                                 |          |          |                     |          |         |                   |                   |
| EE                          |                                 |          | 0.05     |                     |          | 0.15*   |                   | 0.14*             |
| <b>Step 4 (interaction)</b> |                                 |          |          |                     |          |         |                   |                   |
| DJC $\times$ EE             |                                 |          | 0.20*    |                     |          | 0.23*   |                   | 0.17              |
| <b>Step 5 (mediator)</b>    |                                 |          |          |                     |          |         |                   |                   |
| EAL                         |                                 |          |          |                     |          |         | 0.32***           | 0.29***           |
| $R^2$                       | 0.03                            | 0.29     | 0.31     | 0.02                | 0.18     | 0.22    | 0.25              | 0.28              |
| Adjusted $R^2$              | 0.01                            | 0.27     | 0.28     | -0.01               | 0.15     | 0.19    | 0.22              | 0.25              |
| $F$                         | 1.33                            | 12.97*** | 10.50*** | 0.75                | 6.84***  | 6.61*** | 8.95***           | 7.98***           |
| $\Delta R^2$                | –                               | 0.26     | 0.02     | –                   | 0.16     | 0.04    | 0.07 <sup>b</sup> | 0.06 <sup>c</sup> |
| $\Delta F$                  | –                               | 68.75*** | 2.49     | –                   | 36.58*** | 5.04**  | 17.95***          | 14.93***          |

<sup>a</sup> $n = 197$ . <sup>b</sup>Compared with Model 5. <sup>c</sup>Compared with Model 6. PE = parent entrepreneurship; DJC = developmental job challenges; EE = entrepreneurial experience; EAL = entrepreneurial action learning. \* $p < 0.05$ ; \*\*\* $p < 0.001$ ; two-tailed tests.



**TABLE 3 |** Unstandardized bootstrapping estimates for moderation, mediation, and mediated moderation.<sup>a</sup>

| Moderation   |  |                       |                       |  |  |      |                       |       |
|--|--|-----------------------|-----------------------|--|--|------|-----------------------|-------|
| Paths  | Test of interaction term                           |                       |                       | Conditional effect at the levels of EE         |  |      |                       |       |
|  | Effect ( $\Delta F$ )                              | 95% Bias-corrected CI |                       | EE level                                       | Effect                                 | SE   | 95% Bias-corrected CI |       |
|  |  | LLCI                  | ULCI                  |  |  |      | LLCI                  | ULCI  |
| DJC $\times$ EE $\rightarrow$ VP                   | 0.29(4.86**)                                       | 0.03                  | 0.55                  | 0  | 0.23                                   | 0.10 | 0.03                  | 0.43  |
|  |  |                       |                       | 1  | 0.52                                   | 0.08 | 0.35                  | 0.68  |
| DJC $\times$ EE $\rightarrow$ EAL                  | 0.21(4.34*)  | 0.01                  | 0.40                  | 0  | 0.28                                   | 0.08 | 0.13                  | 0.43  |
|  |  |                       |                       | 1  | 0.49                                   | 0.06 | 0.36                  | 0.61  |
| Mediation  |  |                       |                       |  |  |      |                       |       |
| Path   | Indirect effect                                    | SE                    | 95% Bias-corrected CI |  | Normal theory test for indirect effect |      |                       |       |
|  |  |                       | LLCI                  | ULCI   | Effect                                 | SE   | z                     | p     |
| DJC $\rightarrow$ EAL $\rightarrow$ VP             | 0.16   | 0.04                  | 0.10                  | 0.24   | 0.16                                   | 0.04 | 3.75                  | 0.000 |
| Mediated moderation                                |  |                       |                       |  |  |      |                       |       |
| Path   | Index of moderated mediation (mediated moderation) |                       |                       | Conditional indirect effect at the level of EE |  |      |                       |       |
|  | Index(SE)  | 95% Bias-corrected CI |                       | EE level                                       | Effect                                 | SE   | 95% Bias-corrected CI |       |
|  |  | LLCI                  | ULCI                  |  |  |      | LLCI                  | ULCI  |
| DJC $\times$ EE $\rightarrow$ EAL $\rightarrow$ VP | 0.08(0.04)   | 0.02                  | 0.17                  | 0  | 0.11                                   | 0.03 | 0.06                  | 0.18  |
|  |  |                       |                       | 1  | 0.19                                   | 0.04 | 0.12                  | 0.29  |

<sup>a</sup> $n = 197$ . PE = parent entrepreneurship; DJC = developmental job challenges; EE = entrepreneurial experience; EAL = entrepreneurial action learning; VP = venture performance; LLCI and ULCI = lower and upper levels of confidence intervals, respectively. \* $p < 0.05$ ; \*\* $p < 0.01$ .

(EAL) and the moderation of the mediator effect on the EAL by entrepreneurial experience. According to Muller et al. (2005), we confirmed that this was a mediated moderation model.

We still used the SPSS macro PROCESS developed by Preacher and Hayes (2008) to test the mediated moderation effect. The macro allows us to test the whole model at once. As shown for DJC in Models 3 and 8 in Table 2, significant effects were found for EAL by entrepreneurial experience (as previously confirmed); in addition, the values for EAL remained significant in Model 8 ( $\beta = 0.29, p < 0.001$ ). According to Muller et al. (2005), the data meet the conditions for a mediated moderation effect. Therefore, the moderation effect of entrepreneurial experience on the relationship between DJC and EAL ( $\beta = 0.20, p < 0.05$ ) became nonsignificant ( $\beta = 0.17, p > 0.05$ ), demonstrating fully mediated moderation. Combining these results, we concluded that there were fully mediated moderation effects for DJC. Thus, Hypothesis 5 was supported.

## DISCUSSION

Drawing on work experience theory and human capital theory, we proposed and tested a model to examine the relationship between DJC, entrepreneurial experience, EAL and venture performance in a sample of entrepreneurs from emerging industries in China. The results demonstrated support for the hypothesized mediated moderation model. Specifically,

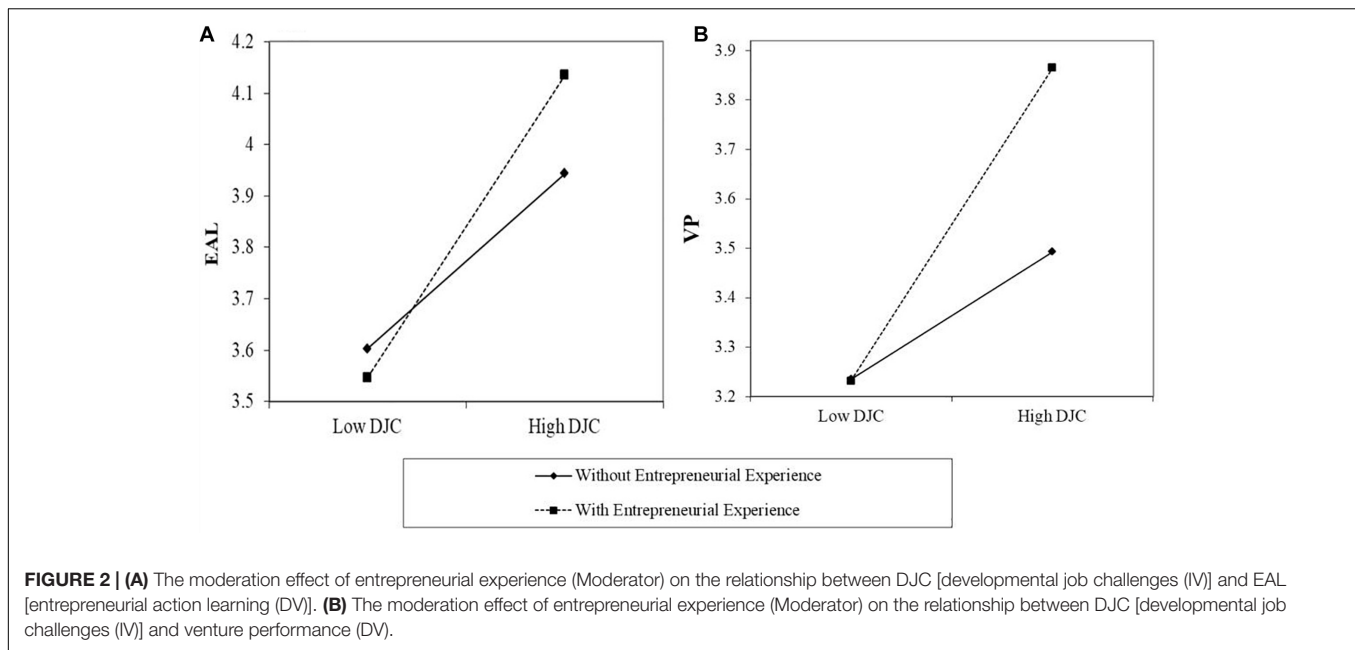
DJC was positively related to venture performance, and EAL partly mediated the relationship. In turn, prior entrepreneurial experience moderated the relationship between DJC and venture performance. Furthermore, the moderation effect was fully mediated by EAL.

## Theoretical Implications

Our research provides three theoretical contributions to the literature on DJC, entrepreneurial experience and EAL. First, our research advances current entrepreneurial experience research by going beyond the traditional approaches of conceptualizing entrepreneur's experience in terms of quantitative stock-like prior experience to the developmental quality of the entrepreneurial tasks. By utilizing work experience theory, we examined the impact of the quality of an entrepreneur's on-the-job experience on venture performance. The results show that venture performance could be enhanced if entrepreneurial tasks are rich in developmental dimensions. The finding provides a good empirical basis for future research on how the qualitative component of on-the-job experience facilitates the development of entrepreneurs and ventures. Meanwhile, the research opens the door for more considerate attention to the other type of prior experience in relation to developmental assignment quality.

Second, this research advances our understanding of the impact of the interaction between quantitative and





qualitative components of an entrepreneur's experience. Although an entrepreneur's experience plays an important role in entrepreneurial process (Cope, 2005; Pittaway and Thorpe, 2012), there is no well-developed and empirically supported theory on how entrepreneurial experience develops ventures. We found that entrepreneurs with prior entrepreneurial experience would be more likely to perform EAL behaviors when they perceived challenges from the assignments. Moreover, we found that the relationship between DJC and venture performance was stronger if the entrepreneur had prior entrepreneurial experience. The findings provide empirical evidence that both entrepreneurial characteristics and entrepreneurial tasks are important for understanding how entrepreneurs learn and develop.

Third, the study contributes to the theory development of EAL in China's emerging industries. We extend prior conceptual work on entrepreneurial learning by empirically demonstrating DJC as the antecedent and venture performance as the outcome. Specifically, we found that the challenges from an assignment directly impacted the learning behaviors and that prior entrepreneurial experience plays a moderating role in this relationship. This is partly consistent with the proposition from prior research that entrepreneurs learn from experience. Therefore, we empirically differentiate the distinct impact of entrepreneurial learning from different components of entrepreneurial experience.

## Practical Implications

This research explores the mechanisms that underlie the relationship between the developmental quality of on-the-job experience and venture performance in a sample of Chinese entrepreneurs in the emerging industry. It provides empirical evidence that challenging assignments can have positive impacts,

especially in terms of increasing EAL behaviors and enhancing venture performance.

Specifically, the research provides guidance for entrepreneurs to improve venture performance through entrepreneurial assignments. Our results suggest that there is a need for entrepreneurs to actively seek DJC for developing ventures. Performing such assignments can motivate them to learn more from the on-the-job experience and benefit the venture. Moreover, given that EAL partly mediates the relationship between DJC and venture performance and fully mediates the moderation effect of prior entrepreneurial experience, we suggest that entrepreneurs adopt EAL behaviors when they are exposed to challenging assignments. Finally, our research provides implications for entrepreneurs with prior entrepreneurial experience. Since the results show that on-the-job experience is more important than static stock-like prior experience, entrepreneurs should focus more on experience from current assignments.

## Limitations and Future Research

Although the research arrives at interesting findings, there are inevitably some limitations associated with it. While we are discussing the limitations, we will provide future directions.

First, we used cross-sectional self-report method research design which might lead to common method variance (Podsakoff et al., 2003). Despite it is still the most valid and useful method in accessing individual perceptions (Spector, 1994), and we have taken procedural and statistical remedies to control for the common method bias, we cannot eliminate all forms of method bias. Future research should consider the use of more objective measures.

Second, since this is a cross-sectional study, the uncertainty of causal relationships exists. It may be possible that entrepreneurs who actively engaged in EAL behaviors will perceive more challenges from the assignments rather than the developmental challenges driving them to learn. We could not deny this possibility, but the research findings are consistent with the theory logic proposed by work experience theory. Future research should design longitudinal studies to clarify these causal relationships.

Third, our conclusions are limited to Chinese entrepreneurs in emerging industries. The cultural context and market environments are different from those in a Western context. We are not sure whether the model will be generalizable to other countries. Future research can replicate the model by utilizing a cross-national sample. Third, since the entrepreneurs' experiences and learning behaviors are contextualized, we did

not incorporate contextual variables into our model. Future research should examine environmental conditions such as environmental dynamics.

## AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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# Effects of Human, Relational, and Psychological Capitals on New Venture Performance

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Entrepreneurship research has been focusing on intangible capitals of an entrepreneur or entrepreneurial teams. Intellectual capital has been a useful framework for researching entrepreneurship, though the inclusion of intangible capital has not been comprehensive enough. We followed and extended this stream to add psychological capital into the discussion of the relationship between intellectual capital and new venture performance. We argue that psychological capital, human capital, and relational capital are representative capitals of entrepreneurs at intra-personal, personal, and interpersonal levels, respectively, none of them can be neglected for new venture success. Based on the analyses of documentary materials of famous entrepreneurs' interviews from trustable websites/media, this conceptual analyses with case examples found different constructs to serve as important entrepreneurial intellectual capital, which consists of human (i.e., age and education, graduate work experiences, non-graduate work experiences, role models), relational (i.e., trustworthiness and co-founder relations) capitals, and psychological capital (optimism, self-efficacy, hope, and strength). This study contributes by formalizing psychological capital as a theoretical element of intellectual capital and its effectiveness with other forms of intellectual capital on entrepreneurial performance and growth.

**Keywords:** human capital, relational capital, psychological capital, new venture, entrepreneurial performance

## INTRODUCTION

Intellectual capital is of great value to the entrepreneur as they are the basis for competitive advantages and value factors for the entrepreneurial enterprise (Nazari and Herremans, 2007). The intellectual materials mentioned include knowledge, information, intellectual asset, and experience that generate wealth (Holmen, 2005).

A gap in literature is that less has been committed in researching the role of psychological healthiness for intellectual capital in the context of entrepreneurs. The relation between the intellectual capital and entrepreneurs' psychological wellness is an important complementation for the successful new venture performance, because new ventures do not only require entrepreneurs' wisdom but also their psychological strengths to overcome uncertainties and difficulties (Baron, 2008). The entrepreneurial capital is denoted as the capital that the entrepreneur applies when engaging in entrepreneurial activities (Firkin, 2003), which includes both material



and psychological resources (Luthans and Youssef-Morgan, 2004). As Bradley (1997) revealed organizations need to focus less on material assets and more on intangible assets. From such a viewpoint, psychological capital (Luthans and Youssef-Morgan, 2004) is also an intangible one to be incorporated and considered together with intellectual capital. For instance, Chen et al. (2018) examined that entrepreneurial behavior and decisions like those for entrepreneurial persistence need to be assessed through a knowledge and emotion lens.

In sum, the present study bridges across the research streams of intellectual capital and psychological capital, to investigate the interactive influences between entrepreneurs' psychological and professional states. The results and discussions of the study could contribute by offering a deeper understanding of the social-psychological dynamics of entrepreneurs' intellectual use in influencing entrepreneurial performance.

## THEORETICAL FOUNDATION

Intellectual capital is a multidimensional construct that may be evaluated and researched in different contexts (Edvinsson and Malone, 1997; von Krogh et al., 1998; Youndt and Scott, 2004). In the entrepreneurship context, human and relational capitals are of most importance. Youndt and Scott (2004) described intellectual capital as the aggregate stocks and flows of useful skills and knowledge within an organization. Human capital assumes a vital part of organizations that help in increasing new information in the economy.

Some authors have researched the positive relationship that lies between human capital and its success or improved performance in the firms that deal with entrepreneurial issues (Baron and Markman, 2000; Rauch et al., 2005). Brush and Chaganti (1999) found that upcoming firms have increased performance that is related to the resources of the firm other than the approaches it employees. The intangible resource of the human capital cannot add value to the organization without back up from the managers as an important type of human capital. Pennings et al. (2017) found that human capital is highly related to firm survival and growth.

In such a sense, the psychological capital as the inner strength of human capitals should be emphasized in its role of assisting intellectual capital. The psychological resource comprises of self-adequacy, hope, strength, and positive thinking (Luthans et al., 2007) and trust (Page and Donahue, 2004). Also from such angle, psychological capital in entrepreneurial ventures can be treated as collective mental capabilities that facilitate the utilization of key knowledge.

## METHODOLOGY

Qualitative analysis is critical as many of the entrepreneurial phenomena are exploratory in nature (Gartner et al., 1994; Lechler, 2001; Gartner and Birley, 2002; Envick, 2005), when perceiving entrepreneurs as "outliers" in a business community who behave differently. Thus, the number of researched sample is

not the most critical thing but what new insights could the sample tell via their explication of they own stories.

Sources of data used in this research are secondary data since researcher aims to give a comprehension of how intellectual capital (IC) and entrepreneurship can lead to the success of the entrepreneurial firm using a qualitative approach. The researcher collected and used the transcripts of total 30 entrepreneur's interviews as secondary data for the study. All the interviews materials were collected through websites/media such as The Financial Times, Wall Street, Forbes, etc.

Five criteria were used to identify the transcripts of the entrepreneurs' interviews to be included in the sample. First, the interviewer should be a famous or successful in the industry. Second, the source of interview must be reliable business websites and channels (Financial Times, The Economics, Wall Street, etc.). Third, the interview should have mentioned about IC and relation between success and IC area. A two-stage process to choose interviews as potential data: first one was used to identify successful and well-known entrepreneur as a quality of the participant and the other one was filtering the transcripts for those entrepreneurs have mentioned or talked about the impact of IC on their firm in the interview. In this paper it was needed to recognize successful entrepreneurs who met the sample criteria detailed above. Sources used to define entrepreneurs included media features in business magazines and broadsheet newspapers, business magazines competitions for entrepreneurs.

To benefit large-scope exploration, the selected companies represented various industries, including network, architecture, biomedical, chemicals, consumer products, consulting, education, finance, media, technology, software, investment, other services, as well as other manufacturing. The dataset is unique in providing detailed information on founders, the organizational context surrounding venture ideation as well as firm performance information. The researcher collected data through virtual documentary sources which is used of certain selected entrepreneur's virtual interview script as main data to answer her research questions.

Moreover, to have the capacity to sum up from the sample, the researcher needed a reasonable sample size, and also the sample to mind an exceptional scope of experiences. The researcher spent 2 months working through some web-based materials via the Internet to identify potentially virtual interviews. This was quite time-consuming. The highly experienced compilers, such as the 100 most influential people in the world by Time Magazine, and the America's richest Entrepreneurs under 40 by Forbes magazine, have been the main resource to find a potential entrepreneur. After the selection process, the researcher was able to search potential interviews as a video version and transcript version through web-based material or via Internet such as Wall Street Journal, Financial Times, Forbes Business Magazine, Entrepreneur.com, and Business Insider. Additionally, these websites/media ranked in top 15 most popular business websites as obtained from eBizMBA Rank which is continually updated average of each website's Alexa Global Traffic Rank, and U.S. Traffic Rank from both Compete and Quantcast.



## RESULTS AND DISCUSSION

**Table 1** shows the entrepreneur's personal information. Thematic analysis has been used to investigate the qualitative data that were obtained, following the transcriptions of the interviews. We read through the transcripts and attached codes to units of text in a manner that was as open as possible, in order to explore personal experiences and perception of an object or event.

### Human Capital

#### Age and Education

The first type of intellectual capital of entrepreneurs is human capital. **Table 2** showed the information regarding the entrepreneurial human capital. In terms of education, 13 entrepreneurs graduated from university, normally setting

up their company while at or after college. Two of these participants had built their first business during the college years, and eight of them dropped university before complete. Interestingly, most of them did not have any professional work experience. They were likely to have run informal ventures as teenagers. They started their business between the ages of 20 and 25 years but one of them started his first main venture at the age of 17 years. Fifteen entrepreneurs established their first business after graduating their university and gained some years of professional work experience. These entrepreneurs who had started their first venture after university had a higher level work experience in professional work with greater responsibility. They stated that having their work experience gave them more benefits than the individuals who had begun their new ventures younger. They began their companies between the ages of 27 and 38 years.

**TABLE 1** | Basic information.

| No. | Name              | Nationality    | Company          | Co-founder | Net worth      | Year founded | Industry                 | Location       |
|-----|-------------------|----------------|------------------|------------|----------------|--------------|--------------------------|----------------|
| 1.  | Reid Hoffman      | American       | LinkedIn         | Yes        | \$3.1 billion  | 2002         | VC/Internet              | United States  |
| 2.  | Howard Lindzon    | Canadian       | StockTwits       | Yes        | \$30 million   | 2008         | Internet                 | Canada         |
| 3.  | Steve Forbes      | American       | Forbes           | Yes        | \$430 million  | 1917         | Media                    | United States  |
| 4.  | Dean Kamen        | American       | Segway PT        | No         | \$500 million  | 2001         | Electric vehicle         | United States  |
| 5.  | Brian Halligan    | American       | HubSpot          | Yes        | \$82 million   | 2006         | Software                 | United States  |
| 6.  | Ma Huateng        | Chinese        | Tencent Holdings | Yes        | \$24.9 billion | 1998         | Conglomerate             | China          |
| 7.  | Travis Kalanick   | American       | Uber             | Yes        | \$6.3 billion  | 2009         | Transportation           | United States  |
| 8.  | Diego May         | Costa Rica     | Junar.com        | No         | \$240 million  | 2006         | Software                 | Costa Rica     |
| 9.  | Christopher Cline | American       | Foresight Energy | No         | \$1.9 billion  | 2006         | Mining                   | United States  |
| 10. | Terry Noel        | American       | Illinois         | No         | \$300 million  | 1999         | Education                | United States  |
| 11. | Drew Houston      | American       | Dropbox Inc.     | Yes        | \$1 billion    | 2007         | Online backup service    | United States  |
| 12. | Dave Sifry        | American       | Linuxcare        | Yes        | \$500 million  | 1998         | Technology               | United States  |
| 13. | Jeff Bezos        | Mexicion       | Amazon.com       | No         | \$72.8 billion | 1994         | Internet/retailing       | Mexico         |
| 14. | Jack Dorsey       | American       | Twitter          | Yes        | \$1.3 billion  | 2006         | Internet                 | United States  |
| 15. | Matt Mullenweg    | American       | Wordpress        | No         | \$1.5 million  | 2005         | Software                 | United States  |
| 16. | Jessica Alba      | American       | The Honest       | Yes        | \$1.7 billion  | 2011         | Retail                   | United States  |
| 17. | Michael Bloomberg | American       | Bloomberg        | Yes        | \$47.5 billion | 1981         | Finance/media            | United States  |
| 18. | Deena Varshavskay | Russian        | Wanelo           | No         | \$10 million   | 2012         | Internet, E-commerce     | United States  |
| 19. | Jack Ma           | Chinese        | Alibaba          | Yes        | \$28.3 billion | 1999         | E-commerce               | China          |
| 20. | Bill Gates        | American       | Microsoft        | Yes        | \$86 billion   | 1975         | Software                 | United States  |
| 21. | Howard Schultz    | American       | Starbucks        | Yes        | \$3 billion    | 1971         | Coffee shop              | United States  |
| 22. | Larry Page        | American       | Google           | Yes        | \$40.7 billion | 1998         | Internet/software        | United States  |
| 23. | Olivia Lum        | Singaporean    | Hyflux           | Yes        | \$460 million  | 1989         | Engineering              | Singapore      |
| 24. | Sara Blakely      | American       | Spanx            | No         | \$1.1 billion  | 2000         | Apparel                  | United States  |
| 25. | Cao Dewang        | Chinese        | Fuyao Glass      | No         | \$7 billion    | 1987         | Manufacture              | China          |
| 26. | Peter Jones       | British        | Drangon's Den    | No         | \$367 million  | 2005         | Investment               | United Kingdom |
| 27. | Chung Mong Koo    | Korean         | Hyundai Motor    |            | \$4.9 billion  | 2000         | Automotive               | Korea          |
| 28. | Elon Musk         | American       | PayPal           | Yes        | \$13.9 billion | 1998         | Financial                | United States  |
| 29. | Michael Dell      | American       | Dell Computer    | No         | \$20.4 billion | 1984         | Computer hardware        | United States  |
| 30. | Rob Parsons       | American       | Go daddy         | No         | \$1.8 billion  | 1997         | Domain Register          | United States  |
| 31. | James Park        | American       | Fitbit           | Yes        | £6 billion     | 2007         | Activity Tracker         | United States  |
| 32. | Mark Wogan        | United Kingdom | Homeslice        | Yes        | £4.5 million   | 2011         | Pizza                    | United Kingdom |
| 33. | Brian Chesky      | American       | Airbnb           | Yes        | \$31 billion   | 2008         | Home-sharing             | United States  |
| 34. | Blaise Bellville  | United Kingdom | Boiler Room      | Yes        | £6.5 million   | 2010         | Live club music platform | United Kingdom |

*Forbes magazine started updating net worth and ranking of more than 1,600 billionaires every trading day from 2014. The information of entrepreneur's net worth was gathered from the list of The World's Billionaires by Forbes magazine. 22 December 2017.*

Overall, the results showed that the first ventures were often the first formal businesses set up by the entrepreneurs to raise external investment. Some of the entrepreneurs ran their first informal venture as a part-time while there were at school (e.g., a school child buying jewelry to resell or a teenager designing websites for small, local businesses). These first businesses were started between the age of 15 and 26 years by entrepreneurs. Most of the studied entrepreneurs began to create human capital value to starting their first ventures some time before they really began their real business. Families were found to give significant human capital advancement to almost all entrepreneurs, however, to changing degrees and in various methods. The work and educational experiences of the entrepreneurs were quite dissimilar, both regarding quantity and quality. The two pathways are meant to be seen the common design of pre-start-up human capital associated with certain types of pre-start-up experience and with starting a business at a specific age.

Some of entrepreneurs credited growing up with entrepreneurial relatives as a motivation for turning into a business person, no member said that school had given them motivation to seek a career as entrepreneur. No entrepreneur who had a business degree, even where they figured this may have been to school degree helpful, said that in the event that they had

not done their degree they couldn't have begun their business. Twenty-nine out of 30 entrepreneurs went to university, while 8 of them dropped out from university. Those who had graduated from business school or a computer science program could give technical knowledge and professional value to starting up their business.

*"We were afraid if we waited, someone else would beat us to it. It was a hard decision and I know my parents had their concerns. And while I would never encourage anyone to drop out of school, for me, it turned out to be the right choice."* (Gates)

### Inspiration and Role Models

The finding shows that a parent role model can be a direct influence to the success of the children (see also Marshall, 1998). Entrepreneurial parents and other family members are ascribed with motivating career choices, which could be termed formally as observational learning through role modeling (Shapero and Sokol, 1982; Bowen and Hisrich, 1986; Mokry, 1988; Scherer et al., 1989).

*"My dad, who is also entrepreneur, would give me money to buy the jewelry. I started selling Native-American jewelry that became popular that time. I went to Mexico, to buy the stuff then I'd sell the jewelry up in Toronto. It was like a license to print money. Also I*

**TABLE 2 |** Entrepreneurs information on pre-startup human capital factors.

| Entrepreneur       | Entrepreneurs with self-employed family | Work experience before college | University attended | Work experience after college | Age starting first venture |
|--------------------|---|--------------------------------|---------------------|-------------------------------|----------------------------|
| Reid Hoffman       | No                                      | Yes                            | Yes                 | Yes                           | 30                         |
| Howard Lindzon     | Yes                                     | Yes                            | Yes                 | Yes                           | 25                         |
| Steve Forbes       | No                                      | No                             | Yes                 | No                            | 21                         |
| Dean Kamen         | No                                      | Yes                            | Dropped             | No                            | 25                         |
| Brian Halligan     | No                                      | No                             | Yes                 | Yes                           | 38                         |
| Ma Huateng         | No                                      | No                             | Yes                 | Yes                           | 27                         |
| Travis Kalanick    | No                                      | No                             | Dropped             | No                            | 22                         |
| Christopher Cline  | Yes                                     | No                             | Dropped             | No                            | 21                         |
| Terry Noel         | N                                       | No                             | Yes                 | No                            | 22                         |
| Drew Houston       | No                                      | Yes                            | Yes                 | No                            | 21                         |
| Dave Sifry         | No                                      | No                             | Yes                 | Yes                           | 30                         |
| Jeff Bezos         | No                                      | No                             | Yes                 | Yes                           | 30                         |
| Jack Dorsey        | No                                      | Yes                            | Dropped             | No                            | 24                         |
| Matt Mullenweg     | No                                      | No                             | Dropped             | No                            | 21                         |
| Jessica Alba       | No                                      | Yes                            | Yes                 | Yes                           | 30                         |
| Michael Bloomberg  | No                                      | No                             | Yes                 | Yes                           | 40                         |
| Deena Varshavskaya | No                                      | No                             | Dropped             | No                            | 20                         |
| Jack Ma            | No                                      | Yes                            | Yes                 | Yes                           | 31                         |
| Bill Gates         | No                                      | Yes                            | Dropped             | No                            | 17                         |
| Howard Schultz     | No                                      | No                             | Yes                 | Yes                           | 33                         |
| Larry Page         | No                                      | No                             | Yes                 | No                            | 25                         |
| Olivia Lum         | No                                      | Yes                            | Yes                 | Yes                           | 28                         |
| Sara Blakely       | No                                      | Yes                            | Yes                 | Yes                           | 29                         |
| Peter Jones        | Yes                                     | Yes                            | No                  | No                            | 22                         |
| Chung Mong Koo     | Yes                                     | No                             | Yes                 | Yes                           | 20                         |
| Elon Musk          | Yes                                     | Yes                            | Yes                 | No                            | 24                         |
| Michael Dell       | No                                      | Yes                            | Dropped             | No                            | 19                         |
| Rob Parsons        | No                                      | Yes                            | Yes                 | Yes                           | 34                         |

*would set up shop in my house and sell to all his friends and their kid. I had some advantage other kids didn't have.” (Howard)*

The findings showed that the entrepreneur's parent role model influences their career hopes and education aspirations.

### **Non-graduate work experience**

Human capital is the experience and commitment of staff, as well as their skills that are used in the organizations (Penrose and Penrose, 1995). Human capital is crucial in any organization, but it is low in value if the managers and other entrepreneurs using it do not use it as it is supposed to be used (Marr and Roos, 2005; Oviatt and McDougall, 2005). Although it is considered as a lesser factor in the organization, the importance of human capital in an organization found that it is the most important resource regardless of being intangible (Edvinsson and Malone, 1997; Sveiby and Simons, 2002; Becker and Huselid, 2006).

The data suggest that almost all entrepreneurs had some kind of experience working for someone else at a young age.

*“I think it's fair to say I had absolutely no idea what I would do. I went in thinking I wanted to study physics, but German was a requirement, so I changed to the engineering school. The whole idea of college is to expose yourself to various ideas and cultures and places, to minor in something different, to travel abroad. The part that's most important in an education is how to deal with people. There's no job I know that you do by yourself, and I learned as much from the two guys I worked for at Salomon Brothers, Billy Salomon and John Gutfreund, as I'd learned at Harvard. In the end, it's people skills that you need.” (Bloomberg)*

The finding shows that those entrepreneurs who graduated from university normally continued with a part-time job during the university years. All the entrepreneurs had different work experiences such as a small retail shops, Chinese restaurant, modeling, doing a paper round, and also working in someone's home. The general human capital they created included increasing different workplace experience, creating client benefit aptitudes, working with partners, and, in Howard's case, developing customer service skills.

Two of the entrepreneurs started their first venture before age 20 years which is considered as an informal venture. However, half of the total entrepreneurs which is 14 out of 30 had taken part in informal ventures when they were teenagers before building their own first ventures. These below cases show that entrepreneurs saw informal ventures could be a way of earning money and becoming familiar with venturing processes.

*“Learning to program at around the age of 12 made me feel intellectually powerful and creative in profound ways. I have been teaching children to program since I was a teenager myself.” (Jack)*

*“At age 12, I taught myself computer programming and created a video game called Blaster, which I sold for \$500.” (Elon)*

Informal venturing was normally appraised as being more important in developing entrepreneurial skills than faculty, and was often times considered being a crucial place to begin for an entrepreneur's career like alternative young entrepreneurs who started their informal ventures on the idea of a private interest. These informal ventures give a chance to observe enterprise trial

skills at comparatively little chance of financial risk to the young business founder.

### **Graduate work experience**

The contribution of human capital in an organization makes the issue of recognizing the extent of the resource that should be incorporated and the one that ought not (Andriessen, 2004). In this way, the rule implies that while identifying the knowledge of human capital there should be an appropriate assessment of resource encounters and abilities obtained that can be helpful to the firm (Stuart, 1990; Bosma et al., 2004; Rauch et al., 2005). Studies have consistently noted that previous entrepreneurial experience has an important impact on business performance of an entrepreneur's current venture (Gimeno et al., 1997; Ucbasaran et al., 2006).

In the information gathered in this study, most of the entrepreneurs undertook graduate level work after university and 15 of the remaining entrepreneurs who graduated from university had either more usually started his or her first business after school or found their business during the school years. Entrepreneurs who took part in professional work did various type of jobs such as sales, recruitment, the technology industry, management work, restaurant, and consulting, and they were frequently ready to utilize their work experience after graduation to clarify the positive and negative lessons it had shown entrepreneurs in needing to seek after an entrepreneurial career. Entrepreneurs with post-graduate work experience were less likely to have undertaken entrepreneurial ventures than those entrepreneurs who established their younger businesses during or shortly after university school, including those who had faced some negative lessons from their graduate professional work.

*“At Salomon, I was ‘demoted’ as head of equity trading and sales to head the emerging computer systems area. If I hadn't gotten fired from Salomon, which became part of Citigroup, I wouldn't have gotten a \$10 million severance, used my electrical engineering degree to begin my own information technology company and program a computer terminal for bond traders.” (Bloomberg)*

Anyhow, with post-graduate work experiences, entrepreneurs learned to transfer important skills, solve problems, and answer questions.

## **Relational Capital**

### **Trustworthiness**

Strong relationships are often grounded on trust between cooperative persons (Coleman, 1990; Larson and Starr, 1993). Thus, the relational dimension of intellectual capital concerns interpersonal relationships developed through a series of interactions (Granovetter, 1992). It gives the focus on the special relationships that people have, such as trust, respect, and kindness.

Among these factors, trust is the forerunner to the acquisition of resources, exchange, and the combination of knowledge. Therefore, it is likely that someone who develops a higher level of trust can appropriate the knowledge, information, and other forms of resources accessible in his relational network. In other

words, relational capital will substantially increase someone's propensity to the business.

*"A more important problem is the trust factor. The investors were only concerned with chasing returns and not investing with a great manager who really knew what he was doing – someone you could be with for 10–15 years and it didn't matter what he did today or six months from now because you were going to invest in this guy for 10 years just like you would a business."* (Jeff)

As expressed, the most major resource alludes to the support received from the informal networks of the entrepreneur, including their family, friends, and as well as their life partner. Networks are made between the customer and company, in addition to its supply agents and other vital parts of the business system. This has increased additional participation between the company and its providers with clients. Entrepreneurial goals will be the most grounded, and the prospect of entrepreneurial actions will be the most elevated, when there is a high level of self-efficacy coming from both the nearness of solid social influences from personal connections.

### Co-founder Relations

A main choice for entrepreneurs was whether to create a new venture alone or find a co-founder as a business partner. Sixteen entrepreneurs analyzed in this study had co-founders who built their businesses together during the entire journey of their first big business. In each of these cases, the two co-founders assumed executive functions in the operation of the company, instead of being merely a non-executive director. Entrepreneurs met with their business partners through different media (e.g., a pre-existing friendship, relatives, and business networking). Having a strong and trusting relationship with a business partner was considered very important by most entrepreneurs who were fellow co-founders of a new venture. Having a co-founder was proven as a helpful source of support for the entrepreneur's solitary journey.

*"I think the most important thing is having a support network to be able to speak to, and people who can help you through tough times. I'm very lucky to have a business partner, another great thing to have. You're not there alone in hard times, someone to give you a pat on the back."* (Sara)

Moreover, the work done by the relatives and friends amid the main years of business helping entrepreneurs to make up for the money-related limitations and also lessen the cost used to pay staffs during the starting period (Sanders and Nee, 1996). The help by family and friends offer security to business persons, which benefits the exercises embraced by the new firm. With this respect, the image of the young venture in the market is an essential piece of the intangible asset that can affect the organizations in numerous measurements. Consequently, a positive image of a firm is essential as it empowers the firms to draw in clients and also keep up their loyalty in the beginning times of building up a firm (Shane and Cable, 2002), especially those built through a good co-founder relationship.

*"Me and my brother, we started the business together, so I guess he has a very similar entrepreneurial spirit and interest in the same*

*things as me. So I guess we wouldn't have done the business if there hadn't been the both of us. He was more on the technical side, and I was more on the kind of entrepreneurial and business side. I don't think we would have done it on our own without the other. He would have probably been happy just messing around and programming and stuff. I was really interested in getting into the business side."* (Elon)

The importance of the relationships between business co-founders was noteworthy, as it offered help, support, trust, and a person to talk about the company who was understanding and engaged. As far as human capital, entrepreneurs were specific about the human capital that they and their partner brought to the company, and each co-founder came up with different set of skills and knowledge. On the contrary, those who had started their business solo were more likely to remember that he was an entrepreneur as a solitary career compared to those who had a business partner.

### Psychological Capital

It is a component that is made up of four important aspects, namely self-adequacy (Bandura, 1997), hope, strength, and positive thinking (Carver and Scheier, 2003). Psychological capital means that other important factors are paramount to the success of an organization other than financial and material assets. Some of the research on the components of psychological capital such as positive thinking and self-efficacy plays an important role in the entrepreneurial behavior and success (Gartner, 2007; Hmieleski and Baron, 2009).

In alignment with our initial prognosis, it has been discovered that the psychological capital of entrepreneurs shares a positive relationship with the performance of their new ventures. Maybe the most encouraging thing about the findings of this study is that the psychological capital can most likely be the development of individuals, which highlights the opportunity to train entrepreneurs so that they can flourish and even flourish in difficult situations. Many people may develop professional skills and behaviors, but some people have particular characteristics that improve their potential as entrepreneurs.

### Optimism

Kirby (2006) states that the investigation of the psychological literature of entrepreneurs, arguing that, "The main psychological characteristics of the entrepreneur would appear to be risk-taking ability, need for achievement, locus of control, desire for autonomy, deviancy, creativity and opportunism, and intuition." To a certain degree, this all relies on optimism. More and more publications and literature suggest that entrepreneurs' emotions can have a significant influence on their ability to grow and develop their new businesses. "Considering the great emotional demands that are placed on most entrepreneurs" (Baron, 2008).

*"Well, first of all I'd say I actually think I feel fear quite strongly. So it's not as though I just have the absence of fear. I feel it quite strongly. There are just times when something is important enough that you believe in it enough that you do it in spite of fear."* (Elon Musk)



It is characterized as having the positive anticipation of a result (Carver and Scheier, 2003). In any case, self-viability is an individual trait that is created through life encounter (Bandura, 1977). Hopefulness has appeared to be available in people who have connected with people who have both experienced time and setting of life (Schulman et al., 1993). Individuals who are viewed as hopeful people do not surrender easily but adapt to present circumstances exhibited to them in this way staying occupied with the quest for their objectives not considering the severity of the challenge while their pessimist counterparts have worries in case of a challenge and they can easily despair.

*"In my soul I believe that optimism is rewarded. I truly believe in karma. I hang around with positive people who don't keep score – which limits the people you hang around."* (Howard)

*"Hyflux has an energetic culture that is rooted in entrepreneurship. We have the boldness to dream. We have a 'can-do' spirit. Obstacle can be overcome; it's how we approach the challenges and solve the problems."* (Olivia)

### Self-Efficacy

This study suggests that the self-efficacy of individual firms, described as a person's belief in his ability to achieve a task, affect the development of business action, behavior, and intentions. The presence of an entrepreneur role model positively affects the degree of business self-efficacy. Self-efficacy is a valuable built in characteristic clarifying the dynamic procedure of assessment and decision that encompasses the improvement of entrepreneurial hopes and the consequent choice to occupy in entrepreneurial behavior. What's more, people may frame business hope earlier in their careers, yet not follow on those aims until the point when the enactive area procedure gives the level of certainty expected to accomplishment in a new venture.

*"When I got into high school, I got social again, like really wanted to be able to go out and engage with the people. And I realized that wow, there are all these skills, these things that I can help people, they would come to me and they was like, 'We have these consulting projects like could you build this for me?' And I was like, wow, this is fabulous, this is more money than my parents have ever given me. And so I got really bitten by the entrepreneurial bug."* (Dave)

People can give the largest amount of performance in any tasks they embrace in their lives (Bandura, 1977). It is a characteristic that is considered as the state as it increases with increase in experience of a specific activity. People found to have a positive state of self-adequacy consistently set objectives that go for testing issues in their lives and working toward accomplishing the objective in unpleasant and troublesome circumstances (Phillips and Gully, 1997). Baum et al. (2001), Baum and Locke (2004), and Hmieleski and Corbett (2008) have discovered a positive association between self-adequacy and the improvement of firms. Anna et al. (2000) found that there is a close connection between self-adequacy and work-related interests and choice of occupation among the students in institutions of higher learning despite their sexual orientation. Along these lines, the self-adequacy is a fundamental part of a business enterprise that can be framed at the underlying phases of the business person as a

profession. Additionally, it is sufficient in picking the purposing of the firm when thinking of one.

An interesting finding from this thesis is that people who observe a low-performing parenting model also have hopes of pursuing a professional career, even though their self-efficacy and aspirations for education and training may be lower than those high performance parenting model an entrepreneur who has had success at work can experience higher levels of self-efficacy in similar circumstances in new situations. This person can set higher personal goals, be more persevering to overcome obstacles, and have better long-term performance.

*"I think the one I would put at the very top of the list is independent mind. I think that, in order for someone to succeed as an entrepreneur, he or she has to be willing to trust that his or her convictions are sound. It means having the confidence to think that I am in the minority on this idea, and I am okay with it."* (Dave)

The findings showed that the psychological capital of entrepreneurs is positively linked to the new venture's success. From the observation that psychological capital can provide entrepreneurs with the psychological resources to face the emotional challenges intrinsic in the entrepreneurial action. The highest are the degree of business self-efficacy in the early stages of the business the greater are the strong business intentions. The more prominent the level of entrepreneurial self-efficacy originating from social influence, the more grounded the entrepreneurial intentions, and the higher the likelihood prospect of entrepreneurial activities. The higher the level of entrepreneurial self-efficacy and the higher the level of objective defining and goal responsibility, the more grounded the entrepreneurial goals.

### Hope

Snyder (2000) and Hmieleski and Corbett (2008) characterize trust in the enterprise as the part of a person to battle against any troubling issue while participating in activities of an organization. Business persons who are high in hope can handle and adapt to situations that are sudden or have a shocking misfortune (Lopez et al., 2003). It is a method of dealing with stress particularly for individuals faced with distressing conditions.

*"People management is important – and this encompasses motivation, development, rewards, and retention – as it is the people in the company who can help you succeed."* (Peter)

The hope is considered to have a level of significance in the entrepreneurial setting as it helps in defining objectives and making arrangements for future, which helps with accomplishing the goals of a firm (Alexander and Onwuegbuzie, 2007).

*"I want my investors to say I busted my ass to get them their money back plus something."* (Howard)

From time to time, hope may also come from the desire toward a leader or mentor to offer constructive guidance.

*"We will need to put in a lot of effort communicating with mid-level management and developing a system of mentoring the younger staff. With time, the communication avenues, common processes, and management systems that are being developed will*



*be integrated in transmitting our vision, mission, and values to our entire staff across the different markets.” (Olivia)*

## Resilience

Resiliency and flexibility are the capacity of people to change distressing life encounters and adjust to the changing unpleasant life requests (Tugade and Fredrickson, 2004). Individuals who are flexible can survive any conditions as they learn ways of adjusting to various encounters of life. Masten et al. (1999) states that to term individuals as strong, they are likely to have encountered life threatening experiences, which they overcame by going through the situation.

*“I think probably the biggest factor that separate successful entrepreneurs from those who die on the vine is that they just decide they will do no matter what. They may have to change their approach to an idea, but they have to be resilient enough to get up, dust themselves off and go at it again.” (Howard)*

The capacity of these people to conquer the threatening circumstance using different approaches is a characteristic that strong people have (Markman et al., 2005). Business people are faced with unpleasant occasions in their exercises and to conquer these conditions they ought to have the capability of bouncing again from the assorted variety and utilize the accessible assets to make sure they succeed.

## The Mutual Influences Among Psychological, Human, and Relational Capitals

One of the most contributive parts of this paper is the finding that the three major capitals in the entrepreneurship context may have mutual influences on one another. Although we only retrieved some initial evidences from the sampled interview contents, the theoretical and practical implications brought by the interactions among human, relational, and psychological capitals are important. We offer some discussions of the important interactions as follows.

The first important mutual influences we found in the data are the influence of self-efficacy (psychological capital) on education (human capital). Self-efficacy, as in the provided example below and other famous entrepreneurs' success stories, is often a major factor that affects the nurturing of prospect entrepreneurs' capability. However, the direction of influences is not always “positive.” In some cases, self-efficacy did not lead the entrepreneur to be educated further; on the contrary, self-efficacy might encourage entrepreneurs to drop from their current education.

*“... Trust your gut ... I dropped out just before finals because I got an internship at Morgan Stanley. As an entrepreneur, you have to take risks. But as an engineer, there's always a backup.” (James P.)*

Psychological capital is also influential on relational capital of entrepreneurs. An example in our analyses is that hope once helped an entrepreneur to build relationship with their new customers.

*“The best part of a pitch is passion ... We did a very poor pitch to our first landlord: a four-page PowerPoint presentation and some*

*pizza. An experienced restaurateur would have said, ‘They don't have a clue.’ But we were passionate. Starting out, to win a pitch you need to get your passion across.” (M. Worgan)*

It is interesting that we found both resilience and self-efficacy are influential on co-founder relations, positive and/or negative. In a quote from the founder of Airbnb, the entrepreneur expressed that resilience as a strong psychological attribute and co-founder relations are of mutual effects, while in other quote from the Pinterest's founder saying that self-efficacy also as a strong psychological factor might have relatively less influence on co-founder relations by putting too much self-assertive thoughts on the overall directions when making collective decisions.

*“The turning point for Airbnb was when my two cofounders and I lived and worked together seven days a week. Bouncing ideas around late at night formed some magical moments and that close bond is what builds your company.” (B. Chesky)*

*“Don't take too much advice. Most people who have a lot of advice to give – with a few exceptions – generalize whatever they did. Don't over-analyze everything. I myself have been guilty of over-thinking problems. Just build things and find out if they work.” (B. Silbermann)*

It is interesting that we found that keeping optimism as a kind of psychological capital might overcome some potential flaw brought by the feelings of uncertainties that are due to insufficiencies in human or relational capital aspects.

*“One misconception is that entrepreneurs love risk. Actually, we all want things to go as we expect. What you need is a blind optimism and a tolerance for uncertainty.” (D. Houston)*

*“Put the vision first ... When you first go into something creative, it's a mistake to focus on the money. Do it for the right reasons and it's more likely to turn into a business than if you try and force it.” (B. Bellville)*

Also encouraging was that being a good state of psychological capital could help overcome negative relations. As an entrepreneur noted strongly,

*“Don't be afraid to assert yourself, have confidence in your abilities and don't let the bastards get you down.” – Michael Bloomberg, Bloomberg L.P. founder*

Additionally, we've found supports indicating that relational capitals could facilitate psychological capital. Such relational support may come from horizontal or vertical relations.

*“Get a mentor in the applicable field if you're at all unsure of what you're looking for.” – Kyle Bragger, Forrest founder*

*“No matter how brilliant your mind or strategy, if you're playing a solo game, you'll always lose out to a team.” – Reid Hoffman, LinkedIn co-founder*

In sum, some exploratory but promising findings could encourage us to think and examine more on the mutual influences and co-evolutions of human, relational, and psychological capital.

## CONCLUSION

In conclusion, for entrepreneurs to have psychological capital, they should possess the four main components that comprise hope, resilience, optimism, and self-efficacy. Entrepreneurs with psychological capital tend to have a reputation for mental hardiness that attracts customers as well as situations that enable the organization to reinforce their capacity within the organization. Entrepreneurs with these characteristics do not only increase the well-being of their organizations or businesses but also allow the organization to develop their grit with the aim of preserving entrepreneurial process (Hmieleski and Ensley, 2007). These psychological capital components target the emotional demands of the organizational behavior and success, therefore, acting as an essential resource that should always be available to all entrepreneurs that start new ventures.

The objective of this study has been to illustrate the relationship between the success of new firm and intellectual capital of entrepreneur. This part of the conclusion analyses the findings in connection to the current literature, to give answer to the thesis questions. In addition, this research examined the complex relationships between particular factors of IC, structural capital, human capital, and relational capital, in link to the firm's success and the entrepreneur. The main finding was that the development of these sort of IC factors and even though the main beneficiary of existing relational capital and human capital, and psychological capital and the entrepreneur is on one side the major factor responsible for the creating new venture.

The findings show that the IC of new venture is positively connected with the success recognized by the entrepreneur. The partial findings uncover that both the relational capital and human assume an essential part in the growth of new business while the structural capital is generally important but this study couldn't find relatively enough evidence for structural capital from the interviews. This was the main weakness of this study. As mentioned above, this research provides the dimensions of IC (relational capital and human capital) and PC that are main factors for entrepreneurial firm success.

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Human capital is the entrepreneur's essential quality that alludes to her or his business skills, abilities, and knowledge that come from training, experience, and education. Generally, human capital is the learning knowledge, abilities, and traits created by a person which can be utilized as both an entrepreneur and a worker, and can be produced in any segment of the economy. It can be learned through instruction, work, and education. Entrepreneurship, especially human capital, are the capacities, learning new abilities, collecting knowledge, and quality created by people that are particularly essential to be an entrepreneur, particularly the experience of being a businessman. The main focus of this research involved the family has been the impact of the parents' profession on their children's decision to be an entrepreneur.

The findings suggest that entrepreneur's emotions can have an important influence on their capacity to build and develop their new business. In addition, the advantages of psychological capital noticeable to be as significant to entrepreneurial success as more traditional dimensions of psychological capital. This perception might be due in part to the fact that entrepreneurs generally face scarcity of human capital, social capital, and also financial capital. Psychological capital can be a censorious form deciding why some businessmen, but not others, can endure and create successful startups with limited resources.

## AUTHOR CONTRIBUTIONS

YW conceptualized the manuscript and is in charge of R&R works. OE developed the first draft. C-HT and DL conducted the qualitative analyses. JC edited and reviewed the manuscript.

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The handling Editor declared a shared affiliation, though no other collaboration, with one of the authors C-HT.

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# The Background Structure of Entrepreneurial Team and Strategic Investment Decisions: A Collective Psychological Capital Perspective

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Drawing from the perspective of collective psychological capital, this study analyzes the internal mechanism of how top management structure influences R&D, and marketing investment decisions. Utilizing a sample of 346 Chinese listed companies in high-tech industries from 2012 to 2017, we examine the relationship between the proportion of entrepreneurial team with technology, marketing-related background, and R&D marketing expenditure. The empirical results show the proportion of entrepreneurial team with the technological background is positively related to R&D expenditure and negatively related to marketing expenditure. On the contrary, we also find that the proportion of entrepreneurial team with a marketing background is a negative correlation with R&D expenditure and positive correlation with marketing expenditure. Our study has expanded the perspective and scope of the research on the antecedents of strategic investment decisions, and the practical implications are discussed.

**Keywords:** collective psychological capital, functional background, background structure, investment decision, entrepreneurial team

## INTRODUCTION

Companies pursuing different business orientations generally have different strategic investment decisions – companies with entrepreneurial orientation often allocate more resources to R&D activities, while companies with market orientation usually allocate more resources to marketing activities. Under the limited resources, there may be a competition for resources between R&D and marketing activities. However, what determines this type of resource allocation decision of company? The existing literature has not yet provided satisfactory answers. Previous studies have extensively examined the direct and indirect effects of entrepreneurial orientation on firm performance (Wiklund and Shepherd, 2003, 2005; Moreno and Casillas, 2008; Stam and Elfring, 2008; Engelen et al., 2015), and the marketing literature also comprehensively analyzes the consequences of market orientation (Narver and Slater, 1990; Han et al., 1998; Morgan et al., 2009; Lee et al., 2015; Devece et al., 2017). In addition, some scholars have also studied the relationship between entrepreneurial orientation and market orientation (Miles and Arnold, 1991; Baker and Sinkula, 2009). However, the determinants of entrepreneurial orientation and market orientation have not been fully studied, and we still do not understand why different companies have different business orientations and resource allocation decisions.



The psychological capital literature has highlighted the important role of positive psychological state on individual attitudes, behavior, and work performance (Luthans et al., 2004, 2005, 2006, 2007a, 2008, 2010; Luthans and Youssef, 2004; Avey et al., 2009, 2010, 2011; Newman et al., 2014), and four positive psychological resources have been identified by Luthans et al. (2004): self-efficacy, hope, optimism, and resiliency (Luthans and Youssef, 2004), which are conceptualized as a higher-order construct of psychological capital (Newman et al., 2014). Some empirical studies have provided empirical evidences that individual psychological capital has a positive impact on job performance (Luthans et al., 2005, 2008, 2010), work attitudes, and behavior (Avey et al., 2010). Recently, some empirical studies have further expanded the research scope of psychological capital at the individual level and provided some interesting findings, for example, Leon-Perez et al. (2016) report that employees' psychological capital positively influence their service quality and negatively affect their burnout. Chen et al. (2017) find that leaders' psychological capital has positive impact on that of their followers by the mediation role of organizational identification, Hu et al. (2018) have examined the mediating role of subordinate psychological capital on the relationship between authentic leadership and proactive behavior. The psychological capital literatures at the individual-level have attracted many scholars' interest in studying psychological capital at the group or organizational level (Hambrick and Mason, 1984; Walumbwa et al., 2011; Dawkins et al., 2015; Heled et al., 2016; Luthans and Youssef-Morgan, 2017). For example, Walumbwa et al. (2011) report that collective psychological capital of groups is significantly correlation with their group-level performance and citizenship behavior, Dawkins et al. (2015) develop a multilevel-multi-referent framework to conceptualize collective psychological capital, Heled et al. (2016) find that the team's psychological capital is positively related to the team's organizational citizenship behavior. Unfortunately, few scholars have noticed that the collective psychological capital of TMT may affect the company's strategic investment decisions.

Indeed, upper echelons theory has long advocated that company strategic choices are the outcomes of TMT's decision-making and behavior (Walumbwa et al., 2011), thus, we believe that business orientation and strategic investment decisions will be greatly influenced by TMT's collective cognition, and psychological state. Because psychological capital is a state-like construct, it may change with individual, or group experiences and tasks, for example, when confronted with the same decision-making task, TMTs with different background structures may have different collective psychological states and different decision preference. Therefore, based on the perspective of collective psychological capital, this study attempts to analyze and test the influence of entrepreneurial team' background structure on strategic investment decisions, this will have the following research implications.

First, our study contributes to the business orientation and strategic decision literature. As noted as above, the outcomes of entrepreneurial orientation and market orientation have been broadly analyzed and examined empirically, but the antecedents of them have not been fully investigated and tested. Although

a few studies have analyzed the impact of executives' individual characteristics on entrepreneurial orientation, such as Boling et al. (2016) examine the effect of CEO tenure on entrepreneurial orientation. Barker and Mueller (2002) investigate the influence of CEO characteristics on R&D investment. While these studies mainly focus on individual level. Our study enriches and expands the perspective and scope in this field by the analyzing group-level phenomenon.

Second, our study also contributes to the psychological capital literature. The literature of organizational behavior has extensively studied the antecedents and outcomes of individual psychological capital. However, the study at the group-level is still in its infancy, especially the research on the influencing factors of group's psychological capital. We believe that the different background structure of senior executives will affect TMT's collective psychological capital, especially when dealing with different decision-making tasks. Therefore, our study extends the research on psychological capital in the field of micro-organizational behavior to the field of strategic management research.

Finally, our study is also helpful to understand and reconcile the contradiction between entrepreneurial orientation and market orientation, as Matsuno et al. (2002) mentioned, there is a potential tension between entrepreneurial proclivity and market orientation, under the constraint of resources, it is difficult for a company to provide sufficient resources for both the two orientations simultaneously, both theory and practice require a clear understanding of how a company decides its R&D and marketing investment decisions. Our study contributes to this line studies by analyzing the distinctive effect of the proportion of entrepreneurial team with different background (technology-related and marketing-related background) on different strategic investment decisions (R&D and marketing investment decisions).

## THEORETICAL BACKGROUND AND HYPOTHESIS

### Theoretical Foundation

Psychological capital at individual-level has been defined as "one's positive psychological state of development that is characterized by (1) having confidence (self efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive expectation (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans et al., 2007b; Luthans and Youssef, 2007). Based on the works of Bandura (1997), Walumbwa et al. (2011), and Luthans et al. (2007b) further define collective psychological capital as the "group's shared psychological state of development that is characterized by the above four attributes," and suggest that "group's collective psychological capital is a product of interactive/coordinative dynamics and leadership," it can



produce “desired behaviors and performance outcomes” (Walumbwa et al., 2011, p. 6-7).

We argue that the background structure of entrepreneurial team will influence business orientation and related spending decisions, the reason is that both the background-structure of entrepreneurial team and the characteristics of strategic decision-making tasks will affect the TMT’s collective psychological capital. In other words, TMT’s collective psychological capital will vary with the changes of its structure and decision-making tasks. Indeed, some empirical studies show that psychological capital is a state variable, for example, the empirical results of Luthans et al. (2007a) suggest that psychological capital is a “state-like” construct. On the other hand, prior studies have theoretically and empirically analyzed the influence of collective psychological capital on group behavior and group-level performance, for example, Walumbwa et al. (2011) report that group’s collective psychological capital has positive influence on group performance and citizenship behavior, Heled et al. (2016) find that team’s psychological capital is positively related to the team’s organizational citizenship behavior. Therefore, from the perspective of collective psychological capital, we analyze how the structure of entrepreneurial team affects the company’s business orientation and related decisions as follows:

## The Technological Background Structure of Entrepreneurial Team and Strategic Investment Decisions

Hambrick and Mason (1984) claim that entrepreneurial team are the main strategic decision makers of company, and the company’s strategic decisions and behaviors are the outcomes of the cognition and interaction of TMT members. TMT is generally composed of members with different professional and work experience backgrounds, the personal backgrounds of entrepreneurial team not only impact individual cognition, but also affects the interaction style with other team members, thus affecting the group cognition and collective interaction style, because psychological capital is a “state-like” construct (Luthans and Youssef-Morgan, 2017), the collective interaction style may influence TMT’s collective psychological capital of development, and especially when they face various strategic decision tasks that will lead the company to different growth directions. Unlike other background entrepreneurial team, entrepreneurial team with technology-related background may have stored more science and technology-related information and knowledge in their brains, because they may have experienced a great deal of science and technology related training, learning, and working. When a technological top manager is involved into technology-related strategic decision, he/she can quickly understand the prospect and importance of the project, and know how to ensure the success of the project, thus, he/she is prone to positive psychological states such as confidence, optimism and hope. When a technological top manager is being beset by problems and adversity of the project, based on his/her technology-related knowledge, he/she can quickly identify the existing problems and find out the path to success, in this situation, he/she show a higher resilience.

Therefore, we believe that entrepreneurial team with technology-related backgrounds tend to choose the strategies of entrepreneurial orientation, and support allocating more resources to technology-related activities, such as R&D and technological innovation activities, because they have higher psychological capital in the process of completing technology-related tasks. On the contrary, because technological entrepreneurial team may lack of marketing-related knowledge and work experience, they may not be able to accurately understand and grasp the current situation and future trend of the market and competition, thus, when they are involved in marketing-related strategic decisions, they cannot judge whether the relevant marketing investment can achieve corresponding returns, and it is difficult for them to generate positive psychological states such as confidence, optimism, and hope. Specially, when the marketing investment fails to bring the expected benefits to the company, they are prone to fall into pessimism, and oppose the continued allocation of resources to related marketing activities. Therefore, we argue that entrepreneurial team with technology-related backgrounds will not tend to support a strategic decision of market orientation, and may have negative influence on the investment in marketing activities.

On the other hand, when dealing with decisions related to entrepreneurship and market orientation, entrepreneurial team with technology-related backgrounds not only show different psychological capital and decision preferences at the individual level, but also at the group level. At this point, it can be explained from two aspects. First, when technological entrepreneurial team are involved in the decision process of technology-related projects, they can effectively communicate and discuss with each other because they have shared or similar knowledge and experience, for example, they can analyze the advancement and operability of technology-related investment projects, accurately understand the prospect and key successful factors of the project, and find ways to break through the technical difficulties, thus making technological top management team full of confidence and hope for the success of the project.

As a result, the interaction between technological entrepreneurial team increases the psychological capital of the group, making it easy for them to reach an agreement on technology-related investment decisions. Secondly, technological entrepreneurial team can also enhance the confidence of other background executives in technology projects by interpersonal interaction, for example, technology executives can carefully explain the prospect of technology projects to other executives, help to build other executives’ confidence on the project, and improve other executives’ psychological capital, which is conducive to persuade other executives to support the project. However, when technical executives are involved into the decision process of marketing-related investment, they may object to investing in marketing program not only because they may lack the positive psychological state to the marketing project, but also because marketing investment may reduce their preferred R&D investment under the company’s limited resources, thus they have motivation to prevent the approval of marketing investment decisions.

In China, the economic system is still in the process of continuous reform and improvement. With a high degree of environmental uncertainty, strategic decisions of listed companies are generally determined by total entrepreneurial team. In the practice of collective decision-making of the Chinese listed companies, the strategy choices are ultimately decided by voting; whether an investment decision can be approved or not, depends on the number of votes of support. As mentioned above, technical entrepreneurial team tend to support the decisions of technology-related investment; so the number of technical entrepreneurial team can be regarded as the number of votes of support.

Therefore, for the decision of technological R&D investment, when the proportion of technology executives in listed companies is relatively high, they can create higher TMT's collective psychological capital by the individual and group interaction mechanism, and TMT may show a positive psychological state which is characterized by self-efficacy, optimism, hope and resilience to the success of R&D projects, thus increasing the possibility of approval of R&D investment proposals. In other words, the higher the proportion of entrepreneurial team with technology-related backgrounds in listed companies, the greater their influence on strategic decisions, and the higher the collective psychological capital of TMT in technology-related investment decisions, the greater the probability that listed companies will choose entrepreneurial-oriented strategies and increase the company's R&D investment, which will reduce the company's investment in marketing under limited resources. And vice versa, under the constraints of resources, when the proportion of technology executives in listed companies is relatively low, their influences on TMT's collective psychological capital is relatively small, and the R&D investment proposal may not be approved, or only a discounted proposal is chosen, for example, reducing the amount of investment in R&D. Therefore, we hypothesize as follows:

Hypothesis 1: *Ceteris paribus*, the proportion of entrepreneurial team with technology-related background is positively related to R&D expenditure.

Hypothesis 2: *Ceteris paribus*, the proportion of entrepreneurial team with technology-related background is negatively related to marketing expenditure.

## The Marketing Background Structure of Entrepreneurial Team and Strategic Investment Decisions

Compared to technical entrepreneurial team, entrepreneurial team with marketing background have more market knowledge, information and marketing practice experience, they grasp more knowledge and information concerning to the customers' demands and preferences, know how to meet these demands and create value for customers, and thus they can find effective ways to improve customer satisfaction and customer loyalty. In addition, compared with other executives, marketing background executives may more accurately identify the main competitors of company, and understand the advantages and disadvantages of competitors, thus knowing which marketing methods can

effectively improve the company's market competitiveness and market share. Therefore, marketing-background executives naturally have a preference to invest in marketing activities, when they are involved into the investment decision related to marketing, they may have more confidence on the success of marketing program, because they know the paths to preform marketing goals, they have more possibility to produce positive psychological state such as hope and optimism. When the marketing activities fail to achieve the expected results, they can effectively find the existing problems and design relevant solutions. Therefore, when the marketing background executives face the difficulties and obstacles of marketing activities, they can still show a positive psychological state such as resilience. Based on the above analysis, we believe that entrepreneurial team with marketing backgrounds may have higher psychological capital in the decision process of marketing investment, thus, they may tend to support the choice of market-oriented strategies and have a positive impact on the company's marketing-related investment.

At the group-level, marketing-background executives can communicate with each other, share marketing-related knowledge and experience, and deeply discuss marketing decision proposal, thus, they can predict the potential problems of the proposal and prepare solutions in advance, further improving the collective psychological capital of marketing-background entrepreneurial team. In addition, marketing entrepreneurial team can also introduce to other executives the advantages of the marketing proposal, the possibility of its realization, and the benefits it can create for company, these behaviors may enhance other entrepreneurial team's confidence in the success of the marketing proposal, and persuade other executives to support the proposal. The higher the proportion of marketing entrepreneurial team in a company, the greater the influence of marketing entrepreneurial team on the company's strategic decisions, and the greater the collective psychological capital of TMT for the marketing proposal, the higher the probability that marketing proposal will be approved. Therefore, we believe that the proportion of entrepreneurial team with marketing background will have a positive impact on the company's marketing investment.

On the other hand, entrepreneurial team with marketing-background may show different psychological states when they participate in the decision process related to technology-related R&D investment. First, because entrepreneurial team with marketing background generally do not have in-depth and broad technology-related knowledge and information, they may not be able to effectively evaluate and judge the success possibility of technology-related R&D projects. Therefore, they may not be able to build confidence, hope and optimism for the R&D investment project, which may lead to negative psychological states such as pessimism and suspicion. When entrepreneurial team with marketing-background have a higher proportion in TMT, their negative psychological states will influence other managers' emotions and reduce TMT's collective psychological capital. Secondly, under the limited resources of company, too much research and development investment may reduce the free resources of company, which may lead to a reduction in

the marketing investment budget. Some marketing programs with high-risk and high-return may not be able to obtain sufficient resources to be performed. Therefore, marketing-background executives may not support the company's R&D investment. The higher the proportion of marketing-background executives, the greater their influence on the company's strategic decisions, and the lower the possibility of approval of R&D investment decisions. Therefore, we believe that the proportion of entrepreneurial team with marketing background will have a negative impact on the company's research and development investment.

In short, we argue that the marketing-background structure of entrepreneurial team will have higher individual and collective psychological capital when they are involved in marketing investment decisions, so they may have a positive influence on marketing investment. When entrepreneurial team with marketing background are involved in the decision process of R&D investment, they may have lower individual and collective psychological capital, therefore, entrepreneurial team with marketing background will have a negative impact on R&D investment. The higher the proportion of marketing-background managers in TMT, the stronger the above effect. Thus, we hypothesize as follows:

Hypothesis 3: *Ceteris paribus*, the proportion of entrepreneurial team with marketing-related background is positively related to marketing expenditure.

Hypothesis 4: *Ceteris paribus*, the proportion of entrepreneurial team with marketing-related background is negatively related to R&D expenditure.

## MATERIALS AND METHODS

### Sample

To test the above hypotheses, we collected panel data of high-tech listed companies at the period 2012–2017 in China. These companies belong to the following industries: computer and communication technologies, instrument and meter manufacturing, electronic equipment manufacturing, bioengineering, and pharmaceutical manufacturing. The sample companies are publicly traded in the Shanghai and Shenzhen stock exchanges of China. To obtain a balance panel data, we have excluded the companies which are labeled by ST and ST\* (ST or ST\* companies' operating and financial conditions incur changes abnormally, and their stocks may be ceased to trade in China stock exchanges), and deleted companies that have serious missing data. The reason of using balanced panel data follows. According to China's regulation policies for high-tech listed companies, companies with serious data shortages (unbalanced) generally have bigger operational or managerial problems. That is, these companies might be in an abnormal state of operation. The inclusion of a sample with such companies may biased the results and make the results difficult to be interpreted. Finally, we get 2076 sample observations. Details follow: first, for computer and communication technologies, sample companies:195, observations:1170; for instrument & meter and

electronic equipment manufacturing, sample companies:19, observations:114; for bioengineering and pharmaceutical manufacturing, sample companies:132, and observations:792. Our sample data mainly come from the CCER database in China, to ensure the accuracy of the data, we repeatedly collect the same data from the CSMAR database, the result shows that our data has no obvious mistakes.

## Measures

### Dependent Variable

#### *R&D expenditure (RDE)*

Observation value is the ratio of R&D expenditures to total sales revenue, R&D expenditures refer to spending money in innovation activities, such as technological improving, new product development, and core technology research.

#### *Marketing expenditure (MAE)*

Observation value is the ratio of sales expenditures to total sales revenue, which include advertising expenses, sales expenses, business promotion expenses, etc.

### Independent Variables

#### *The proportion of entrepreneurial team with technological background (PTMT)*

We define entrepreneurial team with technological background as senior managers with technology-related education, learning and work experience, they may be the members of board of directors, the members of board of supervisors, or other senior managers. The judging criteria are: (1) learning experience of science and engineering in colleges or universities; (2) work experience in the R&D department; (3) work experience in the production department; (4) the work experience in scientific or technological research institutes; and (5) owning the qualification of assistant engineer, engineer, and senior engineer. We calculate the PTMT observation by the ratio of the number of technical executives to the total number of executives, and the number of entrepreneurial team with technological background is collected manually from the resumes of executives of listed companies.

#### *The proportion of entrepreneurial team with marketing background (PTMM)*

We define entrepreneurial team with marketing background as senior managers with marketing-related education, learning and work experience, they may be the members of board of directors, the members of board of supervisors, or other senior managers. The judging criteria are: (1) learning experience of sales, marketing in colleges or universities; (2) work experience in sale/marketing department; (3) work experience in trading companies, retail stores, and advertising companies, etc. We calculate PTMM by the ratio of the number of marketing entrepreneurial team to the total number of entrepreneurial team, and the number of entrepreneurial team with marketing background is also collected manually from the resumes of executives of listed companies.

### Control Variables

We control the variables that have the potential to influence R&D and marketing expenditures as follows:

### Financial performance (ROA)

Firm financial performance has been argued to have a feedback influence on innovation investment, to avoid the endogeneity problem, we use the observation of financial performance in the previous year, and measure it by ROA (calculated by net profit/total assets).

### Firm size (SIZE)

We measure firm size as the natural logarithm of the total assets.

### Asset-liability ratio (LEV)

The asset-liability ratio is calculated by total debts/total assets.

### Cash flow (CASH)

Cash flow is calculated by the cash flow generated in the business activities/total assets.

### Organizational slack (Slack)

Organizational slack is calculated by the sum of financial expenses and management expenses/sales income.

### Ownership concentration (TOP1)

Ownership concentration is measured by the share-holding ratio of the largest shareholder.

### Ownership balance (TOP2)

Ownership balance is measured by the sum of the share-holding ratios of the second to tenth large shareholder.

### Sales revenue growth rate (growth)

The sales revenue growth rate is calculated by the difference between the current year and the previous year number/ the previous year number.

### Operating profit rate (profit)

The rate of operating profit is calculated by the formula of total profit/total income.

Other control variables include: Industry, dummy variable.

## Models and Results

### Regression Equation

To test the above hypotheses, we build the following models (1) and (2): we utilize model (1) to test the effects of top managers with technology and marketing background on R&D expenditure, and use model (2) to examine the influences of top managers with technology and marketing background on marketing expenditure.

$$RDE_{i,t} = \alpha_0 + \alpha_1 PTMT_{i,t} + \alpha_2 PTMM_{i,t} + \alpha_k \Sigma \text{Controls} + v_i + \varepsilon_t + \mu_{i,t} \quad (1)$$

$$MAE_{i,t} = \beta_0 + \beta_1 PTMT_{i,t} + \beta_2 PTMM_{i,t} + \beta_k \Sigma \text{Controls} + v_i + \varepsilon_t + \mu_{i,t} \quad (2)$$

In model (1) and (2),  $RDE_{i,t}$  represents the R&D investment of company  $i$  in year  $t$ ,  $PTMT_{i,t}$  represents the proportion of top managers with technological background of company  $i$  in year

$t$ ,  $PTMM_{i,t}$  represents the proportion of top managers with marketing-background of company  $i$  in year  $t$ , and  $\Sigma \text{controls}$  represents all of the control variables. In the equations,  $\alpha_0$  and  $\beta_0$  is intercept and  $\alpha_i$  and  $\beta_1$  is the parameters that need to be estimated.  $v_i$  and  $\varepsilon_t$  represent unobservable individual effects and time effects in the current period, and  $\mu_{i,t}$  indicates the mixed random interference of the individual and time effects.

### Descriptive Statistics

**Table 1** shows the descriptive statistics for main variables, The results indicate that the average proportion of top managers with technical background is 30.5%, the standard deviation is 15.6%, the minimum value is 0, and the maximum value is 0.813, the mean and standard deviation of top managers with marketing background are 11.2 and 9.5%, the minimum and maximum value are 0 and 0.533, which manifest that the proportion of technical executives is higher than that of marketing executives in Chinese listed high-tech companies. In addition, the means of R&D expenditure and marketing expenditure are 6.2 and 12.1%, respectively, and its standard deviations are 7.0 and 12.9%, which indicates that the marketing expenditure of China's high-tech listed companies is higher than that of R&D on average.

**Table 1** also indicates that the variation of the study variables is sufficiently large for regression analysis.

### Correlations Analysis

We used STATA14.0 to analyze the correlation and significance among all variables. **Table 2** also reports the correlation coefficients between all variables and the P-value of all correlation coefficients. In **Table 2**, the correlation coefficient between the proportion of technical top managers and R&D expenditure is 0.15 ( $P < 0.001$ ), and it is consistent with our expectation that their relationship will be positive. The correlation coefficient between the proportion of top managers with marketing-background and R&D expenditure is -0.05 ( $P < 0.05$ ), which shows that the proportion of marketing top managers is negatively related to R&D expenditure on average.

In addition, the correlation coefficient between the proportion of technical top managers and marketing expenditure is -0.07 ( $P < 0.001$ ), and the correlation coefficient between the proportion of top managers with marketing-background and marketing expenditure is 0.12 ( $P < 0.001$ ), which also support our assumptions that the proportion of top managers with technological background will have negatively influence on marketing expenditure and the proportion of top managers with marketing background will have positively impact on marketing expenditure.

From the data in **Table 1**, we also find that the correlation coefficients among the independent variables and the control variables are low and that most correlation coefficients are lower than 0.5. The variance inflation factors of all variables are lower than the threshold of 10, which indicates that the multicollinearity problem will not threaten the results of our regression analysis. In order to avoid the influence of multicollinearity on the accuracy of the regression coefficient estimation of independent variables, we also performed VIF test on all independent variables and control variables after regression



**TABLE 1** | Means, standard deviations (SD), and correlations of variables.

|           | Mean  | SD   | 1        | 2        | 3        | 4       | 5        | 6        | 7        | 8       | 9        | 10      | 11       | 12      |
|-----------|-------|------|----------|----------|----------|---------|----------|----------|----------|---------|----------|---------|----------|---------|
| 1 RDE     | 0.06  | 0.07 |          |          |          |         |          |          |          |         |          |         |          |         |
| 2 MAE     | 0.12  | 0.13 | 0.003    |          |          |         |          |          |          |         |          |         |          |         |
| 3 PTMT    | 0.31  | 0.16 | 0.15**   | -0.07*** |          |         |          |          |          |         |          |         |          |         |
| 4 PTMM    | 0.11  | 0.10 | -0.05*   | 0.12***  | 0.13***  |         |          |          |          |         |          |         |          |         |
| 5 ROA     | 0.05  | 0.07 | -0.15**  | 0.21***  | -0.01    | 0.01    |          |          |          |         |          |         |          |         |
| 6 SIZE    | 21.84 | 1.04 | -0.09*** | -0.06*** | -0.09*** | 0.01    | 0.08***  |          |          |         |          |         |          |         |
| 7 LEV     | 0.34  | 1.91 | -0.14*** | -0.19*** | -0.16*** | -0.03   | -0.31*** | 0.43***  |          |         |          |         |          |         |
| 8 CASH    | 0.05  | 0.07 | -0.07*** | 0.13***  | 0.01     | 0.05*   | 0.36***  | 0.07***  | -0.19*** |         |          |         |          |         |
| 9 TOP1    | 0.32  | 0.14 | -0.09*** | 0.06**   | -0.01    | 0.13*** | 0.16***  | 0.02     | -0.09*** | 0.11*** |          |         |          |         |
| 10 TOP2   | 0.23  | 0.12 | 0.06**   | 0.03     | 0.12***  | -0.01   | 0.07***  | -0.08*** | -0.23*** | 0.01    | -0.27*** |         |          |         |
| 11 slack  | 0.27  | 0.44 | 0.17***  | 0.26***  | -0.04    | 0.02    | -0.01    | -0.02    | -0.03    | 0.00    | 0.01     | 0.02    |          |         |
| 12 profit | 0.11  | 0.37 | -0.28*** | 0.07***  | -0.03    | -0.01   | 0.58***  | 0.01     | -0.24*** | 0.16*** | 0.05*    | 0.09*** | -0.12*** |         |
| 13 growth | 0.23  | 0.71 | -0.06**  | 0.03     | -0.03    | 0.01    | 0.12***  | 0.11***  | 0.07***  | 0.00    | -0.01    | 0.10*** | -0.01    | 0.08*** |

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

analysis. The test results are shown in the following **Table 2**. The regression equation can be seen from the results in the table. The VIF values of all variables in all variables are much less than 10, indicating that there is no obvious multicollinearity problem in the regression equation of this study.

### Endogeneity Test

If the independent variables are significantly correlated with the regression residual, it will lead to parameter estimation error, we follow the endogeneity test method of Wooldridge (2012), and construct model (3) to test the endogeneity of the main independent variables.

$$Y_{it} = \alpha + \beta X_{it} + \gamma Z_{it+1} + \varphi F_{it} + v_i + \varepsilon_{it} \quad (3)$$

In model (3),  $Y$  is the dependent variable,  $X$  is the independent variables and control variables,  $Z$  is the observations of independent variables and control variables at the  $t+1$  year,  $F$  is the time dummy variables, and  $V_i$  is the non-observable effect. If all of the coefficients of  $Z$  is not significant, the assumption that all variables are exogenous is accepted. If there is a coefficient of  $Z$  that is significant, the corresponding variable is endogenous. The regression result of model (3) shows that ROA is an endogenous variable. To eliminate the threat of endogeneity to our parameter estimation, we use the ROA observations at the  $t-1$  year in our regression equations.

### Regression Analysis

To test the four hypotheses in this study, we have established models (1) and (2) to estimate the regression parameters by the method of single-equation or multi-equation. To compare the difference between the two regression methods, we use single-equation OLS regression and multi-equation 3SLS regression to estimate all the parameters respectively, and the results are shown in **Table 2**.

Model (1) in **Table 2** is utilized to test hypotheses 1 and 4, which predict that top managers with technical background will have a positive effect on R&D expenditure, and top managers with marketing background will have a negative impact on R&D expenditure. We utilize R&D expenditure as the dependent variable, the proportion of top managers with technical background and marketing background are taken as independent variables, we also control main variables that may affect R&D expenditure. To avoid the threats of the endogenous problem to the regression result, the ROA data are delayed by one year, thus, we miss 346 observations and the total number of observations is 1730. The result of single-equation regression shows that the coefficient for the proportion of top managers with technical background (PTMT) is positive and significant ( $\alpha_1 = 0.046$ ,  $p < 0.001$ ), and the 3SLS result indicates that the coefficient for the proportion of top managers with technical background is also positive and significant ( $\alpha_1 = 0.052$ ,  $p < 0.001$ ), both the two results strongly support our hypothesis 1. We argue that top managers with technical background have higher collective psychological capital when dealing with technology-related decision tasks that they are familiar with, because they know how to make R&D investment successful and how to avoid the risk of failure, thus, which makes it easier



**TABLE 2 |** Results of main effect regression analyses.

| Model          | Model(1)  |            | Model (2) |            | VIF  |
|----------------|-----------|------------|-----------|------------|------|
|                | RDE (OLS) | RDE (3SLS) | MAE (OLS) | MAE (3SLS) |      |
| PTMT           | 0.046***  | 0.052***   | −0.037**  | −0.055***  | 1.07 |
| PTMM           | −0.034*   | −0.050***  | 0.042**   | 0.108***   | 1.05 |
| SIZE           | 0.003     | 0.007***   | −0.003    | −0.001     | 1.35 |
| TOP1           | −0.039**  | −0.02      | 0.016     | 0.01       | 1.29 |
| TOP2           | −0.0001   | 0.023      | −0.02     | −0.017     | 1.33 |
| growth         | −0.002    | −0.003     | 0.004**   | 0.003      | 1.05 |
| CASH           | −0.011    | −0.004     | 0.01      | 0.06*      | 1.24 |
| Slack          | 0.14***   | 0.159***   | 0.143***  | 0.413***   | 1.20 |
| profit         | −0.027*** | −0.044***  | 0.010**   | 0.063***   | 1.24 |
| LEV            | −0.054*** | −0.074***  | −0.073*** | −0.038***  | 1.63 |
| ROA (−1)       | −0.007    | −0.082**   | 0.059**   | 0.252***   | 1.38 |
| Industry       | −0.034*** | −0.036***  | 0.094***  | 0.068***   | 1.12 |
| _cons          | −0.011    | −0.101**   | 0.144**   | 0.009      |      |
| Observations   | 1730      | 1730       | 1730      | 1730       |      |
| R <sup>2</sup> | 0.302     | 0.311      | 0.438     | 0.55       |      |
| Wald Chi2      | 423.72*** | 781.35***  | 409.19*** | 2114.18*** |      |

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

to produce a psychological state of confidence, optimism and hope. The positive psychological state of technical executives for R&D promotes the increase of R&D expenditure, the higher the proportion of technical executives, the more obvious this positive collective psychological state is and the higher the R&D expenditure is. Our empirical results support these assumptions.

In **Table 2**, the OLS result shows that the proportion of top managers with marketing background has negative influence on R&D expenditure ( $\alpha_2 = -0.034$ ,  $p < 0.1$ ), and the 3SLS result also indicates that the coefficient for the proportion of top managers with marketing background is negative and significant ( $\alpha_2 = -0.050$ ,  $p < 0.01$ ), which support our hypothesis 4. As mentioned above, because marketing executives are not familiar with the technical field, it is difficult for them to generate positive psychological states such as confidence, optimism and hope for R&D activities, thus, the higher the proportion of marketing executives, the greater the impact of this negative psychological state, and the smaller the R&D expenditure may be. The results of both OLS and 3SLS regression support this hypothesis.

Model (2) in **Table 2** is utilized to test hypotheses 2 and 3. We utilize marketing expenditure as the dependent variable, and use the proportion of top managers with technical background and marketing background as independent variables, we also control main variables that may influence marketing expenditure. The result of single-equation regression shows that the coefficient for the proportion of top managers with technical background is negative and significant ( $\beta_1 = -0.037$ ,  $p < 0.05$ ), and the 3SLS result indicates that the coefficient for the proportion of top managers with technical background is also negative and significant ( $\beta_1 = -0.055$ ,  $p < 0.01$ ), both the two results strongly support our hypothesis 2. Because technical top managers are relatively short of market-related knowledge and information, they may not be able to accurately understand and judge the

significance and value of marketing activities, thus, they may have lower psychological capital for marketing activities. When the proportion of technical executives is higher, the lower TMT's collective psychological capital for marketing activities, the lower the company's marketing expenditure may be. Our empirical results fully support this assumption.

In addition, the OLS result in model 2 shows that the proportion of top managers with marketing background has positive influence on marketing expenditure ( $\beta_2 = 0.042$ ,  $p < 0.05$ ), and the 3SLS result also indicates that the coefficient for the proportion of top managers with marketing background is positive and significant ( $\beta_2 = 0.108$ ,  $p < 0.01$ ), which strongly support our hypothesis 3 which predict that marketing top managers will be positively related to marketing expenditure. Because marketing top managers have rich market-related knowledge, information and practical experience, they can accurately understand and judge the significance and value of a marketing activity, and know how to overcome difficulties and achieve success. Therefore, top managers with marketing background are prone to positive psychological states such as confidence, optimism, and hope for marketing activities. When the proportion of marketing top managers is higher, TMT's collective psychological capital for marketing activities is higher, and the company's marketing expenditure may be higher. The above empirical results provide strong support for this assumption. An additional analysis is conducted thanks to one of the reviewers' suggestion. We analyzed consider the impact of the interaction between the two on entrepreneurship orientation and market orientation, that is, the interaction of the proportion of team composition. See **Table 3** for the results. It can be seen from **Table 3** that the regression coefficient of the interaction term in the regression result of Model 1 is significant ( $\alpha_3 = -2.47$ ,  $P < 0.014$ , indicating that the ratio of marketing background to

**TABLE 3 |** Results of interaction regression analyses.

| Model          | Model 3   | Model 4   |
|----------------|-----------|-----------|
| Variables      | RDE       | MAE       |
| PTMT           | 0.075***  | −0.055*** |
| PTMM           | 0.050     | −0.011    |
| PTMT × PTMM    | −0.282**  | 0.183     |
| SIZE           | 0.004*    | −0.003    |
| TOP1           | −0.041**  | 0.017     |
| TOP2           | −0.002    | −0.019    |
| Growth         | −0.002    | 0.004**   |
| CASH           | −0.008    | 0.009     |
| Slack          | 0.140***  | 0.143***  |
| Profit         | −0.027*** | 0.010**   |
| LEV            | −0.055*** | −0.072*** |
| ROA (−1)       | −0.010    | 0.061**   |
| Industry       | −0.034*** | 0.093***  |
| _cons          | −0.023    | 0.152***  |
| Observations   | 1730      | 1730      |
| R <sup>2</sup> | 0.303     | 0.441     |
| Wald Chi2      | 430.39*** | 410.93*** |

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

the technical background positively affects R&D investment. That is, the higher the proportion of senior executives with marketing background, the weaker the positive influence of the technical background executives on R&D investment. Based on the results, we could see that the interaction term negatively influenced the outcome variable. Such result, to some degree (though preliminarily), echoes our central thesis that the inconformity of the influence powers of technical, or marketing dominant teams (that is the influence of technical/marketing proportions is a either-or phenomenon).

## DISCUSSION AND IMPLICATIONS

To strengthen the linkage between our practical findings and the extant theoretical bases in the literature, we just adopted the “perspective” of psychological capital to make significant interpretation of our results. Drawing on psychological capital theory, this study analyzes the influence of the professional-background structure of entrepreneurial team on the company’s strategic investment decision. The core proposition is that entrepreneurial team with different background will have different positive psychological capital when they are involved into various decision tasks. Entrepreneurial team with technical background will have higher positive psychological capital than other entrepreneurial team when they face R&D investment decision, thus, the proportion of technical entrepreneurial team will positively influence a company’s R&D investment. On the contrary, technical entrepreneurial team may have low psychological capital when they deal with marketing investment decision, thus, the proportion of technical entrepreneurial team may have negative impact on marketing expenditure. Our empirical results support these posits.

In addition, consistent with theoretical analysis, our empirical results find that the proportion of entrepreneurial team with marketing background has a negative impact on the company’s R&D spending, and has a positive effect on marketing spending. Our study indicates that not only the individual background characteristics of entrepreneurial team will affect the company’s strategic decisions, but more importantly, their group structure will also directly affect the company’s strategic decision results. Our research results further illustrate that psychological capital is a state variable, which may vary with individual or task differences. At the group level, the group’s collective psychological capital will change with the difference of its background structure and decision tasks.

Theoretically and practically, we believe that such results could implicate organizational actors, especially top managers themselves, to know better the collective affective scheme for their strategic preferences.

## Theoretical Implications

Previous empirical studies have broadly examined the relationship between TMT characteristics and strategic decisions. For example, Chaganti and Sambharya (1987) examined the effects of TMT characteristics on innovation and found that firms with TMTs having more production/R&D experience tend to pursue a product innovation strategy (Matsuno et al., 2002). Unfortunately, their study is only based on three firms. Bantel and Jackson (1989) tested showed that TMTs with more education and diverse expertise increase banks innovation degrees. Thomas et al. (1991) found that CEOs with R&D functional backgrounds were preferable to follow an innovation strategy. Barker and Mueller (2002) found that CEOs with science-related degrees have a positive influence on R&D spending. Dalziel et al. (2011) found that the technical experience of outside directors have a positive influence on the R&D spending. Those existing research mainly analyzes the influence of a single characteristic of the entrepreneurial team on some certain strategic decisions, whereas our study contributed by analyzing the influence of different background characteristics of an entrepreneurial team on different strategic decisions and incorporated them into a unified research framework. In addition, our study has examined the effects of the entrepreneurial team with a different background on strategic investment decisions from the perspective of total senior managers, which include the members of the board of directors and board of supervisors, the outside directors, and another entrepreneurial team. Therefore, our study contributes to the literature by extending the scope and content of the above research topic.

On the other hand, our study also contributes to the psychological capital literature by providing an application case. The existing studies find that working environment, leadership behavior, and supervisor support, etc. influence individual psychological capital, and individual psychological capital has an important impact on attitudes, work performance, job satisfaction, and organizational citizenship behaviors, etc. Our research results enlighten that individual background characteristics and task characteristics may also be important

factors affecting psychological capital, and this effect can be extended to the collective and organizational levels. Our study also further reveals that the collective psychological capital of the senior management group may affect the strategic decision at the organizational level. Therefore, our study provides a new perspective for expanding the research scope of antecedents and outcomes of psychological capital.

## Managerial Implications

Our research can also provide some enlightenment for corporate executive structure governance and strategic decision practice in the transitioning countries. Our empirical results showed that entrepreneurial team with different backgrounds often have different decision preferences, and the different background structures of entrepreneurial team will lead to different strategic decisions. Therefore, to improve the quality of their strategic decisions, the company should pay attention to the balance of the senior management structure, when there are too many entrepreneurial members with technical background, the company should increase the number of entrepreneurial members with marketing background to weaken the decision influence of technical members, and vice versa.

In addition, our study also suggests that entrepreneurial team's collective psychological capital may influence company's strategic investment decisions, thus, the company can design the effective rules of interaction among entrepreneurial team, which can affect the team's collective psychological capital in the process of strategic decision-making, thus promoting the team's work performance, and improving its decision-making quality.

## Limitations and Future Research Directions

Subject to the availability of data, our samples are mainly from Chinese high-tech listed companies, thus, whether our research conclusion also applies to unlisted high-tech companies remains to be tested by future research. On the other hand, although we theoretically analyzed how the structure of entrepreneurial team affect their collective psychological capital, and ultimately affecting investment decisions. Limited by the availability of data, we have not been able to directly test the role of collective psychological capital. Future research can do further work on this point. Another issue is that we have not dealt

with managers with both technical and marketing backgrounds, which posed an interesting research topic for the future. Additionally, this article uses the panel data of Chinese listed companies, and the research findings may not apply to foreign companies. Moreover, we only examined the influence of top management team with entrepreneurship orientation and market orientation. Future studies could make similar inquiry on board of directors as an equally important group. Last but not least, while we used the single-dimensioned R&D to measure entrepreneurial orientation, future studies may want to expand such measurement to a multidimensional one (see Li et al., 2008; Williams and Lee, 2009 for the construct's detailed discussions).

## DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

## AUTHOR CONTRIBUTIONS

LG was the major author for the first draft of the manuscript and responsible for the development of propositions. Y-FC facilitated the data analyses. K-HL reviewed and edited the manuscript. C-FL was responsible for the R&R and communication procedures.

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# Psychological Capital in Food Safety Social Co-governance

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Social co-governance of food safety is an advocacy model to deal with current global food safety risks. Food safety co-governance involves the collaboration and partnership of government, industry, and society. The success of this collaboration is dependent on the construct of positive psychological capital. This paper discusses the concept of psychological capital and its four elements of self-efficacy, optimism, hope, and resiliency in line with co-governance in food safety. Accordingly, the paper proposes that great success in food safety co-governance would be realized if the government, industry, and society nurture positive psychological capital. Psychological capital can help corporates to instill organizational commitment on employees, thus promote food safety. Furthermore, positive psychological capital can help the government to appeal to the emotions of food companies and social actors to ensure self-efficacy toward food safety. The government can inspire hope by setting food safety goals and plans to achieve them, and a reward program will motivate food companies and promote self-efficacy in co-governance efforts. The government can also reinforce the efforts of companies in leveraging the elements of PsyCap in food safety, since the production of high-quality food is also dependent on the behaviors and attitudes of the workforce. Furthermore, the government can utilize social persuasion to improve the engagement of social actors in food safety regulations.

**Keywords:** psychological capital, food safety, social co-governance, industry, government

## INTRODUCTION

Food safety is a challenge that governments across the globe are grappling with, particularly in developing countries. According to Wu et al. (2018), establishing a better and sustainable food economy requires the integration of diverse efforts and resources from various stakeholders. The ideal of social co-governance involves core elements of legal protection, public participation, social cooperation, government regulation, and corporate self-governance (Wu et al., 2018). This paper further discusses the concept of psychological capital (PsyCap) and its four elements of self-efficacy, optimism, hope, and resiliency in line with co-governance in food safety. Accordingly, the paper proposes that great success in food safety co-governance would be realized if the government, industry, and society nurture positive psychological capital.

Social co-governance is a concept developed with the purpose of enhancing collaboration and partnership between the government, industry, and the citizens. The main agenda behind co-governance is to reduce costs while improving the efficacy of food safety regulations. Involving all the actors in co-governance helps to enhance the practicality of decisions made and to reduce the burden on the players (Wu et al., 2018). Nevertheless, co-governance alone is not

enough without leveraging the role of the PsyCap in the decision making processes. While the government plays a regulatory role on the actors in the food safety industry, these regulations may become futile if the four elements of psychological capital are ignored. Furthermore, since food industry players may be incentivized by the government to maintain food safety, these private-sector organizations may not achieve maximum potential if they have not instilled the construct of psychological capital in their workforce. Likewise, the public may not appreciate the efforts of the government and the industry and thus may not exude commitment, fulfillment, or satisfaction in the efforts toward food safety.

PsyCap forms the basis for thriving and wellbeing as it ignites positive emotions and a sense of appreciation. The realization of these positive emotions depends on the four pillars of PsyCap that are hope, optimism, self-efficacy, and resilience. Hope involves a positive motivation from a goal-directed drive combined with planning to meet the goals. Hope inspires one to set goals and strive to achieve them (Steeneveld, 2015). Optimism involves a great personal ability and sense of confidence when dealing with problems. Optimism instills great faith in one's abilities to improve situations. The concept of self-efficacy refers to one's belief in their skills to accomplish set targets effectively. Parker (1998) suggests that self-efficient employees exude confidence to perform wide-ranging roles in an organization. Lastly, resilience encompasses the ability to "bounce back and beyond" in the face of adversities (Masten, 2001). Resilience enables one to cope and thrive in difficult situations. Professor Luthans (2002) sums up the aims of positive psychology as shifting emphasis from negative to positive perspectives about people, shifting from weaknesses to strengths, focusing more on resilience than vulnerability, and directing efforts and resources to enhancement and development of wellness, prosperity, and the good life rather than remediating on pathology. According to Luthans et al. (2006), PsyCap is playing a very critical role in shaping positive organizational behavior (POB).

## ROLE OF PSYCHOLOGICAL CAPITAL IN GOVERNMENT GOVERNANCE

Food safety is a public problem that involves multi-stakeholder input from the government, industry, and the public. The government formulates and implements regulations on food safety. While there may be a sound regulatory framework, the public may be reluctant to follow the rules where there is no motivation to do so. When leading in the midst of a crisis, it is essential for the government to leverage PsyCap to appeal to the public emotionally. For instance, during World War II, Winston Churchill used emotional appeal to engage the citizenry and to instill the belief in them that their efforts and resources were not hopeless (Milosevic et al., 2017). World War II is one of the most fatal crises in history as it resulted in more than 60 million casualties (Kershaw, 2007). Throughout this period, Churchill utilized positive psychological capital in fueling the acquisition of resources and steering activities to navigate

the crisis. According to Milosevic et al. (2017), Churchill instilled hope in the people by formulating clear goals and confidence by developing a belief for the realization of the goals, regardless of the many obstacles that lay before him. In the Battle of Britain, which was the first critical event for Britain in the World War II, Churchill leveraged psychological capital to mobilize resources and to emotionally appeal to the people for purposes of replenishing depleted armies.

In the second major event of World War II, that is, the Attack on Pearl Harbor, the United States joined the war. At this point, Churchill focused on leveraging the values platform required to develop and nurture positive relationships with the Allies who had different political ideologies with Britain. Churchill utilized all the four elements of PsyCap to achieve the desired positive relationships. Finally, in the Battle of Stalingrad, the positive emotions and vigor illustrated by the people and the armies propelled Europe to optimize on the significant losses of German in the East and emerge victoriously. Churchill knew that to defeat Germany, Britain could not succeed in working in isolation. There was a need to developed ties across the "whole world" to fight "evil-doers." Churchill managed to leverage the PsyCap to imbue his followers into a belief that regaining independence from Germany was the only way of defeating German armies (Milosevic et al., 2017). He instilled the spirit of hope, optimism, self-efficacy, and resilience in the Britons and people across the country, thus leading to the acquisition of more resources and human capital needed for the war.

When the government formulates rules on food safety, it is not enough to impose them on the people. Instead, it is essential for the leadership to establish whether the people are willing to follow the rules. Accordingly, the government must determine whether the food industry and social actors are eager to support the regulatory framework on food safety. According to Baker et al. (2015), the tendency to follow the leader is a form of deference whereby the followers choose to take part in leadership processes actively. In this regard, leadership can be successful where the leader does not understand the followers and their behaviors (Uhl-Bien et al., 2014). Churchill leveraged the PsyCap to imbue his followers into action and lead the whole continent out of war regardless of the scarce resources available to his disposal (Milosevic et al., 2017).

In practice, the government primarily focuses on enhancing regulatory standards on food safety with prominence on severe punishment to non-compliant actors. Due to public pressure from a series of food safety incidents, many developed countries have sought to strengthen their food safety risk governance through strict legislation and direct intervention involving severe punishments. Nevertheless, problems still arise from the absolute reliance on the administrative agencies to implement food safety standards. Regardless of the available regulatory framework, food companies remain compliant to the regulations basing on a cost-benefit analysis. Furthermore, food companies decide on which rules to follow depending on whether they can navigate around external incentives and internal resources – human capital. For most companies, producing high-quality food is

not merely to evade punishment but to maintain a good reputation in the society and thus reap great benefits. Social actors, on the other hand, are deemed as a powerful tool for supplementing the governance by the government and self-governance by the corporates. Social actors include citizens and various social organizations such as self-help groups, foundations, advocacy groups, social service agents, educational institutions, health-care organizations, clubs, and associations. Since social actors are on the receiving end of food safety, they stand out as the best regulators. However, without information on food safety, the public may be limited to effectively participate in food safety co-governance (Wu et al., 2018). Thus, the regulatory capability of consumers can become more effective if food safety systems operate in a transparent and traceable manner.

According to Luthans et al. (2013), positive psychological capital can extend beyond organizational contexts into other spheres of life. Following a decade of research and theory building, PsyCap currently applies across the world towards decisive leadership (Youssef and Luthans, 2012). In this regard, leveraging positive psychological capital in food safety co-governance will guarantee greater success for all the actors. The government can harness the PsyCap in food safety co-governance by using the Winston Churchill approach to appeal to the emotions of the food companies and social actors. The government can inspire hope by setting food safety goals and plans to achieve them. Rather than only focusing severe punishment to corporate actors for non-compliance with the regulations, the government can set up measures for rewarding food companies which accomplish the set targets. A reward program will motivate food companies and promote self-efficacy in co-governance efforts.

Furthermore, the goals will be more realistic to the industry actors if they are well-aligned to their corporate objectives for profit-making. Besides, food companies will be more willing to follow regulations which are clearly communicated to them and do not significantly jeopardize organizational goals. Since the production of high-quality food is also dependent on the behaviors and attitudes of the workforce, the government can also reinforce the efforts of companies in leveraging the elements of PsyCap in food safety.

## ROLE OF PSYCHOLOGICAL CAPITAL IN CORPORATE CO-GOVERNANCE

According to Milosevic et al. (2017), leaders in an organization must learn to deal with a crisis in today's world. Osborn et al. (2002) describe a crisis as a "dramatic departure from prior practice and sudden threats to high priority goals with little or no response." Accordingly, positive psychological capital can be useful for organizational leaders in navigating a crisis (Avey et al., 2011). Furthermore, research indicates that PsyCap can allow organizations to navigate challenging circumstances due to the motivation to achieve success (Luthans and Youssef, 2007). PsyCap drives leaders to focus on motivating effort and perseverance by positively appraising conditions, thus enabling organizing to navigate a crisis and develop strong determination towards the future.

Psychologists relate the four components of PsyCap to higher job commitment, performance, and satisfaction particularly in the service industry (Luthans and Youssef, 2007; Abbas et al., 2014). According to Avey et al. (2011), higher PsyCap results in organizational citizenship behaviors, higher job commitment and satisfaction, lower intentions to quit, and lower absenteeism. Furthermore, there is an essential relationship between the levels of PsyCap and desirable employee attitudes, behaviors, and performance (Abbas et al., 2014). Leaders can utilize the concept of PsyCap to explore the untapped territories of human strengths, excellence, and wellbeing (Luthans and Youssef, 2007).

Making PsyCap as a foundation in the food industry can tremendously impact on the efforts of co-governance toward food safety. The human capital in the food industry plays a vital role in food safety. McMahon (2007) notes that most food processing companies envision organizational commitment from their employees. Accordingly, any given organizational context can leverage organizational commitment, job satisfaction, and work engagement. Employee commitment enables an organization to thrive and succeed in the wide-ranging and dynamic business environment.

Furthermore, companies across sectors are increasingly focusing on developing their human capital as a way of achieving competitive advantage (Adler and Kwon, 2002). According to Luthans and Youssef (2007), psychological capital is the most tangible and ultimate resource in the changing business environments. Psychological capital tends to be more important than human capital and social capital in the food industry.

Whereas social capital involves who one knows and human capital involves what one knows, psychological capital centers on who one is and who one is developing into, thus forming the basis of the current self and possible self (Gota, 2017). Some scholars argue that organizations which focus on attracting, engaging, developing, and retaining the brightest talent have the most robust human capital (O'Leary et al., 2002). Other scholars suggest that connections, networks, and social relations are the most critical capital for the organization as they help to leverage more information and lead to greater influence and control power (Adler and Kwon, 2002). Nevertheless, social and human capital is not enough to reap optimal performance for the organization. An organization needs to tap into psychological capital to maintain a competitive advantage. This argument derives from the fact that PsyCap pushes one to ask the question "who am I?" (Luthans and Youssef, 2007), which improves one's self-awareness as a fundamental basis to leadership development and influence. Thus, PsyCap makes a food company first explore its position in the market and to further develop strategies in line with its status as perceived by employees, consumers, and the government. Furthermore, the importance of psychological capital in food safety is because developing the psychological capital of employees has the potential of improving their performance (Luthans et al., 2006).

Furthermore, an organization that promotes collective PsyCap can tremendously increase team performance (Toor and Ofori, 2009). Since employees with high psychological capital are more productive in an organization, food industry leaders can

capitalize on this to promote food safety. According to Luthans et al. (2005), positive PsyCap management has the abilities to leverage the strengths, talents, and potentials of employees to realize a long-term competitive advantage. Organizations can achieve this through periodical evaluation of employees for psychological capital and providing them with strength-based feedback for purposes of building positive capabilities.

In regard to work engagement, food processing companies can work on providing an enabling environment to employees as well as a supportive culture to promote high performance. Promotion of personal fulfillment alongside organizational success requires organizations to align the individual goals of their employees with corporate goals (Luthans et al., 2013). Workforce efforts are likely to complement smart goals of the organization. The food industry organizations can successfully meet their part in the co-governance in food safety by assisting employees to develop smart goals with the aim of directing the behavior of employees and establishing deliberate work behaviors such as organizational commitment and work engagement (Davids, 2011, unpublished; Levene, 2015). Furthermore, it is essential for organizations to leverage positive psychological capital to attract, develop, and retain employees with an avid commitment to ensuring food safety. Food industry companies can formulate and implement human resource development practices with the aim of up-skilling their workforce to promote organizational commitment to food safety (Gota, 2017). Furthermore, food processing companies can enhance organizational commitment to food safety by leveraging organizational goals with the specific needs and expectations of employees.

A significant character of PsyCap is that that it is dynamic (Luthans et al., 2013). More specifically, the elements of PsyCap are “state-like” in the sense that they are malleable and more open to change and development than the “trait-like” attributes of the Big Five personality constructs. Accordingly, psychological capital is a uniquely versatile and dynamic resource, which enables leaders to leverage their PsyCap to enhance the PsyCap of the collective. Thus, transformational leaders have the abilities to use PsyCap in fueling powerful visions and influencing followers to establish and implement positive goals, pursue positive future expectations, instill strong beliefs of self-efficacy in the followers, and enable followers to endure through a crisis. Furthermore, an ethical leader is capable of channeling high levels of PsyCap towards beneficial outcomes.

## ROLE OF PSYCHOLOGICAL CAPITAL IN SOCIAL ACTORS CO-GOVERNANCE

It may tend to appear a “double failure” of government public right and market private right in the process of food safety risk management. Thus, social actors are needed to participate in the food safety social co-governance. Social actors are important players in a country’s food safety governance. In the task of creating a pattern of food safety co-governance, the active and effective participation of social actors is very critical. Whether social actors can play their unique advantages

in the food safety social co-governance and make up for the double failure of food safety risks, depends to a considerable extent on the external policy environment in which social actors are located (Li et al., 2016).

With regard to the social actors, the government can promote co-governance by creating an enabling environment for them to engage in food safety regulation actively. Engaging the public in food safety requires the government to establish common ground in line with the four elements of PsyCap. According to Ohlin (2017), it is possible to attain efficacy through a mastery of experiences, social modeling, social persuasion, and psychological responses. The government can work towards increasing awareness of the strengths, traits, and factors that resulted in the success. These efforts should be combined by the government and the industry to share relevant information with social actors, which can form the basis for the society to appraise best performing food companies. In this line, the government will be reinforcing self-efficacy for the food companies while also appealing to the positive emotions of the society. Social modeling can also be used to achieve self-efficacy by the government developing models for food safety from companies that have overcome obstacles. Social modeling can encourage food companies to benchmark with the best ranking companies with the aim of promoting their reputation (Ohlin, 2017). Furthermore, the government can utilize social persuasion to improve the engagement of social actors in food safety regulations.

Therefore, it is necessary to fully recognize the role of PsyCap in stimulating the vitality of social actors, and make full use of PsyCap to promote social actors to participate in food safety social co-governance. From the perspective of PsyCap, social actors, as beneficiaries of food safety, have a strong motivation to improve food safety and ensure their own health. The government can stimulate the hope of social actors by setting food safety goals and plans, and create positive food safety governance environment to ignite the positive emotions and feelings of appreciation of social participants, so as to ensure that social actors can improve their self-efficacy in participating in food safety co-governance.

China is the largest developing country in the world. Generally speaking, the role of social actors in China’s food safety social co-governance is still limited at this stage. For example, our previous study found that the public’s willingness to participate in food traceability information query is seriously insufficient (Chen et al., 2018). If the Chinese government wants to effectively implement the food traceability system in the whole society, which is a public system of food safety, on the one hand, it needs the cooperation of enterprises; on the other hand, it cannot do without the participation of social actors. Considering the role of PsyCap, we suggest that the government disseminate the food safety traceability concept, cultivate the traceability culture, and form a social atmosphere that is familiar with traceability, supports traceability, and actively participates in traceability, to enhance the social actors’ self-efficacy, optimism, and positive emotions. This is an example of the use of PsyCap to improve the participation of social actors in food safety social co-governance.



## CONCLUSION

Food safety has been the center of social discussion in all cultures across the world. To address the many challenges associated with ensuring food safety, one discipline, such as food science, managerial science, or economics is not sufficient, and it is difficult to effectively promote food safety relying on just one actor's effort, such as government, corporate, or social actor. A cross-disciplinary and pluralistic actors approach should be adopted, which points to the need of societal co-governance. Social co-governance of food safety has become an advocacy model to deal with the current global food safety risks and challenges. Food safety social co-governance involves the collaboration and partnership of government, industry, and society. The success of this collaboration is dependent on the construct of positive psychological capital, which comprises hope, self-efficacy, resilience, and optimism. These four elements form the basis for effective co-governance. In practice, the government primarily focuses on enhancing regulatory standards on food safety with prominence on severe punishment to non-compliant actors. Food processing companies, on the other hand, focus on making profits, while social actors keep looking for loopholes and pushing for food safety. Positive psychological capital can help the government to appeal to the emotions of food companies and social actors to ensure self-efficacy toward food safety. Furthermore, PsyCap can help corporates to instill organizational commitment on employees, thus promote food safety.

The concept of PsyCap and its four components listed are new in the literature on food safety social co-governance. This paper may be the first to introduce PsyCap into food safety co-governance, providing a useful and timely discussion on means to facilitate such co-governance. It proposes a fresh perspective that great success in food safety co-governance would be realized if the government, industry, and society nurture positive psychological capital. This current work comes from the angle of psychological research thus limiting itself to a more qualitative analysis but the discussions offered good inspiration and guidance for theoretical thinking and practical imperatives.

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As this study is an enlightening conceptual study, no empirical data are provided. In the future studies, we will conduct empirical survey, for example, on the social co-governance of abuse of food additives in processed food in China, by interviewing government regulators, food enterprises, social organizations and the public to collect data. Through the empirical analysis, we aim to explore main factors of PsyCap that influence different players involved in food safety social co-governance, to provide useful suggestions for the government to improve the social environment. We also hope there will be more empirical research samples from different countries and regions on the application of PsyCap in the field of food safety social co-governance, so as to carry out comparative studies and provide more research data for this topic.

## DATA AVAILABILITY

All datasets analyzed for this study are cited in the manuscript and the supplementary files.

## AUTHOR CONTRIBUTIONS

XC and LW both contributed to the development of the theme and writing the manuscript.

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# Psychological Capital of MIS Development Teams, System Effectiveness, and Social Innovation: A Systematic Literature Review

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Inter-organizational information systems are critical in the modern business world, as a large portion of economic activities are done through inter-organizational collaborations. One such important collaboration is social innovation/entrepreneurship, which involves multiple parties from diverse areas cooperating in major tasks. Against such a backdrop, exploring beneficial factors for organizational members to actively develop and/or make good use of a management information system (MIS) for collaborative performance has become a vital research question. This conceptual paper argues that positive psychology is critical to encourage members to volunteer to construct an MIS that facilitates social innovation effectiveness. Specifically, we discuss the four dimensions of psychological capital (i.e., hope, optimism, self-efficacy, and resilience) on effective inter-organizational MIS attributes (e.g., connectivity), and on the consequences of social innovation. At the core of this discussion, we believe that a positive psychological foundation is a driver for staff effort to contribute to a better MIS, which could benefit social innovation success. This research contributes by offering inspiration for future studies to link the micro- and macro-level aspects of social innovation and entrepreneurship phenomena.

**Keywords:** psychological capital, information system effectiveness, social innovation success, MIS staffs, inter-organizational management

## INTRODUCTION

### Significance of Inter-Organizational Management Information System (MIS) in Social Innovation

In a highly competitive business world, enterprises strive to establish practices such as producing commodities tailored to meet the social needs of customers (Prajogo et al., 2018). It should be appreciated that any business has a prime objective of satisfying its customers. This means that an inter-organizational information system is useful for ensuring that modern corporations meet this vital objective. With the goal of producing goods that are intended to address social needs, companies have a better chance to establish a niche in such needs when they interact with and/or exchange ideas through a jointly run management information system (MIS).

In order to come up with a product that meets the social needs of consumers, a technology that is non-existent in the organization might be needed. Inter-organizational management information systems employ technology and intelligent computer systems to convey information in and around the operations of partnered organizations. It follows, therefore, that technological advancement in one company can easily be accessed by another company that essentially lacks such technology. Additionally, such information is conveyed quickly, since companies are able to access it from a shared information system without prompt (Prajogo et al., 2018).

Over the past few years, the scientific community (and recent policy makers) have become increasingly interested in the concept of social innovation (Borzaga and Bodini, 2014). Often, a company's survival is explained by the "improvement of innovation" that pursues profit and competitive advantage. In contrast, social innovation is triggered by an interest in improving social well-being (Dawson and Daniel, 2010). Unlike profit-driven or competitive business-driven innovation, social innovation is often triggered by concerns about people and communities rather than commercial interests. An adopted or developed social innovation, such as online procurement, will only be desirable to an organization's customers if trade around it is efficient (Prajogo et al., 2018). This efficiency can be brought forth through the use of Inter-organizational MIS. Organizations that depend on each other can network and share information amongst themselves in a bid to ensure that information transmission is automated. It follows, therefore, that distribution of socially innovated products will require minimal manual input. Standardized and automated procedures of production and distribution ensure that goods produced are of high quality, while at the same time ensure there is timely and efficient delivery.

Inter-organizational MIS ensures that there is healthy and sustainable competition in as far as production of goods intended to meet social needs is concerned (Zhang et al., 2016; Vanpoucke et al., 2017; Okwir et al., 2018). Tentatively, partnered businesses are able to pool their resources together to promote the sales of their socially innovated products by mounting a joint effort in offsetting competition from rivals (Rui and Yip, 2008). This can be done through jointly sponsored online product marketing campaigns funded by partnered businesses.

Finally, a successful social innovation effort requires a rich pool of information that can only be accessed if there is a connection to global information (Luthans and Youssef, 2004; Zhang et al., 2016). Tentatively, MIS makes information available on a global scale. This means that regardless of the level of commencement of the MIS communication level, it can gradually be transformed into a global information network by, for instance, hiring more staff and buying advanced technological tools, such as satellites.

In sum, organizations need to build inter-organizational IS for successful social innovation, especially for long-term social innovation projects, and to implement efficient and effective coordination. The EDI or SCM were both such kind of inter-organizational systems. Beyond those, examples of inter-organizational IS include inter-organizational knowledge

management system, collective decision support systems, and others. Without those inter-organizational IS of different kinds and purposes, the multiple parties engaging in a social innovation project could not coordinate well.

## Significance of Exploring Successful Factors for Inter-Organizational MIS for Social Innovation Success

There are several reasons why exploring areas where inter-organizational MIS has had a positive impact is recommended for social innovation success (Iqbal et al., 2015). First, institutional tensions are prevalent in many organizations as well as partnerships. Such tensions may act as a stumbling block to the institutionalization of any social innovative campaigns. It is, therefore, prudent that sources of institutional tension that are related to social innovations be pinpointed and, most importantly, be dealt with. That said, it is important to be cautiously aware of failed MIS systems when spearheading social innovation.

Human beings are naturally motivated by good (Stadtler, 2014). In essence, providing successful cases of use of MIS in institutionalizing social innovation will go a long way in convincing organizational stakeholders that social innovative campaigns and projects are achievable when the right approaches are adopted (Yang and Maxwell, 2011). The social impact of innovation and change is inevitably a complex process, and the goal of actively integrating social benefits into the development and application of new products and services poses varying degrees of challenge to the business agenda (Dawson and Daniel, 2010). It follows, therefore, that the confidence of stakeholders in the process will be bolstered, and as such, they will be in a position to accord their support to the MIS project for social change.

Successful factors for inter-organizational MIS for social innovation rely on organizational culture and ethics put in place in executing such MIS campaigns for social innovation (Gil-Garcia and Sayogo, 2016). It follows, therefore, that through exploration of these success factors, members of the organization will be sensitized in advance to the expected professional standards and codes of ethics in adopting an inter-organizational MIS campaign for social innovation.

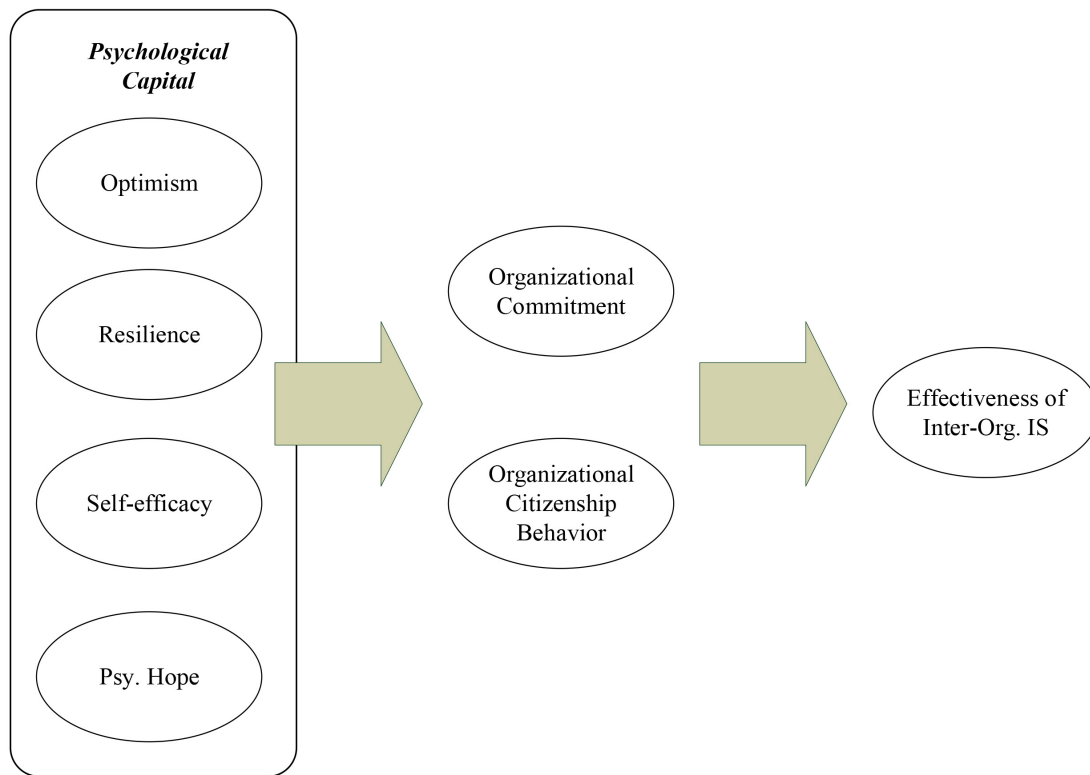
Lastly, not every inter-organizational MIS will yield the desired impact on the social innovation objectives of a business. This means that adopting the wrong approach can be detrimental to the long term sustainability of partnered businesses. The capital outlay of venturing into a joint MIS project goes to waste in the event that the campaign is not meeting its short term or long term objectives (Gil-Garcia and Sayogo, 2016).

## Significance of the Psychological Capital Perspective in the Study

The states of mind of individuals in the group tasked with the responsibility of developing the joint MIS should be positive (Goldsmith et al., 1998). The author is of the opinion that this will enable the group to accord the task in hand with unparalleled attention. The first and most important reason for considering psychological capital is that it goes a long way in



## Context: Social Innovation



**FIGURE 1 |** Research Concept. Inter-org IS refers to inter-organizational information system.

guaranteeing success, in that the team of individuals tasked with the MIS development must be willing and able to do so (Zhang et al., 2016).

Secondly, organizational behavior, such as organizational citizenship and altruism, are both important in ensuring the success of the MIS campaign (Goldsmith et al., 1998; Haider et al., 2017; Hwang and Choi, 2017). According to Goldsmith et al. (1998), the MIS development team will not only develop the program but also be at the forefront of its implementation if they are loyal to the organization. Civic virtue, on the other hand, ensures that the MIS development team is resilient to challenges and is optimistic that the effort put in place will yield positive social innovative results in the long run. According to Goldsmith et al. (1998), psychological capital examination helps in establishing individuals with extra role behavior. Such individuals are able to carry out the tasks of developing the MIS without supervision, while at the same time demonstrating a willingness to go the extra mile to foster success.

The success of an MIS in fostering social innovation is dependent on the development team to find within them a renewed interest in the value of being positive (Goldsmith et al., 1998; Seidler-de Alwis and Hartmann, 2008; Chen, 2016). What follows is that they will find a profound strength and an improvement in psychological capabilities that will further place them in a better position to develop the proposed

inter-organizational IS. The research concept of this research is shown in **Figure 1**.

## LITERATURE REVIEW

According to Fitzenz (2000), human capital is comprised of four major subdivisions, namely psychological capital, intellectual capital, emotional capital, and social capital, which together are simply referred to as "PIES." In order to resolve various human problems in a given association, the theory of psychological capital is projected as an essential subdivision that can be applied to resolve such issues. Additionally, psychological capital can also be referred to as a person's optimistic psychological state of improvement that includes various measurements. These measurements mainly include self-efficacy or confidence, hope, resiliency, and optimism (Liu et al., 2009; Newman et al., 2014). Optimistic psychology programs convey increased awareness concerning the importance that they have on human functioning. The four psychological capital dimensions are explained in the following sections.

### Confidence/Self-Efficacy

Bandura (1997) defines confidence or self-efficacy as the belief that various individuals have when they implement some actions

and a positive outcome is attained. Confident individuals usually opt to select difficult tasks in order to achieve their intentions. Self-reliant people always withstand difficulties and make sure their goals and objectives are accomplished. Moreover, Bandura (2007) discovered that self-confidence contributes largely to human performance factors, which include aspirational goals and anticipated opportunities in a particular venture. Through their meta-analysis comprising 114 studies and 21,616 subjects, Stajkovic and Luthans (1998) noted that there was a weighted average correlation of approximately 0.38 between confidence and human beings' performance results.

## Hope

Hope is a combination of both determination and will power. According to Ybasco et al. (1996), hope is comprised of both human beings' willpower to ensure that their goals are attained and the desire they have to come up with alternative ideas to achieve their goals. Hope is an inspirational state that consists of three main features: agency, paths, and objectives. Normally, hopeful individuals have the agency or wish to accomplish their objectives and are capable of formulating specific pathways or approaches toward achieving their goals.

## Optimism

Optimism is defined by Luthans and Youssef (2004) as a form of a descriptive style that is strictly associated with affirmative occurrences to interior, permanent, and persistent causes and negative occurrences to exterior, temporary, and specified situations. Optimistic individuals take tribute for the good things that occur in their lives, so that their self-confidence is enhanced, and at the same time they detach themselves from bad things that occur, especially toward new technology adoption and usage (Chen et al., 2009, 2013). Optimism is therefore concomitant with an individual's performance, as discussed by Martin-Krumm et al. (2003) and Schaupp and Carter (2010).

## Resilience

Resilience is referred to as the capability individuals have to overcome all their misfortune, their failure, and in most cases the ability to start taking responsibility by opting to change their lives. Most resilient people have a strong belief that despite all the challenges that they face in life, there is always a pathway that can be implemented in order to overcome them (Luthans, 2002; Luthans et al., 2007; Peterson et al., 2008). Various administrative intellectuals in a recent research analysis have concluded that resilient persons are able to overcome all the challenges brought their way.

In the above psychological capital (PsyCap) elements, there is a clear relationship between psychological strengths and the positive results realized in various working areas, as noted by Peterson et al. (2008). For instance, according to Peterson et al. (2008), most politicians' or societal leaders' hope is related to how businesses perform in the financial sector, worker contentment, and worker resiliency in the business. Additionally, in a Chinese study about manufacturing workers, Luthans and Youssef (2004) noted that there was a significant relationship between employee ranks of resiliency and the work performance

in organizations. On the other hand, Seligman (2011) found a clear link between the optimism measured and the worker's performance, specifically in insurance organizations.

From the above scholars who carried out the research, it is appropriate to conclude that Psychological capital has an impact on preventing employee non-attendance at their places of work and their desire to quit their jobs (Hu et al., 2018; Bockorny and Youssef-Morgan, 2019; Carmona-Halty et al., 2019). Moreover, from the research on PsyCap elements, it evident that PsyCap is positively associated with issues of job commitment, satisfaction, behaviors of individuals in an organization, leadership efficiency, and the performance of workers in their organizations (Luthans and Youssef, 2004; Luthans et al., 2006; Peterson et al., 2008). These outcomes of PsyCap elements are similar to results from research carried out in China (Lifeng, 2007), although, analytical results about India were not found. It is also clear that all the psychological capital elements are states, and not temperaments, according to Luthans (2002); hence, these elements might be influenced by different organizational contexts, for instance, in both the private and the public sectors.

## Organizational Commitment

Organization commitment is where employees tend to strongly attach themselves in various organizations through the satisfaction that they get from their jobs (O'Reilly and Chatman, 1986; McDonald and Makin, 2000; Saks, 2006; Bulut and Culha, 2010). Allen and John (1997) formulated three specific component models concerning the organizational commitment of employees. These models included effective, continuous, and normative commitment. Effective commitment in general entails the linkage that the workers have with their organizations and what they feel about the organization as a result of their personal desires. Continuous commitment is a situation where individuals working in an organization are mainly attached to it due to the favors the organization offers to them in relation to the challenges they undergo when they attempt to quit. Lastly, the normative commitment is a moral ideology that employees have, where they remain in a given organization not because they are comfortable or benefit from it, but because they think remaining there is the best and right thing to do (Islam et al., 2014).

According to Luthans (2002), organizational commitment has been found to correlate with all the psychological capital elements, such as self-efficacy or confidence, hope, optimism, and resilience. After conducting research on approximately 167 managers in various organizations, Sinha et al. (2002) noted that there was a specific relationship between self-confidence and the organizational commitment. There was insufficient evidence in the study concerning the effect of the affective, normative, and continuous commitment on the Psychological capital elements in India. Additionally, conclusions can be made following the above research on the psychological capital elements that, despite the difficulties and setbacks, have implications that are different in both the private and public organization commitment context (Lyons et al., 2006). It is noted that the implications of psychological capital on the organizational commitment vary in different organizations.

Generally, MIS from different organizations would not work with a similar organizational commitment. Thus, a collectively positive psychological capital as a shared base for cognitive and affective common ground toward social innovation issues becomes critical for inter-organizational MIS staffs' commitment building. This argument is among the core points that we proposed in this article. With psychological capital that could function across organizational boundaries, commitment toward the whole collaborated social innovation project could be formed among people staffs from different organizations.

## Organizational Citizenship Behavior

Organizational citizenship behavior is an important aspect in a given organization, and it was first observed in the 1980s. Organizational citizenship behavior is where the behaviors of employees in a workplace affect the organization, either positively or negatively, depending on whether the behaviors are desirable or not (Ensher et al., 2001; Lee and Allen, 2002; Spector and Fox, 2002; Avey et al., 2008, 2011; Podsakoff et al., 2009; Bolino et al., 2013). These behaviors consist of assisting fellow workers to complete a given project on time through teamwork, advising fellow employees on important issues when it is certain they are wrong, and also ensuring given tasks are performed with positive outcomes (Organ and Ryan, 1995). After conducting research on approximately 132 employees, Avey et al. (2008) concluded that psychological capital was directly related to arrogance and employee behavior in various organizations. Bowling et al. (2012) also concluded that organizational citizenship behavior was correlated with self-confidence of employees in each organization. From the research on organizational citizenship behavior, it can be concluded that behaviors differ in both public and private organizations. For a given organization to be successful, it is of utmost importance for various stakeholders in the company, such as the employees, to practice positive behaviors, and work as a team in order to realize the goals of their organization.

Several researchers carried out investigations concerning the effect that the psychological capital measurements had on both private and public organizations. The researchers used different tools during their investigation. Ybasco et al. (1996) measured hope using a hope scale, and had approximately six items comprised of an equal number of pathways and agencies. Neill and Dias (2001) used the scale to measure the resilience tool, which had 15 items. Self-confidence was also measured using the Jerusalem and Schwarzer (1992) confidence scale and had 10 items. Optimism was also measured by Scheier and Carver (Scheier et al., 1995) and had a total of eight items. Each organizational commitment was measured with a scale comprised of 18 items largely based on the three measurements of organization commitment – normative, continuous, and affective commitment – that had an equal number of six items. With the help of Chattopadhyay (1999), another important factor that was measured was organizational citizenship behavior. This factor had approximately 35 items based mainly on five measurements, which included Self-sacrifice (11 items), justice (five items), self-esteem (six items), peer relations (six items), and interdependence (six items).

After the research was conducted on the two organizations, it was evident that apart from resiliency, all the other measurements, including confidence, hope, and optimism, were dissimilar in both the public and the private sector. From this statement, we can see that there is still a similarity between our first propositions by Luthans and Youssef (2004), who that noted that psychological capital measurements are states, not trait temperaments. We therefore conclude that different organizations have different levels of effort made or applied to ensure they develop psychological capital.

Considering the self-confidence issue, Bandura (2007) noted that confidence could be freely implemented in various organizations. The researcher continually argued that for confidence to develop in organizations, it is necessary for workers to learn more in order to achieve the goals of a given organization. The issue of self-confidence was also the same in the results obtained by researchers from various organizations. According to those results, it was evident that worker self-confidence was greater in public organizations than in the private sector.

In terms of hope in psychological capital, the research made it clear that hope could also be developed in different organizations depending on how strictly the approaches to achieve this were planned (Luthans et al., 2006). It was evident that PsyCap hope was greater in the private sector compared to the public sector. This was due to the several reports that workers in the private sector took part in the process of setting organizational goals.

Based on the literature review, we develop propositions based on the following conceptual scheme.

## PROPOSITION DEVELOPMENT

### Optimism Positively Facilitates Inter-Organization MIS for Social Innovation Success

Optimism is a key Psychological capital element; it is the ability of an individual to be able to perceive the best outcome in every situation that occurs (Luthans and Youssef, 2004). It is a significant factor that facilitates work performance to enhance social innovation success (Martin-Krumm et al., 2003). Various optimistic people are always productive in organizations, since they are able to venture into difficult tasks and risky options in business, which lead to positive end results.

Optimism is an important factor in the workplace, since it is able to create an environment that promotes creativity and innovation (Gupta and Singh, 2014). Being optimistic is a factor that leads to trusting a person's talent and beliefs to achieve outcomes in a specific area. It is through this trust and belief that workers are encouraged to work and to improve in the work force. This encourages them to seek better intuitive ideas benefitting the workforce, since by doing so, the goal of social innovation is achieved.

Through the practice of optimism in the office space, an atmosphere of trust is created in the workplace, and such a condition is favorable to the employers and workers. For example, in the situation whereby leeway to work freely within

an organization is offered by the employers to the workers, employees are able to work freely and more effectively, since they know they have the trust of the employers.

Optimism has led to the success of social innovation, since it helps employees be more resilient in given organizations. For example, when faced with challenges at work, they are able to look at the positive sides enabling them to overcome all the setbacks in their way. This enhances performance in the organization, leading to improved social connections among employees.

Moreover, Optimism has a positive link to organizational citizen behaviors (Jung and Yoon, 2015). Optimistic people are able to offer good advice or suggestions of solutions to help solve problems. Another good example of an important factor is the providence of positive results when given a task and also helping each other finishing jobs allocated to them. In addition to that, optimistic people are able to adhere to all organizational ethics and rules. This is advantageous to social innovation success, as employees are able to practice better organizational behavior leading to inter-organization success.

## Resilience as an Important Antecedent for Effective Co-design of an Information System

In most organizations, resilience is an essential element that enables individuals to overcome most challenges by formulating approaches that help in problem-solving. This proposition explains how resilience is an important antecedent for an effective information system (IS). This is due to various occurrences such as specialized hackings, acts of workers, failure of equipment, and natural calamities, such as a flood, that compromise the effectiveness of the IS. As a result of these occurrences, there is a need for organizations to formulate and implement various approaches that enhance the resilience of the Information system so that they can be able to withstand the occurrences (McDaniels et al., 2008). With increased resilience, organizations will be able to achieve their goals and objectives.

Organizations are supposed to realize the need for cyber security through the formulation of important approaches that will ensure they facilitate better secure and resilient electronic systems that will maximize the outcomes of the organization. Moreover, organizations should implement the following models that will ensure improved resilience of the IT system: Preparation, Endurance, response, and recovery models.

During preparation or planning, process organizations should be able to ensure they take into consideration various aspects such as the advance in technology (Umble et al., 2003). Preparation is a model that is directly linked to the effective co-design of information systems. Some of the activities that lead to increased resilience of the IS include conduction of threat assessment programs, as well as the provision of effective incident response mechanisms and the implementation of a proper governance structure. Employees should ensure they implement effective approaches that will lead to increased resilience of the information system.

Endurance is a model that improves the IS through the implementation of effective mechanisms. It helps prevent any risk

factors from taking place in the organization, leading to positive outcomes. Application of the response and recovery model helps in identification of the risks and also in the formulation of important strategies to overcome; this then leads to increased resilience in the co-design of IS.

## Self-Efficacy Is an Important Moderator for an Effective Information System

Confidence is a key factor that has led to effective information systems (Kim et al., 2016). The following factors have contributed immensely to an effective information system. Most innovative ideas are created based on people's confidence (what they believe and trust) and the commitment they have to ensure their goals are accomplished (Bandura, 1997). Trust and commitment of workers in the IT sector have a great impact on realizing an effective information system. As a result, the trust of senior officials in their workers about key detailed information concerning the improvement of the IS will help improve the optimization of the organization's objectives. Confidence is a part of human nature but most individuals may lack it. In most organizations, confidence is a necessity for workers and managers, since some ideas or opinions are against the social norms (Lewis and Sambamurthy, 2003).

Self-efficacy is able to facilitate a moderately effective system by being able to create a bridge by which people come together and share knowledge acquired about their organization (Agarwal et al., 2000; Thatcher and Perrewé, 2002; Fagan et al., 2003; Hasan, 2006; Torkzadeh et al., 2006; Kwon et al., 2007; Scott and Walczak, 2009). Confident people tend to be attracted to others, since they believe in each other's capabilities. It is through this that they trust each other, being able to share with each other information attained, and thus benefitting the avenue through which knowledge is passed in an organization.

Furthermore, most ideas are based on general thoughts and depend a lot on confidence for them to be truly actualized. Employees need to cultivate confidence in themselves to be able to generate ideas and believe that all will work out in the long run. This leads to an effective IS, since workers are able to suggest their opinions, some of which are beneficial to the information system.

Confidence is also positively related to the employee's performance in the workplace (Stajkovic and Luthans, 1998; Lwoga and Chigona, 2019). It is a human attribute that can be gained or lost and is able to affect a person's level of energy and sense of self-worth. Therefore, it is advisable for employees to have high self-efficacy, which leads to high self-esteem that will positively impact their level of performance and produce better outcomes in organizations leading effective IS in their organizations. Confidence is a relevant asset for workers in an organization, since people communicate effectively and seek ideas enabling them to solve problems. In addition to that, confident workers promote organizations to higher levels compared to those who are not. Therefore, employees in the IT sector should cultivate the art of confidence to enhance the effectiveness of the system through hard work.



## The Significance of Hope That Helps Information Systems Determine and Actualize Its Prospects

Hope is an important factor that helps Information systems in the actualization of their prospects. Most employees in the IT sector are obligated to work hard with a determination that IS goals will be realized. With hope, various strategies have been formulated in different organizations with a belief that all difficulties can be overcome (Ybasco et al., 1996).

Hope is essential in organizations, since employees are able to work hard with a determination that their services will be upgraded, such as better insurance medical coverage. Hard work and the hope of better services yield positive results in organizations, since the IT department will be able to accomplish their objectives. Therefore, hope is positively related to improved performance in organizations, and it is important for all employees in the IT sector in an organization to cultivate the culture of hope to increase the effectiveness of IS.

Hope is effective in organizations, since individuals with hope believe that each employee and senior official has a responsibility to ensure that the organizations achieve their goals. Therefore, with this hope, employees support and interact well with each other by respecting everyone's opinions. Some of these opinions help solve the most critical IS technical problems, leading to a more effective IS. Additionally, IT employees are also able to enhance their security and safeguard confidential information in their systems from cybercriminals.

## Inter-Organizational Information System Is Effective in Social Innovation Success Relationship Between Inter-Organizational IS and Social Innovation

As has already been discussed, social innovation entails coming up with logistics that are tailored to meet the social and environmental needs of clients (Bresciani et al., 2016). That said, there needs to be an appreciation of the fact that the modern market is aggregated, and the production of similar goods heightens competition. It follows, therefore, that most businesses will pounce on the slightest chance to gain a competitive edge over rivals. To begin the cycle of social innovative success, research is required to determine the social as well as environmental needs that need to be addressed. According to Nilashi et al. (2016), market research is a function of the marketing department of the organization, which traditionally employs the use of a salesperson.

This is where the internet and networking align in a bid to cover more market and stimulate sales of the social innovative idea so that more market can be covered (Gil-Garcia and Sayogo, 2016). The author is of the view that the internet provides a good platform for interaction with buyers in real time, not to mention in a wide geographical coverage. However, in a stiffly contested market, the effects of sales promotions conducted by small and medium enterprises (SMEs) may not have far-reaching effects. It is also against this backdrop that an additional significance of the online platform for sales promotions is manifested.

In a bid to curb the pressures from macro enterprises, SMEs may cluster to launch joint efforts in their competitive and sales promotion approaches (Gil-Garcia and Sayogo, 2016). There may be a variety of mechanisms through which such ambitious alliances can be established, but by far, inter-organizational IS proves to be among the most effective methods. What this implies is that SMEs will pool resources and ideas together in a common Information System. It follows, therefore, that trust between or among such SMEs is of utmost significance, since each trust the other to act in the best interest of the entire alliance. Inter-organizational information systems also allow the aggregated SMEs to share the market base as well as information and resources (Mignerat and Rivard, 2009). An SME that is not well established in as far as e-commerce goes can, for instance, leverage the resources of a partner with a stronger technological base (Feindt et al., 2002). This will not only shield SMEs from intense competition but also enable them to have social innovation success, since their commodities aimed to meet social and environmental needs will ultimately reach wider market coverage. In summary, the benefits of an inter-organizational IS can be described as twofold. On one side it provides an interactive platform for organizations and their customers, and on the other side, it provides an outlet for socially innovated products. Business enterprises, such as SMEs that trade in social innovations, are thus able to meet their sole business purpose (selling), which further emphasizes the success of inter-organizational IS for social innovation success.

## Effectiveness of Inter-Organizational IS for Social Innovation Success

Effective inter-organizational IS facilitate social innovation success through improving the following factors.

### Smoothened Supply Chain

The sole objective of producing a commodity tailored to meet the social needs of consumers is sales (Crain and Abraham, 2008). That said, numerous organizations trade in the same products, and it is not always guaranteed that commodities will be sold. It follows, therefore, that efficiency in distribution and customer relations are important in establishing meaningful relationships between social innovation and sales success. One strategy that an Inter-organizational information system brings to the table through the application of the internet is electronic marketing. Electronic systems can be developed among and between organizations for connection with a large set of potential buyers (Liang, 2015). Successful in such aspect, critical informational and physical resources could be mobilized more effectively in the supply chains that supporting cross-sector collaborations for social innovation. This fosters the success of social innovation. Put differently, through supply chain relationship improvement, inter-organizational IS could increase social innovation success by level up the functions the supporting supply chain can play. As an example, in such a kind of social innovation as food security initiative, an effective inter-organizational IS could strengthen the function of the supporting food supply chains by flowing the food requirement and offer information faster and more completely,

leading to a much less wasted implementation of the new (socially innovative) food security initiative.

### Giving Larger Firms Initiator Roles in Social Innovation Campaigns

According to Liang (2015), the success of an industry can simply depend on the availability of a company that plays the lead role. Tentatively, social innovation campaigns can be initiated by larger companies with a broad technological base. Owing to the fact that most macro enterprises have smaller businesses operating under their canopy, influencing industry action and change can be easy. On the other hand, however, the leading firm need to coordinate with the government units and other smaller sized business partners well, which demand a good inter-organizational IS. With such support, the leading company can initiate the inter-organizational IS program and bring smaller businesses onboard by also enabling their less-endorsed partners. This in effect means that macro enterprises have the ability to “orchestrate” for desirable changes in social innovation by promoting desired practice through intense communication and emphasis.

### Trust Building

The success of most partnerships is based on trust (Lim et al., 2015). Companies with vested interests in performing a task have to establish a way to trust each other. For example, Kroger the US's largest supermarket chain has managed to attract numerous investors over the years due to its merging with Teeter in a manner that embraces mutual trust and accountability (Clare, 2013). One of the most critical necessities of inter-organizational trust building is that instant information sharing and communication are necessary tasks among collaborating partners. Through the establishment of an effective inter-organizational IS, companies are able to share information amongst themselves. Gradually, this builds trust among the partnering companies, meaning that they can act on behalf of each other.

### Collaborative Quality Assurance Approaches

Customer satisfaction is an integral part of sustainable business practice, yet customs surrounding this very sensitive matter vary greatly from one company to another (Mignerat and Rivard, 2009). Essentially, business institutions have quality assurance departments tasked with the role of ensuring that social innovations are designed to meet the specific needs of consumers (Social and environmental needs). As has already been mentioned, quality assurance practices vary. It may be prudent if several companies, through an inter-organizational IS, share their respective quality assurance practices in an online platform. The best practices can be selected from within the proposed practices and adopted for implementation. Such collaborative quality assurance approaches may also be implemented by information and technological sharing, which is a key to success for businesses in cooperation with each other, especially in matters relating to marketing, as well as competition (Liang, 2015). Through cooperation, businesses are able to share innovation information that can be used to standardize the products being produced

by partners, which means that socially innovative products will appeal uniformly to buyers. Anyone outside the fold will most certainly experience competitive pressures. Additionally, through inter-organizational IS, companies are able to share technological information easily, which further gives them a strong stance in ensuring that social innovation is a success.

## CONCLUSION AND IMPLICATIONS

The changing demographics of the business world today make it a prerequisite that organizations stay vigilant not only about market dynamics but also about market needs. It is important that businesses identify the social innovations that need to be developed to foster customer satisfaction, while at the same time giving them a competitive edge against rivals. This is where organizations must appreciate the value of the two factors of business cooperation and technology. In effect, the development of an inter-organizational information system should be emphasized. In so doing, it must be ensured that the psychological state of all the members of MIS development team is positive to enable the team to willingly execute the objectives of the business. Long term benefits, such as improved supply chain and trust building, will go a long way in ensuring that businesses meet their objectives. There are currently prolific studies that are relevant to PsyCap, including the first meta-analytical review (Avey et al., 2008), and a review of the psychometric properties of the PsyCap questionnaire (PCQ) (Dawkins et al., 2013). Although this work provides an important first step, proving the accuracy of the concept and establishing some of the most effective boundary conditions for PsyCap represent unresolved problems that were identified through our systematic review of the prior studies (Newman et al., 2014).

There are companies that have a wider retail base than others in diverse industries. What this implies is that companies will explore merging options as a subsidiary move to foster cooperation. Merging companies will seemingly be in good position to share resources such as information and technology more transparently. The growth of SMEs will, in such cases, be inevitable because of the perceived benefits of large capital outlays as well as resource access. The only downfall that needs to be critically evaluated is the effect that large companies playing these roles will bring. The bigger companies will tailor the entire inter-organizational IS, for instance, to suit their own operational philosophies. An SME's operations are likely to play a support role, meaning that some of their objectives will not be met. In the long run, this could lead to acquisitions, and hence permanent loss of smaller organizations.

This research contributes by offering inspiration for future studies to link the micro- and macro-level aspects of social innovation and entrepreneurship phenomena. The micro-level studies of the phenomena traditionally focus on the individual foundations that explain the formation of decisions, behaviors, or changes in the social innovation/entrepreneurship activities (Liao and Welsch, 2005; Zampetakis and Moustakis, 2006; Wu and Wu, 2008; Ferreira et al., 2012; Moghavvemi and Akma Mohd sallah, 2014). However, a context-specific discussion for those individual

factors is lacking, thus making the generalizability impact of those studies lower. On the other hand, traditional macro-level studies for social innovation/entrepreneurship focus on overall patterns of the collectives/stakeholders for such activities (Gumusluoglu and Ilsev, 2009; Ruvio and Shoham, 2011; Ozkaya et al., 2013; Glaser et al., 2015; Kobarg et al., 2017), weakening the rationalization of why those patterns are emergent. We hope our study will encourage future research to transcend traditional boundaries and enrich research possibilities.

This study furthers the body of psychological capital on organizational commitment and citizen behavior; however, some research limitations and future works of this study may be considered in the near future. First, the possible antecedents, consequents, mediators and moderators of psychological capital and organizational citizen behavior may exist in different research areas and contexts (Hu et al., 2018; Bockorny and Youssef-Morgan, 2019; Carmona-Halty et al., 2019). The future work should make a deeper search and comparison from the current research results. Second, this study mainly focused on the contribution to propose a conceptual model and research propositions from the discussion and exploration of existing and

classical literature. However, the further study could modify and improve the proposed model of this study via empirical data.

## AUTHOR CONTRIBUTIONS

YT conceived and designed the research, wrote, and revised the manuscript. Y-FS provided guidance throughout the whole research process.

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# Understanding the Role of Psychological Capital in Humorous Leadership-Employee Creativity Relations

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This paper aims to examine how humorous leadership enhances employee workplace creativity from a novel angle of employee psychological capital (EPC). This study also explores the moderating roles of supervisor-subordinate dyadic tenure and work autonomy in the proposed model. Data from a sample of 355 supervisor-subordinate dyads working in an information technology enterprise in the People's Republic of China was used to test the assumed moderated mediation model. The results indicate the positive relationship between humorous leadership and employee workplace creativity, which is partially mediated by EPC. Moreover, work autonomy significantly moderates the relationship between EPC and employee creativity. Humorous leadership has a significant effect on the extra role behavior of subordinates, leading to workplace creativity. The deliberate establishment of a humorous image by leaders may encourage subordinates to achieve creative goals. Combined with traditional management practices that emphasize the supportive behaviors of leaders, leaders can use humor to provide an open and friendly atmosphere for employees, thereby encouraging creativity in the workplace. Organizations should also place greater emphasis on employee work autonomy, giving employees enough flexibility on when and how they deal with their work; this could enhance the positive impact of other factors on employee workplace creativity. These findings carry implications for research on humorous leadership, EPC, and creativity.

**Keywords:** humorous leader, psychological capital, supervisor-subordinate dyadic tenure, work autonomy, employee creativity

## INTRODUCTION

A large body of literature has highlighted the significant role employee creativity plays in enhancing organizational innovation, effectiveness, survival, and competitiveness (Gong et al., 2009; Ghosh, 2015; Iqbal et al., 2015; Zubair and Kamal, 2015). Many scholars have explored how to drive employee creativity better. According to these studies, leadership styles can motivate employees (Iqbal et al., 2015; Goswami et al., 2016; Musinguzi et al., 2018) and enhance employee psychological capital (EPC), that is, the positive psychological state of their employees (i.e., hope, resilience, optimism, and efficacy) (Luthans et al., 2007), seems to be critically

important in harnessing an employee's creative potential. Moreover, the mediating role of EPC in the relationship between leadership style and employee creativity has been widely discussed. For instance, Rego et al. (2012) found that EPC mediates the association between authentic leadership and employee creativity. Gupta and Singh (2014) and Gong et al. (2009) highlighted the mediating impact of EPC on the relationship between transformational leadership and employee creativity. Zhang and Bartol (2010) demonstrated the intervening effect of employee psychological state on the relationship between empowering leadership and employee creativity. Noticeably missing from the literature is an examination of "humorous leadership" and how it relates to EPC.

A leader's sense of humor might facilitate followers to think "outside of the box" and achieve greater creativity (Cooper, 2008). We argue that a leader's sense of humor may be of particular significance in motivating employee creativity in China. Because Chinese culture values high power, respecting for those in power is a prominent cultural characteristic among Chinese people (Nonaka and Zhu, 2012; Chin and Liu, 2015). As such, employees consider Chinese leaders to be unchallengeable authorities; leaders are perceived to take their work seriously and maintain a certain distance from their subordinates (Chan, 2014; Chin and Liu, 2015; Du et al., 2019). Scholars claim that humorous leadership may activate subordinates' creativity (Lang and Lee, 2010; Wood et al., 2011; Pundt, 2015; Yam et al., 2018), as humor allows for the playful combination of ideas that appear incongruent at first glance; through this, innovation emerges. Nevertheless, limited research has addressed the importance of humorous leadership in China, despite the wide recognition of its influence on employee innovation performance in western countries (e.g., Avolio et al., 1999; Vecchio et al., 2009; Robert and Wilbanks, 2012). To fill the gaps mentioned above, the current study aims to explore the relationships among humorous leadership, EPC, and employee creativity.

Although humorous leadership appears to be a popular kind of leadership, is it always helpful? We argue that humor is not a panacea. That is to say, although a leader's sense of humor may help to increase positive effect among subordinates, it may also increase the deviance of the subordinates. Because it is easier to communicate with a humorous leader, employees are more likely to break the company rules, and this will inevitably lead to confusion. Furthermore, in her qualitative study, Holmes (2007) reported that humorous comments during team meetings kept the idea generation process going, although humorously presented ideas were often unrelated to the actual solution. Evidence indicates that humorous leader often appears to be ineffective and unprincipled; this leaves a bad impression on employees who see their leader as a role model. The impact of humorous leadership on employee creativity is not created out of thin air; it is affected by some contingency factors. Therefore, the main purpose of this study was to build and test a theory that addresses the connection between humorous leadership and workplace creativity, including several important intervening variables.

In building a model linking humorous leadership and employee creativity, we further drew on Resource Conservation

Theory (Hobfoll, 1989) and Emotional Event Theory (Weiss and Cropanzano, 1996) to posit a mediating mechanism that can potentially explain the link between humorous leadership and employee creativity; specifically, EPC. EPC, defined as "an individual's positive psychological state of development," is characterized by: "(1) having confidence and self-efficacy to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success" (Luthans et al., 2007). Thus, we explored the extent to which humorous leadership works through EPC to ultimately influence employee creativity. Although "creativity" can be used to describe both an outcome and a process, in this study, we use the word in the outcome sense—that is, to denote the extent to which novel and useful ideas are produced.

Finally, we proposed and tested two potentially important moderators of the relationship between humorous leadership and employee creativity: work autonomy and supervisor-subordinate dyadic tenure. Work autonomy refers to the extent to which employees can make decisions about their own work, such as when they work, who they work with, and so on. Supervisor-subordinate dyadic tenure refers to the duration of time an employee has worked together with his direct leader.

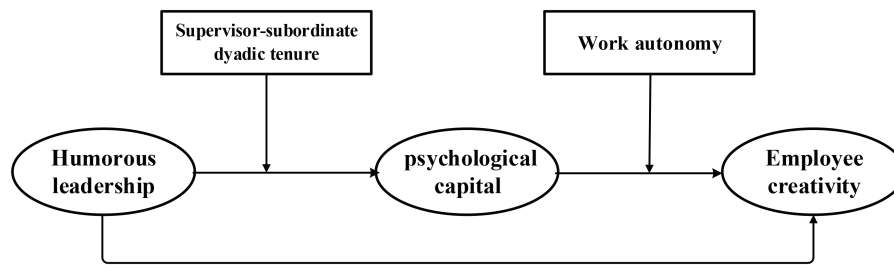
Overall, our purpose was to build a theory by conceptually and empirically linking Resource Conservation Theory and Emotional Event Theory to provide a more comprehensive understanding of the humorous leadership phenomenon as it relates to employee creativity.

## THEORY AND HYPOTHESES

In this section, we trace the development of our overall research model by first exploring the general nature of humor and humorous leadership as it relates to creativity. Next, we investigate how humorous leadership influences EPC, as delineated by Luthans et al. (2007), including consideration of a potential moderator: supervisor-subordinate dyadic tenure. We then examine the influence of EPC on employee creativity. As part of these arguments, we incorporate work autonomy as a moderating variable to help explain how leaders can affect the extent to which EPC influences employee creativity. The hypothesized model is depicted in **Figure 1**.

### The Nature of Humor

The word "humor" comes from the Latin word "homorem," with the original meaning of "liquid" or "fluid." Broadly defined, a sense of humor refers to an individual trait-like tendency to use or display behaviors, attitudes, and abilities relating to amusement during social interactions (Martin, 2001; Al Obthani et al., 2013). Research on humor has gradually entered into the field of organizational behavior. Sense of humor is often



**FIGURE 1 |** Hypothesized model.

said to be a critical component of successful leadership (Sobral and Islam, 2015). Sense of humor in an organization may also be a means of relaying verbally expressed ingratiation behavior. Specifically, a humorous sender shares an event with others for the purpose of entertainment and pleasant, the recipient can feel this is intentional (Cooper, 2005).

The evolution of the concept of humor has mainly involved different views as to whether humor is a behavior or trait. The trait view holds that personal humor is a stable personality trait related to personal experiences and attitudes toward life. This view emphasizes that an individual's sense of humor is stable and consistent; it does not change greatly due to certain events or in special periods. It is mainly manifested in the behavioral tendency of individuals to actively capture, discover, and create humor in the workplace. However, the behavioral view argues that humor in the workplace is deliberately initiated to purposefully deliver interesting events to the recipient. The behavioral view emphasizes that the initiator intentionally creates and then sends a signal with humor, and then through the dissemination of the organizational media, the receiver analyzes and decodes. Finally, the receiver responds to the humor, such as with laughter, happiness, and other information dissemination processes.

At present, the behavioral view of humor is much more popular among scholars. Humor is regarded as a form and process of interpersonal communication in an organization. Humorous leadership refers to a leader, who is always consciously entertaining his subordinates by sharing interesting things (Robert et al., 2016). According to Martin et al. (2003), there exist four different styles of interpersonal humor: affiliative, self-enhancing, aggressive, and self-defeating humor. Since the 1980s, researchers have explored the impact of workplace humor on work efficiency. With consideration for the various dimensions of humor, many scholars have studied the relationship between humorous leadership and employee performance, mental health, work satisfaction, and so on (e.g., Avolio et al., 1999; Vecchio et al., 2009; Kim et al., 2016).

Research on leadership style is a hot topic in the study of organizational behavior. As an important type of leadership style, humorous leadership has attracted the attention of an increasing number of scholars. Empirical research has demonstrated that humor is closely related to organizational innovation, socialization, employee relationships, job satisfaction, work engagement, team cohesion, and so on (Bizi et al., 1988; Wood et al., 2011; Yam et al., 2018). Successful humor in an organizational setting can

add the quantity and quality of effective communication within the team, alleviate boredom and frustration at work as well as improve the relationship between leader and employees, thus improving overall work efficiency.

Adriaenssens et al. (2015) investigated the relationships between various leadership styles and employee performance. The results showed that positive leadership styles, such as transformational leadership and contingent leadership, were positively related to humor. On the contrary, laissez-faire leadership was negatively related with humor. For positive leaders, the use of humor can make them look more confident and glamorous, allowing them to send positive signals to employees, so as to enhance team cohesion and create good organizational culture; thus, improving organizational innovation and team performance. For the sake of distinction, humor in this article only considers the positive aspects, including affiliative humor and self-enhancing humor; this paper does not take two negative kinds of humor (aggressive and self-defeating humor) into consideration.

## Humorous Leadership and Employee Creativity

In general, creativity in the workplace is defined as the production of novel and useful ideas or solutions (Amabile, 1988; Shalley, 1991; Oldham and Cummings, 1996). According to this definition, both novelty and usefulness are necessary elements for an idea or product to be judged as creative (Zhou and George, 2003). In the context of creativity at work, an idea or product which only displays novelty or usefulness is not enough; a novel idea that has no potential value cannot be regarded as creative, nor can a useful product that is not significantly different from already available ones (Chang et al., 2015).

A survey of 329 Fortune 500 CEOs performed by Fortune magazine found that 97% of CEOs agree with the importance of humor in business; these findings call for CEOs to cultivate a greater sense of humor (Chen and Chen, 2011). So, how do humorous leaders influence employee innovation behavior? According to Benign Violation Theory (BVT; McGraw and Warren, 2010), it is necessary and beneficial to break some benign rules. Briefly, BVT suggests that the display of humor often necessitates a benign norm violation. Leaders' humorous behavior conveys to other members of the organization that breaking some existing rules is acceptable; thus, subordinates



are more likely to increase workplace violations (Robinson and Bennett, 1995). In their eyes, violations are not “unforgivable,” but safe to try. This kind of workplace violation allows employees continually explore new ideas without sacrificing the original production model; thus, increasing the possibility of innovation.

Evidence indicates that the atmosphere in the workplace plays an important intermediary role between human resource practice and organizational performance (Delaney and Huselid, 1996; Tsai et al., 2015). If employees feel their company attaches great importance to innovation, this will give them the belief that conducting innovative actions is encouraged; even if their innovation fails, they will not be punished, the subjective efforts of the employees will be stimulated and they will try innovative methods actively (Hommel et al., 2011). Conversely, if employees believe that the organization does not value innovation as they say, or that they will suffer big losses if they fail, then employees will be unlikely to try innovative and new processes or methods (Wang and Wang, 2018). Humorous leadership plays an important role in the creation of an organizational innovation atmosphere; in such an atmosphere, subordinates feel free to develop, communicate, and implement their ideas without any fear of negative consequences (Carmeli et al., 2010). Humorous leaders may make funny comments about upcoming mistakes, and subordinates face idea implementation with a more lighthearted and playful approach.

Further, humor is one kind of creativity itself; that is, humorous leadership gives way to creativity and idea generation as part of innovative behavior. According to BVT, incongruity is a cognitive element of humor (Yam et al., 2018). This means the first condition of humor is that at least two situational features are cognitively incompatible. Situations that violate expectations, but are simultaneously perceived as being normal overall, are typically perceived as humorous (Veatch, 1998). Thus, humorous leaders are models of person with creativity. Emotional Event Theory argues that the mental state of a leader can be perceived by the employees as an environmental impact, which in turn affects the attitudes and behaviors of the employees (Scott and Bruce, 1994; Weiss and Cropanzano, 1996). Humorous leader will positively influence subordinates, who see him as a role model, and thus, subordinates will introduce new process and ideas so as to find a common language with their leader (Lebedeva et al., 2018). Hence, humorous leadership has a positive effect on employee creativity:

*H1: Humorous leadership is positively related to employee workplace creativity.*

## Humorous Leadership, Employee Psychological Capital, and Employee Creativity

Studies have shown that individual cognitive factors have a significant impact on employee innovation behavior (Tierney and Farmer, 2011). The influence of leadership on employee behavior is often not direct, but is generated by the internal psychology and cognition of employees (Shin and Zhou, 2003; Cho and Dansereau, 2010; Walumbwa et al., 2010). EPC, defined

as “an individual’s positive psychological state of development” includes four aspects: confidence (self-efficacy), optimism, hope, and resilience (Luthans et al., 2007). Although the study of EPC has mostly focused on its structural dimensions and its connotation level, we still have reason to believe that there is a close relationship between humorous leadership and employee EPC (Gupta and Singh, 2014; Wang et al., 2018).

The innovation process is full of complexity and uncertainty; employees need to have strong confidence and self-efficacy (Tierney et al., 1999; Silla and Gamero, 2018; Rafiq et al., 2019). Humorous leader garners trust and confidence from their subordinates through funny words and deeds. By providing cognitive, emotional, and ethical assistance to their employees, humorous leader enables them to develop their own abilities and promote their self-confidence. Through observing exemplary behaviors in a respectful manner, employees may develop greater confidence in their abilities to pursue goals (Rego et al., 2012). Individuals with higher self-efficacy are more likely to take risks and engage in challenging tasks, and are therefore more likely to use creative methods to solve problems (Gong et al., 2009). Participative goal setting enhances an individual’s willingness and ability to design hope pathways. Breaking down difficult goals into smaller and more manageable milestones can also enhance hope in employees (Gupta et al., 2011). Humorous leaders usually have a good relationship with their subordinates, and tend to set work goals together with their subordinates. Further, humorous leaders increase their subordinates’ level of optimism by creating a supportive work environment.

By providing positive feedback to their subordinates and expressing confidence in their abilities, humorous leader can motivate their employees to look on the bright side of things, redirect his employees away from the negatives and focus on the positives and available opportunities (Gupta et al., 2011). Through some fixed-themed training, humorous leader can demonstrate and teach realistic optimism to employees, and through this process, innovative behaviors among subordinates are promoted. Positive feedback and encouragement in the work from the leader can help enhance employees’ resilience (Luthans et al., 2007). Resilience can also be enhanced by altering the perceived level of risk and generally fostering self-enhancement and development (Avey et al., 2009). In the face of pressure or adversity, humorous leader can help subordinates to respond positively. Therefore, when the subordinates face difficulties, they will not only persist, but ultimately succeed; this will help to improve the level of resilience in subordinates (Avolio and Walumbwa, 2006).

The innovation process is so difficult and uncertain that it requires employees to have an unwavering internal drive to transcend current challenges and setbacks in order to adapt to the changing environment. Resilient employees can be unyielding in a dynamic environment and can meet the needs of creative problem solving. Self-efficient employees are more confident in their innovative ideas and are more willing to propose novel ideas in the workplace. While self-efficiency means that employees have the power to do innovative things, high levels of hope indicate that employees can do challenging work in different ways (Luthans et al., 2007). In order to obtain leadership support

for their innovative ideas and behaviors, employees with high level of hope develop practical solutions based on the leader's hobby, and exhibit determination to overcome risks and challenges brought about by innovation failures. Optimistic individuals can be more likely to control their own destiny and face difficulties as well as failures more calmly. They often have positive expectations of themselves, and thus, are more easily to achieve innovative behavior (Sweetman et al., 2011). Based on the above arguments, we hypothesize that:

*H2: Humorous leadership behavior is positively related to EPC.*

*H3: EPC is positively related to employee creativity.*

*H4: EPC mediates the relationship between humorous leadership and employee workplace creativity.*

## The Moderating Role of Supervisor-Subordinate Dyadic Tenure

While overall, we expect humorous leadership to positively influence employee EPC, there is some evidence that employees differ in the extent of EPC, even in the same context of humorous leadership. To assess this prospect, we draw on Emotional Event Theory (Weiss and Cropanzano, 1996), according to which, the mental state of the leader can be perceived by employees as an environmental impact, which in turn affects the attitudes and behaviors of employees. As managers of the workplace, leaders are responsible for leading employees to complete required tasks. Their mental state and leadership behavior is an important working background against which the employees carry out their daily work; thus, the mental state and leadership of a leader have important influence on the work attitudes and behaviors of employees (Podsakoff et al., 1990; Niehoff and Moorman, 1993).

As mentioned earlier, the supervisor-subordinate dyadic tenure is defined as the duration of time that an employee has worked together with his direct leader. Individuals can achieve a sense of belonging and self-realization through communication and interaction, thus increasing EPC (Quinn and Dutton, 2005). According to Emotional Event Theory, the behavior and performance of employees are the results of the comprehensive influence of the surrounding environment; the behavior and mental state of the leader is a very important factor in the surrounding environment of the employees. The longer of the supervisor-subordinate dyadic tenure, the greater positive interactions and emotional exchanges between the leader and employees are. Further, with greater supervisor-subordinate dyadic tenure, the leader will have more trust and support in their employees (Gkorezis et al., 2011); in turn, the employees will appreciate this and engage in more positive organizational behaviors, such as working harder, taking on more work commitments, and engaging in innovative work methods. All of the organizational behavior mentioned above can contribute to a gaining EPC of employees.

Robert et al. (2016) found that only when an employee works with a leader for a long duration of time will they

establish a relationship with high quality exchanges. The longer an employee works with his direct leader, the more they can get to know each other, including each other's behavioral habits, work style, and even hobbies. This will eliminate and avoid misunderstandings caused by insufficient or inappropriate communication. Further, frequent interactions between the leader and employees can help the employees gain psychological power from the guidance of their leader. EPC, which can be increased after training and intervention, is one such important kind of positive psychological power. In short, supervisor-subordinate dyadic tenure provides a valuable time basis and support for positive communication between leaders and employees; that is, the supervisor-subordinate dyadic tenure is longer, the positive relationship between humorous leadership and EPC is stronger. On the contrary, the supervisor-subordinate dyadic tenure is shorter, the positive association between humorous leadership and EPC is weaker. Accordingly, we propose that:

*H5: Supervisor-subordinate dyadic tenure moderates the relationship between humorous leadership and EPC.*

Based on the discussion above, combined with H4 and H5, we further infer that the mediating role of EPC on the relationship between leader's sense of humor and employee creativity can be strengthened in employees who have a longer supervisor-subordinate dyadic tenure. In other words, the mediating role of EPC is moderated by supervisor-subordinate dyadic tenure; thus, we propose a moderated mediation model. Our specific proposition is as follows: supervisor-subordinate dyadic tenure positively moderates the mediating role of EPC on the relationship between humorous leadership and employee creativity. Specifically, when employees and leaders work together for a longer duration of time, the mediating role of EPC is relatively strong; however, when employees and leaders work together for only a short duration of time, the mediating role is relatively weak.

## The Moderating Role of Work Autonomy

Although there are conceptual and empirical reasons to expect that an employee with high EPC will be more creative in the workplace, EPC, by definition, leaves an employee with considerable scope. As mentioned above, creative behavior in the workplace is not clearly listed as a job responsibility, and employees may even bear some risks and losses while being creative; thus, employees face external pressure when they engage in creative behavior. According to Resource Conservation Theory (Hobfoll, 1989), when individuals feel pressure, they will actively seek resources to alleviate the psychological disorder caused by stress; ways in which they may seek such resources include obtaining control and autonomy over their work. Work autonomy, as a key indicator of job characteristics, refers to the degree to which employees can independently control and decide on their working methods, work arrangements, and work standards (Breugh, 1989). Llopis and Foss (2016) argued that employees with more job autonomy have greater freedom to decide which tasks to perform, how the work will be done and how work contingencies are to be handled.

Employees with a high degree of autonomy in their work can decide their own work style and schedule; this can intrinsically motivate employees and meet their need for a sense of belonging. When work autonomy is improved, employees have clearer work responsibilities and obligations. All of these factors can lead to workplace creativity. Further, work autonomy can improve the internal perceptions of employees by improving their mental state and work performance (Hackman and Oldham, 1976); work autonomy may also play a role in regulating the relationship between individual emotions and behaviors (Bizzi and Soda, 2011; Wang et al., 2018). Employees with a high degree of work autonomy can participate in the decision-making process; they also have access to job-related information to the fullest extent, and are therefore less affected by contextual factors. This can accelerate the process of transformation from EPC to workplace creativity. Accordingly, we propose that:

*H6: Work autonomy moderates the relationship between EPC and workplace creativity.*

Based on the discussion above, combined with hypothesis H4 and H6, we further infer that the mediating role of psychological capital between humorous leadership and employee creativity is influenced by work autonomy. In other words, the mediating role of psychological capital is moderated by work autonomy. Therefore, we propose the following assumption:

Work autonomy positively moderates the mediating role of psychological capital between humorous leadership and employee creativity. Specifically, when employees have more autonomy in workplace, the mediating role of psychological capital is relatively strong; otherwise, the mediating role is relatively weak.

## MATERIALS AND METHODS

### Research Setting and Participants

This study was conducted in a major information technology (IT) company headquartered in the People's Republic of China (PRC). Participants were professional-level employees whose work required substantial creativity in order to be effective. The direct supervisor of each participating employee was also recruited for this study. We used a pairing survey to collect data from the two sources in order to reduce common method biases. The entire survey was translated from English into Chinese and then back-translated into English by two independent bilingual individuals to ensure equivalency of meaning. Separate questionnaires were designed for direct leaders and employees. The employee questionnaire (questionnaire A) collected data about the employee's evaluation of his direct leader's sense of humor, as well as EPC, work autonomy, and personal information related to the employee. The direct leader questionnaire (questionnaire B) contained an evaluation of employee creativity and collected information related to the team and the leaders themselves.

Before commencing the survey, we contacted the company's human resources (HR) department and got a list of 150 teams of this company. Then, we coded all the questionnaires and

matched each leader questionnaire (questionnaire B) with the employee questionnaire (questionnaire A). With the name list of the employees in the 150 teams above, we used a simple random sampling method to choose 600 employees to participate in our survey. We distributed a total of 600 employee questionnaires (questionnaire A), and received 423 valid ones, yielding a response rate of 70.5%. Then, we distributed questionnaires (questionnaire B) to the corresponding supervisors of the 423 employees who responded and obtained 355 valid supervisor responses at last. Through sorting out of these questionnaires, we found the 355 employees in our survey were from 83 teams. So, we got 355 pairs of valid samples in our survey in total.

At last, we obtained a total of 355 pairs of leader-member questionnaires, including 83 leaders and 355 employees. Each of these 355 employees was evaluated by his direct leader. Similarly, all the leaders were evaluated by their employees separately. The majority of the participating employees were between 20 and 25 years of age. The employees in this age group accounted for 75.2% of the total number of participants. The average age of the leaders was 27–29 years of age. Among the employees, there were 197 males, accounting for 55% of the total number of employees. Male leaders accounted for the majority of the leaders; 83 leaders participated in the survey, 51 of which were males, accounting for 61.4% of the total number of leaders.

## Measures

### Leader's Sense of Humor

We measured leader sense of humor with a 7-item scale developed by Thorson and Powell (1993). The participants responded using a 5-point scale ranging from 1 = "strongly disagree" to 5 = "strongly agree." Sample item: "My leader uses humor to entertain coworkers." Cronbach's  $\alpha$  was 0.92.

### Employees' Psychological Capital

EPC was measured with a 24-item scale developed and validated by Luthans et al. (2007). The scale has four sub-scales, namely, hope, resiliency, optimism, and self-efficacy; each scale is measured with six items. Items were measured on a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). Sample items include "I feel confident analyzing a long-term problem to find a solution" (self-efficacy); "I always look on the bright side of things regarding my job" (optimism); "If I should find myself in a jam at work, I could think of many ways to get out of it" (hope); and "I usually take stressful things at work in stride" (resiliency). Cronbach's  $\alpha$  was 0.97.

### Work Autonomy

A 7-item scale adapted by Kirmeyer and Shirom (1986), with minor modification, was used to assess perceived work autonomy. The scale asked participants to indicate the extent to which they agreed with the statement about the freedom they feel regarding to their work, such as when they work, with whom they work, how they finish their work, and so on. Respondents rated their perceived extent of freedom on a 5-point Likert-type scale ranging from 1 (strongly disagree)

to 5 (strongly agree). Sample item: “To what extent do you feel you have latitude to decide when to take breaks”. Cronbach’s  $\alpha$  was 0.92.

### Employee Creativity

Employee creativity was measured with a 13-item scale developed by Zhou and George (2003). Leaders responded on a 5-point scale ranging from ‘not at all characteristic’ to “very characteristic”. Sample item: “He (the employee) is a good source of creative ideas”. Cronbach’s  $\alpha$  was 0.94.

### Supervisor-Subordinate Dyadic Tenure

Supervisor-subordinate dyadic tenure was measured as the duration of time, the employee had worked with his direct leader.

### Control Variables

We controlled for three demographic variables in our analyses as previous research has found these to be correlated with employee creativity (e.g., Zhou and George, 2003). Age was measured in years. Gender was measured as a dichotomous variable coded as 0 for male and 1 for female. Education was measured as the number of years of post-high-school education.

### Measures Validation of Measures

As reported above, the Cronbach’s alphas for all multi-item scales were greater than 0.92, indicating good reliability. Next, convergent and discriminant validity were evaluated to examine the measurement model. The factor loadings  $\lambda$  of all multi-item constructs were higher than 0.60, the average variance extracted (AVE) for each variable was greater than 0.50, and the composite reliabilities (CR) were greater than 0.8, indicating that each measurement construct had great convergence validity (Fornell and Larcker, 1981). In addition, as shown in **Table 1**, the square root of AVE of each variable on the diagonal was greater than the correlation coefficient of the variables presented in the same row or the same column. Therefore, the variable construction of the four multi-index measurements had good discriminant validity (Fornell and Larcker, 1981).

## Analysis

To test our hypothesized moderated mediation model, we used the SPSS macro PROCESS (version 3.2) developed by Hayes et al. (2017). This allowed us to conduct bootstrapping examinations for moderation and moderated mediation in order to calculate the indirect impact of humorous leadership on employee creativity *via* EPC, at different levels of supervisor-subordinate dyadic tenure and work autonomy. Before using the SPSS macro PROCESS, all measures in the interaction terms were mean-centered (Aiken et al., 1991).

## RESULTS

The means, standard deviations, and correlations for each study variable are shown in **Table 1**. All the correlation results were in the expected direction.

Results presented in **Table 2** show that, after controlling for the impact of demographic variables, humorous leadership was positively related to employee creativity ( $\beta = 0.28, p < 0.001$ ) and EPC ( $\beta = 0.32, p < 0.001$ ), and EPC was also positively related to employee creativity ( $\beta = 0.33, p < 0.001$ ). These findings are in line with H1, H2, and H3.

**Table 2** shows the results of our H4 mediation hypothesis. It can be seen that when we included both humorous leadership and EPC as independent variables and employee creativity as

**TABLE 2 |** The mediation role of EPC.

| Variables      | EPC     |          | Employee creativity |          |          |          |
|----------------|---------|----------|---------------------|----------|----------|----------|
|                | Model 1 | Model 2  | Model 3             | Model 4  | Model 5  | Model 6  |
| Age            | 0.13*   | 0.14**   | 0.14*               | 0.14**   | 0.09     | 0.11*    |
| Gender         | 0.13*   | 0.08     | 0.09                | 0.04     | 0.04     | 0.02     |
| ED             | 0.14**  | 0.14**   | 0.12*               | 0.12*    | 0.08     | 0.09     |
| HL             | –       | 0.32***  | –                   | 0.28***  | –        | 0.20***  |
| EPC            | –       | –        | –                   | –        | 0.33***  | 0.27***  |
| Adjusted $R^2$ | 0.04    | 0.14     | 0.03                | 0.11     | 0.13     | 0.16     |
| F              | 6.40*** | 15.71*** | 4.64**              | 11.52*** | 14.48*** | 14.92*** |

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . EC, employee creativity; ED, education; EPC, employees’ psychological capital; HL, humorous leadership.

**TABLE 1 |** Descriptive statistics, correlations, and reliabilities ( $N = 355$ ).

|   | 1      | 2      | 3      | 4      | 5       | 6       | 7       | 8       |
|---|--------|--------|--------|--------|---------|---------|---------|---------|
| 1 | Age    | NA     |        |        |         |         |         |         |
| 2 | Gender | 0.18** | NA     |        |         |         |         |         |
| 3 | ED     | 0.19** | 0.05   | NA     |         |         |         |         |
| 4 | HL     | 0.01   | 0.15** | 0.03   | 0.79    |         |         |         |
| 5 | SDT    | 0.29** | 0.07   | 0.05   | 0.07    | NA      |         |         |
| 6 | EPC    | 0.13*  | 0.15** | 0.14** | 0.33*** | 0.09    | 0.76    |         |
| 7 | WA     | 0.12*  | 0.10   | 0.11*  | 0.20*** | 0.07    | 0.57*** | 0.80    |
| 8 | EC     | 0.13*  | 0.10   | 0.10   | 0.29*** | 0.20*** | 0.36*** | 0.30*** |
|   | Mean   | 22.12  | 0.44   | 1.80   | 4.07    | 1.27    | 3.97    | 3.30    |
|   | SD     | 1.94   | 0.50   | 1.58   | 0.75    | 0.65    | 0.69    | 0.92    |

The square roots of AVE for the four multi-index constructs are given in parentheses on the diagonal. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . EC, employee creativity; ED, education; EPC, Employees’ psychological capital; HL, humorous leadership; NA, not available; SDT, supervisor-subordinate dyadic tenure; WA, work autonomy.



the dependent variable, EPC had a positive impact on employee creativity ( $\beta = 0.27$ ,  $p < 0.001$ ) while humorous leadership continued to have a significant impact on employee creativity, although the predictive effect was significantly attenuated ( $\beta = 0.20$ ,  $p < 0.001$ ). This indicates that there is a partial mediation effect. Finally, the bias-corrected percentile bootstrap method indicated that the indirect impact of humorous leadership on employee creativity through EPC was significant, effect = 0.18, with a 95% CI of [0.0002, 0.0889]. Thus, H4 was supported.

**Table 3** shows the results of our H5 and H6 moderation hypotheses. As can be seen below, the effect of the interaction between humorous leadership and supervisor-subordinate dyadic tenure on EPC was not significant; thus, H5 was not supported. On the other hand, the interaction between EPC and work autonomy was found to positively predict employee creativity ( $\beta = 0.14$ ,  $p < 0.05$ ), even when controlling for demographic variables. **Figure 2** shows that when the level of work autonomy

is high, the employee's creativity increases more, and when the level of autonomy is low, the increase is small. It can be intuitively seen that work autonomy strengthens the positive effect of psychological capital on employee creativity. Thus, overall, H6 was supported.

Finally, PROCESS macro in combination with the Bootstrap method proposed by Hayes et al. (2017) were used to further examine the conditional indirect effect of humorous leadership on employee creativity through EPC, at two levels of employee work autonomy (+1 SD above the mean and -1 SD below the mean). In **Table 4**, results showed that the conditional indirect effect of humorous leadership on employee creativity via EPC was 0.11 with a 95% CI of [0.050, 0.189] when the level of work autonomy was high, versus 0.05 with a 95% CI of [0.017, 0.101] when the level of work autonomy was low. Additionally, the moderated mediation index was also significant 0.03, with a 95% CI of [0.0058, 0.0601].

**TABLE 3 |** Moderation effect of the model.

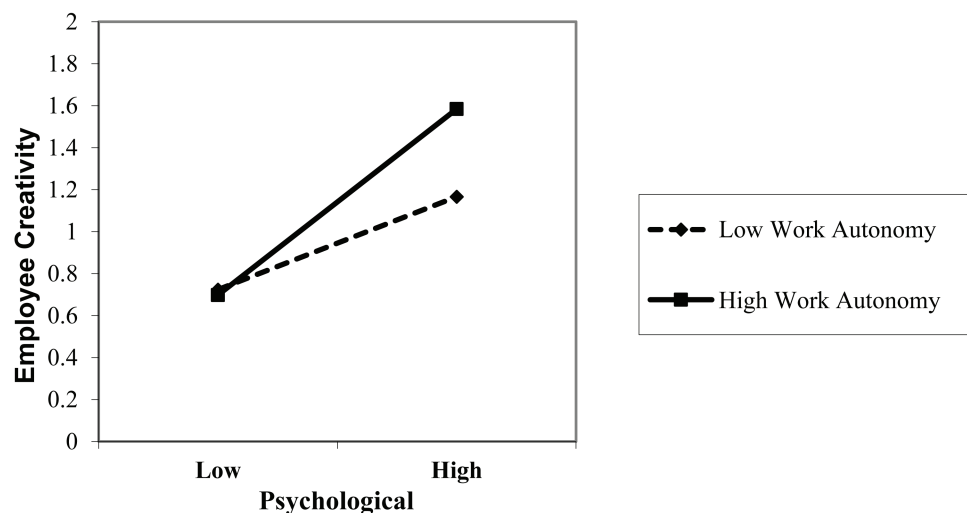
| Variables      | Moderation effect |          |          |         |          |          |
|----------------|-------------------|----------|----------|---------|----------|----------|
|                | Model 1           | Model 2  | Model 3  | Model 4 | Model 5  | Model 6  |
| Age            | 0.13*             | 0.11     | 0.08     | 0.08    | 0.04     | 0.034    |
| Gender         | 0.13*             | 0.13*    | 0.13*    | 0.13*   | 0.09     | 0.085**  |
| ED             | 0.14**            | 0.14**   | 0.14**   | 0.12*   | 0.07     | 0.063    |
| HL             |                   | 0.32***  | 0.33***  |         |          |          |
| SDT            |                   | 0.04     | 0.02     |         |          |          |
| EPC            |                   |          |          |         | 0.26***  | 0.33***  |
| WA             |                   |          |          |         | 0.14*    | 0.13*    |
| HL*SDT         |                   |          | 0.053    |         |          |          |
| PC*WA          |                   |          |          |         |          | 0.14*    |
| Adjusted $R^2$ | 0.05              | 0.141    | 0.141    | 0.03    | 0.142    | 0.15     |
| F              | 6.39***           | 12.65*** | 10.70*** | 4.64*** | 12.72*** | 11.74*** |

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . ED, education; EPC, employees' psychological capital; HL, humorous leadership; SDT, supervisor-subordinate dyadic tenure; WA, work autonomy.

## DISCUSSION

In this paper, we built and tested a conceptual model that uniquely combines humorous leadership theory with creativity theory. Although a number of studies have investigated relationship between leadership style and creativity (Zhou and George, 2003; Amabile et al., 2004), humorous leadership has been surprisingly absent from consideration. Yet, as we have argued and uniquely modeled, there are strong theoretical reasons to expect humorous leadership to be well positioned to influence fundamentals underlying employee creativity, a contention that we have empirically supported here. Our results support suggestions of creativity scholars that leadership approaches may be an effective means for encouraging employee creativity.

Our research makes a number of important theoretical contributions to the literature on humor and creativity. Using the theory of emotional events, this paper introduces EPC as a mediator



**FIGURE 2 |** Moderation effect of work autonomy.

**TABLE 4 |** Bootstrap test results of moderated mediating effect.

| Dependent variable  | Work autonomy | Indirect effect |      |          |          | Moderated mediating effect |       |          |          |
|---------------------|---------------|-----------------|------|----------|----------|----------------------------|-------|----------|----------|
|                     |               | Effect          | SE   | 95% LLCI | 95% ULCI | INDEX                      | SE    | 95% LLCI | 95% ULCI |
| Employee Creativity | Low           | 0.05            | 0.02 | 0.017    | 0.101    | 0.03                       | 0.014 | 0.0058   | 0.0601   |
|                     | High          | 0.11            | 0.03 | 0.050    | 0.189    |                            |       |          |          |

*N* = 355, confidence interval 95%.

variable, linking the behavior of the leaders with employee psychology and employee behavior. At the same time, we also introduce supervisor-subordinate dyadic tenure and employee work autonomy as two situational factors to study their moderating effects on the model. Based on the empirical findings, it is confirmed that humorous leadership has a significant positive impact on employee creativity, and EPC plays a partial mediation role. At the same time, employee work autonomy positively moderates the relationship between EPC and employee creativity. When employees have a high level of work autonomy, EPC has a greater impact on employee creativity. The findings suggest that this is a moderated mediation model, which indicates that employee work autonomy not only moderates the positive relationship between EPC and employee creativity, but also moderates the mediation effect of EPC on the relationship between humorous leadership and employee creativity. When employees have a high level of work autonomy, EPC has a stronger mediating effect on the link between humorous leadership and employee creativity.

Our theoretical model also has some practical implications for companies especially for managers. Firstly, in encouraging employee creativity, leadership does matter. Specifically, our results suggest that humorous leadership has the capacity to positively influence employee EPC, and it is an important role in influencing employee creativity. Thus, in order to improve employee creativity, one effective way is to enhance the psychological state of the employees, including level of self-efficacy, optimism, hope, and resilience. For managers, it is desirable and even necessary to become humorous in the workplace. Further, work autonomy acts as a situational factor, influencing the link between employee EPC and employee creativity. Managers need to make a conscious effort to effectively improve the work autonomy of employees. With high level of autonomy at work, employees can freely determine issues at work such as when to rest, who they would like to work with, etc.

Till now, few scholars have combined humorous leadership styles with the psychological capital of employees to explore employee creativity like us. It is easy to see that leadership style is an important factor for the work attitude and behavior of employees (especially creativity in the workplace), and the psychological state of employees is the direct influence of behavior. What is more, the theory of Emotional Events also proves this path from which employees accrue creativity with the help of humorous leader. In practice, the results of our research are also meaningful. By following the advice given in the article, we can expect companies effectively improve employees' creativity in the workplace.

Like any study, this study is not without limitations. Firstly, self-report methods were used to collect data from employees,

raising the possibility of same-source bias. Since the measured constructs (EPC, supervisor-subordinate dyadic tenure, and work autonomy) address the individual's internal states, we would argue that it is logical to collect the data from the participants themselves. A mitigating factor is that the ratings of employee creativity were collected from each employee's direct leader, and leader's sense of humor was evaluated by their employees.

The second limitation is that the sample was obtained from a single IT company in China; this limits the diversity of the sample. Of course, conducting this study in one organization did allow for control of potential organization-level confounding variables. However, this also limits the universality of our model. Future research should sample from a wide range of sources, including from different industries and different regions.

Third, supervisor-subordinate dyadic tenure was not found to act as a moderator, as was hypothesized. This may because leader's sense of humor is relatively easy to detect at first glance. Thus, enhancement of EPC may occur quickly in the dyadic relationship. In that case, the time employee work with their direct leader may be of little significance. There are other situational innovation atmosphere, etc. Further, creativity is contingent on a variety of individual differences, such as family background, creative self-efficacy, personality, knowledge, and skills. Future research should take these related variables into consideration and apply them to our model.

## DATA AVAILABILITY

All datasets generated for this study are included in the manuscript and/or the supplementary files.

## ETHICS STATEMENT

This study was conducted in accordance with the ethical guidelines of the Institutional Review Board of Zhejiang University of Technology (ZJUT) in China, with written informed consent from all subjects. All the employees participated in the survey voluntarily. The protocol was approved by the Institutional Review Board of ZJUT and the Secretariat of Academic Committee of ZJUT, with the permit number 2018001.

## AUTHOR CONTRIBUTIONS

ZL provided the resource, designed the research, and wrote the first draft of the manuscript. LD collected the data,

performed the statistical analysis, and wrote the first draft of the manuscript. TC helped to develop the hypotheses and revised the manuscript. MR revised and copyedited the manuscript.

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# Top Management Attributes, Psychological Capital, and Green Accounting Effectiveness in Public-Private Partnership Context

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Through individual and/or collective psychological states affected by demographic attributes, top managers shape the corporate culture and determine the overall strategic directions of an organization. Thus, top management attributes affect the adoption of critical company-wide practices. This opinion paper discusses the implications of, and urges academic attention to, the role psychological capital plays in the relationship between top manager attributes and the effectiveness of green accounting practices adoption in a public-private partnership (PPP) context. Theoretical and practical implications are elaborated upon.

**Keywords:** green accounting, top management, demographic attributes, psychological capital, public-private partnership

## INTRODUCTION

Researchers have applied analytic techniques to determine the value of demographic, social, and psychological attributes in top management regarding success in entrepreneurial ventures. Top management members are those who are responsible for making decisions for critical affairs, whether in public or private sectors. Psychological states have been used as an important variable in research to determine whether higher managers are viable for the critical decision-making procedures meant to steer the firm toward the operational objective (Zhao and Seibert, 2006). Managers exhibit different individual attributes, some of which provide powerful motive toward progressive strategic initiatives. An institution and its strategic partners, therefore, have a role to identify, distinguish, and select the most specific managerial attributes in potential employees or human resource that resonate with their strategic requirements for entrepreneurial goals.

Green accounting practices are one of the critical decisions of strategic adoption that top management might encounter in the new business age. For most firms, long-term success means that sustainable goals have to be incorporated as important strategies to meet the dynamics of environmental challenges, and improve public perception, which is the essence of competitive advantage. Thus, increasingly, the largest impacts of top management attributes have been evaluated with the effects these may have on broader social and environmental responsibility. Many companies have been focusing on improving proactive corporate and environmental responsibility as a competitive advantage, thus orienting their leadership structure

to meet such expectations (Lee et al., 2018). Corporations must, therefore, utilize green accounting as a high governance mechanism that accounts for social and environmental benefits, besides financial achievement (Lee et al., 2018).

In addition to managerial attributes, sustainable and society-oriented business practices need to be implemented under the function of interorganizational collaborations. Public-private partnership (PPP), namely the cooperation between government and social capital, is such a project operation mode in public infrastructure (Buso and Stenger, 2018). Discussion of the interwoven dynamics among top management attributes, psychological capital, and green accounting adoption is especially suitable in the context of PPP. Under a PPP model of governance, private organizations are encouraged to cooperate with the government and participate in the construction of public/private infrastructure/affairs. Due to the increasingly changing environment, civil society cooperates with the private sector and government to achieve sustainable development. PPP is considered to be a valid alternative to traditional public policies, because the use of PPPs leads to higher performances and allows governments to overcome incomplete contracts.

PPP is an important theme in the environmental protection industry. It optimizes the profitability and operation ability of listed companies from multiple aspects. Environmental PPP projects are favored by enterprises, governments, and social capital. The private sector can take advantage of adapting to the dynamic changes in environmental strategies to build a competitive edge. Such a proactive corporate role requires the organizations to harmonize internal and external resources so that the local community can meet the environmental expectations from the green practices of the business. For instance, the PPPs of energy sectors were developed with the intention of promoting energy-efficient technologies for housing, appliances, schools, commercial and public buildings, vehicles, and so on, for the development of advanced energy-efficient and low-carbon technologies and cost sharing (Jaffe et al., 2001, 2005; Sperling, 2001). The use of PPPs in climate change adaptation helps to obtain an efficient and fair allocation of risks and incentives among public and private actors (Agrawala and Fankhauser, 2008).

In sum, in the PPP context, it is important to run new initiatives such as the green accounting practices, with the positive collective mind-set (or shared cognition, holistic viewpoints, collective consensus, etc.) of decision-makers from different sectors, which is formed through their personal attributes. The aforementioned requires psychological capital as a basis of the interaction of such cross-sector interactions and collective actions. Thus, we wish to offer an in-depth articulation of the interwoven relationships between top management attributes, psychological capital, and green accounting practices adoption, which is interesting and might stimulate future thinking of research and practices.

## THEORETICAL BASIS

For a model of personality dimensions, studies indicate various aspects of evaluating the factors and their correlating degree

of impact on organizational success (Zhao and Seibert, 2006). As such, top managers are both expected to reflect differences in various personality dimensions, as well as express varying degrees of influence. For instance, managers may score high on openness to experience and conscientiousness, while expressing low agreeableness and neuroticism, as compared to entrepreneurs. They may not reflect differences in extraversion, a critical attribute required of organizational performance, but the size of the effect each personality variable presents can be small or moderate with regard to the multivariate relationship in personality dimensions.

Researchers and strategists have been studying the effects of the top management attributes on organizational performance. Essentially, leaders influence organizational dynamics with their individual attributes such as personality (e.g., Peterson et al., 2003).

## GREEN ACCOUNTING

One of the most fundamental goals in green accounting is the need for environmental sustainability. For sustainability, humans and nature must coexist, wherein the former keeps the value of sustainable development in mind to eradicate consequential effects of the exhaustive use of natural resources, such as hunger and poverty, while enhancing good health and well-being (Bennett and James, 2017). The PPP model optimizes the profitability and operation ability of organizations from multiple aspects, including: optimizing profitability, improving cash flow, reducing leverage on the balance sheet, improving off-balance sheet leverage, improving construction, and alleviating project payment arrears (Lopes and Caetano, 2015; Menezes and Ryan, 2015). In a PPP mode of governance, it is vital the partnership construction should be engaged together by the public sector (government) and the private sector (party) *via* projects that emphasize benefit-sharing, risk-sharing, and long-term collaboration (Bing et al., 2005; Iossa and Martimort, 2012). This mode makes up for the weakness of both the private and public sectors (Mees et al., 2012; Tompkins and Eakin, 2012).

The relationship between corporations and society is, however, so dynamic and heterogeneous that social contract alone may not characterize their interactions. Therefore, corporations adopt proactive business practices, such as the green accounting in a PPP context in line with social responsibility, to support both economic and social facets of positive environmental sustainability, and growth in society (Booth et al., 2005). As such, stakeholders will value the legitimacy of corporations in terms of how they implement environmental and social standards as instruments of their supply chain.

Numerous factors motivate the adoption of green practices and corporate environment responsibilities including stakeholder pressure, social expectations, and organizational support (Booth et al., 2005). Most importantly, social expectations shape the tendency of organizations to adopt social norms and orient their behavior to meet the required social and environmental responsibility. The resulting moral judgment creates a better

understanding of obligations that best mirrors the ethical responsibility required from environmental respect.

The PPP model itself involves complex interest groups comprised of contractors, financial institutions, public sector clients, consultants and facilities management organizations (Akintoye et al., 2003; Grimsey and Lewis, 2004; Glazyrina et al., 2014; Akhmetshina and Mustafin, 2015), focusing more on social dynamics involving policy, legal and financial support, credit system construction, market operation forms of interaction, and mutual influences (Biygautane et al., 2019).

Green accounting is a branch of accounting that combines traditional accounting with natural environmental science. The main research direction of green accounting is looking toward harmony and sustainability between the economic development of enterprises and the surrounding environmental resources. Green accounting is as important as other types of accounting, and the impact of green accounting on enterprises' social resources and the environment is particularly critical. It reflects the practices that corporations undertake because of managerial decisions initiated and implemented by the top management team. The managers and their entrepreneurial advisories should analyze the environmental and social needs that resonate with organizational standards to develop an approach that takes accounting into consideration. That withstanding, top management engaged in such strategic decisions must portray the best individual and team attributes that ensure the organizations pursue environmental goals in tandem with the corporate development structure and economic projects.

## TMT Attributes and Green Accounting

Corporate environmental responsibility requires policies that shape sustainable environmental impact as well as promoting cost-effective and risk avoidance initiatives in organizational performance. The current section will identify the big five personality attributes in the top management team and attempt to propose and develop the policy models that relate each character with the appropriate approach to green practices.

The essence of organizational support for the environment is to enable society to evaluate the legitimacy of an institution's performance with regard to set societal expectations, notwithstanding the level of economic benefits it displays, to meet the expected stakeholder standards. As such, the management has to come up with team attributes that will confer the best match for organizational performance in social and environmental responsibility. This requires leadership skills in human resource, consistent with the cultural and corporate objectives, among which must include at least one of the big five personality attributes (Zhao and Seibert, 2006). The most important team attributes that will apply in this case are conscientiousness and extraversion, which aim at developing a critical analysis of societal inadequacies to promote environmental conservative measures to adapt to dynamic changes within the environment. Besides improving employees' perception of the company, environmental social responsibility ensures that the management team employs attributes in human resource that are committed to evaluating

and allocating organizational resources to green practices that create competitive advantage (Jayanthi, 2015).

Top management's collective attributes also need to be responsive to external environments and stakeholders. Another stakeholder-oriented policy that affects the adoption of green practices relates to the pressure mounted on the organization by parties such as local community, employees, shareholders, management, and society, who may affect a significant portion of the company's decisions and activities. There may be some problems in the operation of the PPP model due to possible opportunistic behaviors and the differences in the target orientation between the government and the private sector. Thus, top management members need to coordinate with different external interest parties to deal with challenges (Akintoye et al., 2003). With the stakeholders' active part in the analysis of environmental issues, they can be charged with the responsibility to identify sensitive environmental vulnerabilities and propose effective intervention measures to best meet the societal expectations, notwithstanding the economic benefits to the company. Therefore, stakeholder pressure motivates a team management spirit geared toward sustainable environmental strategy, with the fundamental goal being to contribute sustainable supply chain process in tandem with the managerial policy of green adoption practices (Lee et al., 2018). Corporations and stakeholders coordinate to create and develop sustainable goals through their effort to solicit for social, ethical, and environmental awareness on positive green accounting practices.

Also, although the government's supervision on the private sector can enable the private sector to fulfill the contract to a certain extent, in reality, the private sector sometimes gains more additional benefits through nonperformance than the losses under the government's supervision. In this case, the private sector will choose to risk nonperformance to obtain high benefits (Chan et al., 2011; Chiromo, 2014). To achieve sustainable development, PPP project firms may adopt the market-oriented policy as part of the corporate strategy to impact environmental performance. Customers, suppliers, government, and nongovernmental regulatory bodies have played a critical role in environmental management through social and ethical standards set to guide an organization's code of conduct. These goals require a powerful drive to employ a personnel team that exhibits effective attributes with regard to conscientiousness, openness to experience, and extraversion as some of the big five personalities in top management team (TMT).

Green PPP practices are based on the common rules of the PPP model: compared with the traditional government responsibility system of environmental governance, the PPP model has more environmental protection responsibility and less financial pressure.

Organizations may tend to adopt green practices based on the availability of external resources linked with the top management. Under such conditions, the government can step in to promote policies that provide financial incentives intended for innovative technical resources (Rothmann and Coetzer, 2003). For companies, the government works with social capital to support their initiative to lower environmental risks. For stakeholders, the company has a role to uphold corporate

governance as an important mechanism to address environmental risks, whereas the government provides voluntary environmental governance to enable institutions to adopt corporate environmental responsibility and green practices.

It is important for stakeholders and strategists to conduct environmental impact assessments to predict and manage some of the organizational activities that may negatively impact the environment. Among the assessment tools that provide a positive and synergistic effect on performance are environmental governance and supplier assessment mechanisms. The attempt to base organizational legitimacy on environmental motivation may not provide complete environmental management mechanisms, but should rather focus on competitive strategies to establish the level of effective change the organization can present in relation to other competing initiatives in the industry. Therefore, companies have the potential to affect enormous positive change in their environment, on the condition that they adopt, establish, and develop beneficial corporate and environmental initiatives.

The green initiatives require interdisciplinary coordination to affect some necessary changes in the direction and magnitude of resource allocation procedure. Therefore, human resource strategists must always endeavor to identify leadership attributes that can meet the required tacit knowledge and skills in training and develop environmentally conscious efforts (Blome et al., 2014). The leadership team and entrepreneurs in charge of innovative practices should exhibit competent skills in their openness to learning in order to advance green practice adoption, for the reason that the propensity to adopt innovative technology directly relates to becoming receptive to new environmental ideas, which requires a team of managers with an openness to learning.

Green accounting practices would, therefore, rely on useful analysis of the behaviors of top managers regarding their attitudes and behaviors. Most of the factors that influence their behaviors include workplace challenges, the pressure to achieve the required goals, and other factors attributed to personal difficulties (Shang Guan et al., 2017). Also, the environments for adopting the green accounting program could be unfavorable for the drafted strategies, thus discouraging organizational leaders. On the other hand, positive personality contributes to fast and effective growth of corporate progress. The process creates a reliable system through which the stakeholders can have a platform for adopting the right green accounting practices even with limited resources. A positively minded manager would achieve the green accounting goals by empowering other managers.

## TMT Attributes, Psychological Capital, and Green Accounting

The psychological capital is important in building a relationship between leaders and their followers (Kong et al., 2018), especially when taking on collective initiatives. It focuses on strengthening the virtues and merits of an organization (Luthans et al., 2004, 2007; Luthans and Youssef, 2004). The attitudes and behaviors of the managers tend to influence performance

and value-based practices. Thus, psychological capital acts as a component that facilitates improved organizational activities for the top management to address issues linked to other forms of capital and other factors, such as behaviors of the employees (Avey et al., 2008, 2009, 2011).

In the context of PPP, institutional entrepreneurs and top management members are also “agents” of society, creating consistent technical and cognitive norms, models, scripts, and behavioral patterns (Déjean et al., 2004). In PPP projects, norms are shaped coordinating work among various organizational entities (Biesenthal et al., 2018), exploring the organizational dynamics of the project (Miterev et al., 2017). The process of institutional entrepreneurship is even far beyond the power of institutional entrepreneurs and can actively address the institutional and technical constraints that hinder PPPs (Biyygautane et al., 2019). Individuals’ thoughts and actions are influenced by the institutional environment they are in, and individuals interact with each other to change the organization they lead (Battilana and D’Aunno, 2009).

The primary role played by the organizational leadership is to identify the right talents in adopting the proper practices in green accounting program. However, the persecution of people matters significantly for the case that needs collective efforts for the implementation of the program (Chen et al., 2017). Also, the listed standards for developing the necessary system would ensure a useful repository guideline that would address significant leadership differences that could hinder progressive development. Green accounting in PPP contexts is one of the programs that aims to address sustainability issues across different organizations. Therefore, most of the strategies have focused on sustainable goals that would reduce the negative environmental impacts of different infrastructural activities. As a result, the administrative functions within the organization should consider the constraints limiting people’s strengths and talents from prospering in such a workplace setting where green accounting may function well.

Since the success all depends on key persons and their interactions as mentioned above, a positive mind-set and the encouragement of development projects would have a vital impact. In such a premise, psychological capital facilitates effective programs toward developing such sustainable leadership as discussed here. Such leadership would benefit the management of people with the aim of improving the right platform for adequate delivery of sustainable services (Chen et al., 2017).

Stable psychological attributes contribute to long-term characteristics of the organization. The fluid attributes are common in most organizations. However, they are considered less as future predictors since they regularly change. A similar case applies to personal values and the consequent actions they would have, as well as forming a positive working culture. Behaviors and attributes vary based on significant psychological factors associated with such multiple interest parties. Therefore, most of the attitudes presented by the employees or leaders have less impact on the future progress of the organizational programs, unless the collective psychological capital functions with impacts.



## CONCLUSION AND IMPLICATIONS

Leaders such as the top management in a PPP context need to reflect charismatic, visionary, inspirational attributes to affect society positively. In contrast, ineffective leaders have particular negative attributes related to irritable, noncooperative, and egocentric indulgence, which amount to dictatorial leadership. Companies and their respective government policies must, therefore, relate institutional corporate strategies with individual behaviors to promote positive leadership.

To this effect, scholars developed a cross-sector interfirm knowledge framework to enhance organizational learning and new practice adoption, which can be resource-based, competence-based, or knowledge-based. For instance, they need to have a model of addressing the employees' challenges and various contexts of conflicting behaviors. Attention should focus on developing a fair system that treats its employees fairly. The selected attributes are shown to reflect on the performance of employees across different occupational groups. Therefore, this impacts differently on the ability of the leaders to develop the right governance programs aimed at addressing sustainability issues. Although not sufficient to guarantee success, effective leadership must develop elaborate structures to support the interorganizational challenges, as well as to ensure consistency of best practices. Those factors that underscore good leadership in connecting collaborative organizations include the selection and reelection of merit leadership, performance management, establishment, and evaluation of ethical standards, talent development, and retention, development of strategic priorities, wide cross-sectional stakeholder engagements, and independent and effective evaluations, among other supportive leadership concerns.

The top management attributes reflected the social and psychological expectations that people have regarding working

with other people across organizations. Discussion for social psychological issues, such as this paper engages in, contributes to the identification of the right behaviors to develop collaborative success. Green accounting focuses on developing a reliable system that balances multiple-party interests. Supported by this concept, all parties involved in PPP are based on the spirit of contract and good faith, supplemented by excellent financial and market environments, and social capital actively participates in infrastructure and public services such as green accounting. Such a cooperation mechanism is bound to bring out the best economic and social benefits.

## AUTHOR CONTRIBUTIONS

C-CC and YJ were the major contributors and writers of the first manuscript. H-YL edited the manuscript and was in charge of the revision & resubmission (R&R) writing process. Y-TL conceptualized and validated the article and co-wrote in the R&R stage.

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# The Impact of Inclusive Leadership on Employees' Innovative Behaviors: The Mediation of Psychological Capital

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Employee innovation is the cornerstone of the organization, and the motivation for employee innovative behavior largely depends on the leadership style of the leader. With the economic development of society, the traditional authoritative style of leadership can no longer adapt to the psychological characteristics of employees, who use new-era work concepts, techniques, and social rules (hereafter, new generation employees). Inclusive leadership is based on the concept of “fully inclusive and equitable” in traditional Chinese culture, and it can adapt to the independent needs of new generation employees. At present, the research on the relationship between the traditional leadership style and employee innovative behavior is relatively extensive, but there is little research on the relationship between inclusive leadership style and employee innovative behavior, and this needs further exploration. This paper takes new generation employees as the sample and uses psychological capital as an intermediary variable to explore the influence of inclusive leadership style on the innovative behaviors of new generation employees. We found that inclusive leadership is significantly and positively related to new generation employees' innovative behavior. Theoretical and practical implications are discussed.

**Keywords:** new generation employees, inclusive leadership, psychological capital, innovative behavior, China

## INTRODUCTION

Innovation drives enterprise development, and companies are relying more and more on their employees' innovative contributions to maintain and improve their competitiveness (Odoardi et al., 2015). “New generation employees” have gradually become the new enterprise workforce. We mean to expand the traditional meaning of the term “new generation employees” to fit today's realistic workplace situations. We refer to the term “workers of new era,” which describes those workers who complete their jobs with new-age concepts, techniques, and social rules in mind. Accordingly, workers' composition is not necessarily related to the sole factor of demographic age. For example, an older employee may be a new generation employee because of his/her renewed working philosophy learned through continuous education and higher educational degrees. Such workers may not be well led by leaders using traditional leadership models, which is why we conduct the present study. New generation employees have different working values from the previous generation's traditional work values (Hou et al., 2014), challenging traditional leadership and governance methods. Increasing numbers of scholars have focused their research on issues such as high turnover rate and low organizational commitment (Cheng and Lin, 2017).

The effects of certain leadership styles may have different consequences for different generations in the workplace (Al-Asfour et al., 2014). To date, few studies have explored the suitability of different types of leadership styles for generational working groups and how to stimulate their innovative behaviors. Leadership, as an important organizational scenario variable, has an important impact on employees' innovative behaviors (Zubair et al., 2015; Liu et al., 2017). Among leadership styles, the inclusive leadership style emphasizes being people-oriented (Liu et al., 2017), fairness, and justice (Liu et al., 2016), which might be suitable for the new generation workers mentioned above. Therefore, this paper introduces the inclusive leadership style into the research on the innovative behavior of new generation employees.

Furthermore, new generation working styles require new governance approaches, which depart from concrete, tangible, pre-defined rules to more diverse, flexible, and intangible motivators (Chen and Zhou, 2018). For example, new generation employees may contribute to innovative working behaviors by using self-stimulated psychological motivators (e.g., need for achievement) rather than organizational demands and orders (McClelland et al., 1976), especially in an innovative or entrepreneurial context (Hansemark, 1998). In addition, new generation employees may have a different state of positive psychological power that is beneficial to the generation of innovative behaviors (Staples, 2014). The effects of certain leadership styles on new generation employees' innovative behaviors should be influenced by collective psychological state more than is seen in a traditional workplace. To examine this, we used psychological capital as an intermediary variable to explore how inclusive leadership impacts the innovative behavior of new generation employees. This paper enriches the research on inclusive leadership and innovative behavior among new generation employees, and it provides theoretical guidance for management to strengthen new generation employees' advantages and increase their innovative behavior.

## THEORY AND HYPOTHESIS

### Inclusive Leadership

Inclusion is written into the UN Millennium Development Goals and is a historical feature of Chinese civilization (Yuan, 2007). Inclusiveness is a traditional virtue of the Chinese nation. The meaning of "All rivers run into the sea" and "Wide hearts embrace all" both encapsulate the meaning of inclusiveness.

The inclusive leadership style was initially studied in the field of Western education. People of different races and abilities should be educated inclusively. Ryan believed that inclusive leadership in education requires an equal collective leadership process and defined inclusive leadership in education as the presence of a learning leader (Ryan, 2007). For the first time, Nembhard and Edmondson (2006) proposed inclusive leadership in the field of management, which comprises the speech and behavioral performance of leaders in encouraging their subordinates to work and contribute. Hollander (2009), emphasized the perceived role of

employees in leadership and defined this relationship as an interdependent one that is both win-win and has a shared vision. Based on Hollander's research, Carmeli, and Reiter believed that inclusive leadership can be judged from the interaction between leaders and employees and that inclusive leadership is open, effective, and accessible in the process of communication with employees (Cameli et al., 2010). Hirak et al. (2010) used a large hospital as a study sample and found that inclusive leadership had a significant positive impact on subordinates' psychological security. Wiebren studied the concept and measurement of inclusion. They believed that inclusion should be composed of two components: belonging and authenticity (Jansen et al., 2014). Inclusion is defined as the sense of belonging and security from the team. Suk posited inclusive leadership as an open, effective, and accessible method of leadership that is positively correlated with employee performance (Choi et al., 2016).

Chinese scholars started late in the study of inclusive leadership, but many explorations are still ongoing. Fang (2014) believed that inclusive leaders pay great attention to the relationship between leaders and followers, combining the characteristics of transformational leadership and transactional leadership, taking advantage of authentic leadership and shared leadership style. Liu et al. (2016) proposed that inclusive leadership pursues the principle of being people-oriented, insists on equal treatment toward subordinates' attitudes, believes in the role of organizational cohesion, and takes its own efforts as an example. Liu et al. (2017) proposed that inclusive leadership adheres to being people-oriented, advocates individuality and difference, attaches importance to leadership-employee interaction, and is good at listening to subordinates' opinions and contributions.

Based on the literature about inclusive leadership, this paper integrated the concept of "inclusiveness" from Chinese traditional culture into that of inclusive leadership. The concept of inclusiveness in the West was mainly derived from the ideas of democracy and justice. In Chinese culture, "inclusiveness" is more about the "tolerance and greatness" of the mind and moral cultivation. The inclusive leadership that integrates Chinese traditional culture emphasizes equal opportunity and fair distribution, in line with higher psychological pursuits and the respected needs of the new generation employees, is a new type of democratic leadership. Inclusive leaders are able to treat employees with recognition, respect, and tolerance, listen to and recognize the opinions and contributions of subordinates (Sharifirad, 2013), and promote their work performance (Choi et al., 2015). At the same time, inclusive leaders pay attention to employee training, give employees fair treatment, and drive business success (Yuan, 2007). Inclusive leaders can help each other in interacting with their subordinates (Nishii and Mayer, 2009). It is this "relational leadership" that interacts with leaders and employees (Cameli et al., 2010) and is responsible for the final outcome. Inclusive leadership is an embodiment of openness and fairness (Zhu and Wang, 2011).

In the design of their questionnaire scale, Nembhard and Edmondson (2006) divided the inclusive leadership into two



dimensions: the leadership's "invitation" and "appreciation" of the team members. Hollander (2009) developed an Inclusive Leadership Scale that includes "support-recognition," "communication-action-fairness," and "self-interest-disrespect" through in-depth interviews.

Based on the previous literature and empirical research, we introduced the concepts of recognition, encouragement, and inclusiveness into the leadership practices of leaders in the new era. (1) Leaders should listen to the opinions of employees, attach importance to encouragement of employees, and show their recognition when employees make achievements; (2) Leaders should respect and treat employees fairly. That is, the leaders can treat employees fairly, justly respect the employees' suggestions, and let employees work more to receive more; (3) Leaders should rationally understand employees and tolerate their failures. That is, when employees make mistakes, leaders can rationally tolerate and understand them.

## Employees' Innovative Behavior

The concept of innovative behavior began in the 1970s. Innovative behaviors consist of three levels: organizational, team, and individual innovative behavior. This paper studies the individual innovative behavior of enterprise employees. Amabile (1988) believed that employee creativity is a novel, potentially valuable idea or thing that employees can generate, which can encourage companies to survive, grow, and thrive in fierce competition. Woodman et al. (1993) believed that the ideas generated during the innovation process can be novel or have been applied by others. Zhou and George (2001) believed that individual innovative behavior not only refers to the birth of an innovative concept but also its promotion and implementation.

Woodman et al. (1993) believed that employee innovative behavior includes the process of generating creative ideas and successful implementation. Scott and Bruce (1994) believed that innovation was divided into three phases: (1) the establishment of problems and the creation of solutions; (2) seeking support for their ideas; and (3) generating innovative standards or models that can be spread, mass-produced, and then used in large quantities. Kleysen and Street (2001) grouped individual innovative behaviors into five stages: finding opportunities, generating ideas, forming surveys, supporting, and applying.

Scholars in China has also conducted research on employee innovative behavior. Liu and Shi (2009) and Han and Yang (2011) defined employee innovative behavior as the creation and implementation of novel and practical methods when employees conduct related activities in the enterprise. Li (2017) believed that employee innovative behavior refers to the process by which employees discover problems, generate innovative ideas, promote and implement them throughout the life of the organization. Based on the questionnaires of Scott and Bruce, this paper divided innovative behavior into two dimensions: innovation outcomes and innovative thinking. Innovative thinking refers to new ideas arising from employees' work or production process, and innovation outcomes refers to the effects of implementing new ideas into the work and production processes.

## New Generation Employees

New generation employees are more active in their work and have stronger willingness and ability to learn at work than previous generations (Li and Xu, 2013). New generation employees, who have strong creative ability, are not willing to be bound by the rules. They prefer fair, just, democratic, and simple working relationships. New generation employees tend to be more achievement-oriented and self-oriented, and they tend to focus on equality and disregard authority. New generation employees also have characteristics of working values such as pursuing a balance between work and life (Li and Hou, 2012). These characteristics have led to lower job satisfaction and organizational commitment and higher turnover and occupational mobility rates for new generation employees (Twenge et al., 2010). New generation employees are more committed to organizational fairness and justice, emphasizing equal relations with leaders. They are more eager to be recognized and respected, which is challenging to the traditional methods of human resources management.

## Inclusive Leadership and Employees' Innovative Behavior

Cultivating innovative behavior is one of the most important leadership functions of today's organizations (Pundt, 2015; Hakimian et al., 2016). Employees' ability to innovate is significantly related to leadership style (Lee and Chang, 2006). For example, a leader with humor can encourage expression of creative ideas as an innovative behavior (Pundt, 2015). In addition, transformational leaders are good at stimulating employees to innovate by engaging their intelligence and motivation (Zhang and Zhou, 2013).

Like those positive leadership styles, inclusive leadership also has beneficial effects from the Chinese cultural perspective. Employees are more innovative when working at a higher level of engagement because they think their efforts have won the leaders' accolades (Abdullah et al., 2015). Employees' innovative behavior is also influenced by leadership support. Employees are more adventurous and innovative when the leaders support them (George and Zhou, 2007).

Fang (Fang, 2014) put forward the "fault-tolerant concept" of inclusive leadership in the Chinese situation and analyzed its positive influence on employees' self-efficacy with concrete examples. Liu et al. (2017) found that inclusive leadership positively predicts teams' mental models, and teams' reflection moderates the relationship between them. More directly, Jing (2015) found that inclusive leadership has a significant positive impact on employees' creativity in China. Jin et al. (2017) suggested that the more inclusive employees feel, the more likely they are to improve their performance. Randel et al. (2017) conceptually defined inclusive leadership as a group of positive leadership behaviors that can help team members feel the sense of belonging to the team and maintain their uniqueness within the team. Therefore, leaders with an inclusive leadership style have more positive expectations and tolerance for employees, which allows employees to feel more support from the leaders and then generate more ideas (Zhu and Wang, 2011). For new

generation employees who generally have more creative ideas but have views that contrast with the traditional leadership style, such inclusiveness incorporating encouragement and tolerance is more effective. Hence, we propose the following hypotheses:

*Hypothesis 1: Inclusive leadership has a positive impact on new generation employees' innovative behavior in China.*

*Hypothesis 1.1: Inclusive leadership style has a positive impact on new generation employees' innovation outcomes.*

*Hypothesis 1.1.1: Leaders' encouragement and recognition of new generation employees have a positive impact on their innovation outcomes;*

*Hypothesis 1.1.2: Leaders' respect and fair treatment of new generation employees have a positive impact on their innovation outcomes;*

*Hypothesis 1.1.3: Leaders' rational understanding and tolerance of new generation employees' failures have a positive impact on their innovation outcomes.*

*Hypothesis 1.2: Inclusive leadership has a positive impact on new generation employees' innovative thinking.*

*Hypothesis 1.2.1: Leaders' encouragement and recognition of new generation employees have a positive impact on their innovative thinking;*

*Hypothesis 1.2.2: Leaders' respect and fair treatment of new generation employees have a positive impact on their innovative thinking;*

*Hypothesis 1.2.3: Leaders' rational understanding and tolerance of new generation employees' failures have a positive impact on their innovative thinking.*

## Psychological Capital

Psychological capital reflects an optimistic attitude toward work and life (Chen and Lim, 2012). The concept first appeared in the related fields of economics, investment, and sociology, and it emphasizes individuals' positive psychological resources and motivational tendency (Luthans et al., 2007; Zhong, 2007).

The discussion of psychological capital can be divided into two categories: those based on economics and psychology or organizational behavior. The concept of psychological capital based on economics emphasizes the relatively stable psychological tendencies or characteristics that individuals develop in their early years of life (Goldsmith et al., 1997, 1998). The concept of psychology in terms of organizational behavior emphasizes the characteristics of psychological capital that can be measured, developed indefinitely, and managed (Zhong, 2007). The academic community has not yet reached a consensus about the constituent dimensions of psychological capital. The most widely used structure by the academic community is Luthans' construct, which consists of the following four dimensions. Self-efficacy means having the confidence to undertake challenging tasks and try to complete (Luthans and Youssef, 2007); hope is mainly composed of three conceptual foundations: cravings, pathways, and goals (Luthans et al., 2007); optimism refers to positive emotions or motivations associated with good outcomes (Luthans, 2002); and resilience refers to seeking positive changes in setbacks such as conflicts and failures (Luthans, 2002). The research on psychological capital-related

variables has mostly focused on employees' job performance, job satisfaction, employee work happiness, turnover intention, and work slack (Zhong, 2007). Psychological capital as a positive psychological factor impacts employees' behavior, and their level of psychological capital can predict employees' positive or negative behavior to a certain extent.

Inclusive leadership positively impacts employee self-efficacy (Fang, 2014). When leaders pay attention to their employees' needs, motivations, and communication, the employees become more optimistic and confident in their work. Inclusive leadership behaviors facilitate group members' perceptions of inclusion, which in turn lead to member work group identification, psychological empowerment, and behavioral outcomes (creativity, job performance, and reduced turnover) in the pursuit of group goals (Randel et al., 2017). Most have agreed that the employees' mood is affected by leaders' recognition and appreciation (Nemphard and Edmondson, 2006). Positive support from leaders enhances employees' psychological capital (Şahin et al., 2014). When leaders show an open, accessible attitude toward employees and communicate effectively with employees, their confidence and hopes are higher (Edmondson, 1996). Awareness of psychological safety among employees is positively correlated with inclusiveness among leaders (Hirak et al., 2010). Inclusive leaders are more willing to communicate with and give feedback to their subordinates (Edmondson, 1999), and they also pay more attention to employees' participation (Bass and Bass, 2009). Thus, inclusive leadership can actively promote employees' psychological capital through strengthened self-efficacy and other dimensions (Fang, 2014). Employees with higher levels of psychological capital can more often work with full enthusiasm (Edmondson, 1996, 1999; Luthans, 2002; Luthans et al., 2004; Bass and Bass, 2009; Şahin et al., 2014). Thus, inclusive leaders can enhance employees' psychological capital to promote their innovative behavior by recognizing, encouraging, and respecting employees and tolerating employees' failures. Therefore, this paper proposes Hypothesis 2.

*Hypothesis 2: Inclusive leadership has a significant impact on employees' psychological capital.*

As an important psychological resource of organizational collectives, psychological capital could play a mediating role that transforms organizational-wide force/interventions (e.g., inclusive leadership) and organizational consequences. Psychological capital plays mediating roles between organizational innovation atmosphere and employees' innovative behavior (Luthans and Youssef, 2007) and between transformative leadership and employees' innovative behavior (Mao, 2008). Innovation atmosphere affects employees' work behavior by affecting employees' internal psychological state (Song et al., 2011). Thus, psychological capital as a collectively owned positive psychological state plays an important mediating role between inclusive leadership and employees' innovative behavior (Dreu and West, 2001). Innovative behavior is not only stimulated by the objective external environment, but also motivated by subjective factors of individuals or collectives.

Tierney and Farmer found that the sense of innovative self-efficacy had a significant positive impact on individual innovative behavior and that innovation self-efficacy can predict individual innovative behavior (Tierney and Farmer, 2004; Hassan et al., 2015). Psychological empowerment affects employees' innovative behavior by influencing their internal and external motivation. Employees' self-efficacy and ability to work stimulate their intrinsic motivation, and those with high self-efficacy show greater confidence and have more innovative behavior (Song et al., 2011). Employees tend to innovate actively if they perceive themselves in a fair, friendly and innovative organizational climate (Wang et al., 2013). In addition, highly activated positive emotions promote innovative behavior, while low-activated positive emotions are not related to innovative behavior (Pundt, 2015). Furthermore, when employees have hope in mind, they more easily predict their leader's instructions or guidance for them (Byron, 2008) and may turn those into innovative thoughts and behaviors. Finally, when encountering challenging situations that require leadership effects to maintain employees' resilience, successful resilience could lead employees to generate innovative thinking based on inclusive leaders' words or helpful actions, as they can gain different experiences and reflections from challenging situations they would not encounter in routine practice. In summary, the four dimensions of psychological capital can each be examined as mediators that intervene on the influence of inclusive leadership on innovative behavior, leading to Hypothesis 3.

*Hypothesis 3: Psychological capital plays a mediating role between inclusive leadership and employees' innovative behavior.*

*Hypothesis 3.1: Psychological capital plays a mediating role between inclusive leadership and employees' innovation outcomes.*

*Hypothesis 3.1.1: Psychological capital plays a mediating role between leaders' encouragement and recognition of employees and employees' innovation outcomes.*

*Hypothesis 3.1.2: Psychological capital plays a mediating role between leaders' respect and fair treatment of employees and employees' innovation outcomes.*

*Hypothesis 3.1.3: Psychological capital plays a mediating role between leaders' rational understanding and tolerance of employees' failures and employees' innovation outcomes.*

*Hypothesis 3.2: Psychological capital plays a mediating role between inclusive leadership and employees' innovative thinking.*

*Hypothesis 3.2.1: Psychological capital plays a mediating role between leaders' encouragement and recognition of employees and employees' innovative thinking.*

*Hypothesis 3.2.2: Psychological capital plays a mediating role between leaders' respect and fair treatment of employees and employees' innovative thinking.*

*Hypothesis 3.2.3: Psychological capital plays a mediating role between leaders' rational understanding and tolerance of employees' failures and employees' innovative thinking.*

## RESEARCH METHODS

### Sample

We adopted a random questionnaire survey method, taking enterprise employees of Zhejiang as the research sample. We sent out a total of 372 questionnaires, and 351 valid ones were returned, resulting in a return rate of 94.35%. Among these people, 177 male and 174 female workers were questioned: 43.59% were aged less than 30 years; 19.37% were aged 30–39 years; 27.64% were aged 40–49 years; 7.69% were aged 50–59 years; and 1.71% were aged over 60 years. Most employees had a bachelor's degree or above: 57.55% undergraduate, 10.54% master's, and 3.70% doctorate. General staff accounted for 29.63% of the sample, followed by 19.09% middle layer managers, and 7.12% senior professional and technical personnel. Focusing on those who were aged above 40 years in the sample (i.e., those easily excluded from the group of new generation employees), nearly 60% had earned an educational degree of bachelor's or above, and over 20% of them used continuing education as a major tool to update work concepts and skills. In terms of job positions, over 20% of them were working as experts/professionals, and over 50% were managers. Both of those job types were characterized by high-level and fast-changing knowledge bases, and those sampled employees were therefore required to update themselves to fit new work concepts, models, and trends.

### Research Tool

This article contains three scales. The Inclusive Leadership Scale was designed based on the pilot study and in-depth interviews. The Employee Innovative Behavior Scale and the Psychological Capital Scale were adopted from the questionnaires by Scott and Bruce (1994) and Luthans and Youssef (2007), but the expression was slightly modified according to employee characteristics. These three scales use Likert type 5-point scales. We listed all questionnaire items in the **Appendix** for readers' reference. The details of scale development are explained below.

### Reliability and Validity Tests

#### *Inclusive Leadership Scale*

Based on previous literature and previous surveys, we conducted questionnaire surveys and interviewed employees and leaders. The Inclusive Leadership Scale based on the questionnaire by Cameli et al. (2010) examines the concept of inclusive leadership style using structured interviews. First, factor analysis of the Inclusive Leadership Scale data was conducted based on 151 elements of scale data. The KMO (Kaiser-Meyer-Olkin) test and the Bartlett spherical test were performed to determine whether factor analysis could be performed. The KMO value was 0.936, and the value of the Bartlett spherical test was lower than 0.01, so factor analysis could be performed. The Inclusive Leadership Scale included three factors: the leaders' encouragement and recognition of employees, the leaders' respect and fair treatment of employees, and leaders' rational understanding and tolerance of employees' failures. These three factors accounted for 64.13% of the variation: 23.01, 20.79, and 20.33%, respectively. The factor loading of each item was higher than 0.528 and lower than 0.832. Then, we performed a reliability test using Cronbach's



alpha coefficient. The alpha coefficient of this scale was 0.930, which showed good reliability. A structural dimension test was conducted on the inclusive leadership style scale by confirmatory factor analysis based on 200 elements of scale data. We selected Chi-square/df, RMSEA, NFI, IFI, and CFI as evaluation criteria. The specific data are shown in **Table 1**. Chi-square/df was 2.83, RMSEA was 0.08, and NFI, IFI, and CFI were all above 0.9, indicating that the model fit the data well.

### Psychological Capital Scale

The KMO value of the Psychological Capital Scale was 0.904, as obtained by analysis of the exploratory factor, and the results of the Bartlett spherical test were also significant at the 0.01 level. The Psychological Capital Scale includes four factors that accounted for a total of 63.89% of the variation: hope accounted for 20.33%, optimism accounted for 15.41%, toughness accounted for 15.16%, and self-efficacy accounted for 12.99%. The factor loading of each item was higher than 0.551 and lower than 0.868. The alpha coefficient of this scale was 0.888, showing good reliability.

### Innovative Behavior Scale

The Innovative Behavior Scale uses Likert's five-point scoring method. Factor analysis of this scale showed two factors that accounted for a total of 67.12% of the variation. The factors of employees' innovation outcomes and their innovative thinking accounted for 34.03 and 33.09% of the variation, respectively. The factor loading of each item was higher than 0.690 and lower than 0.917. The alpha coefficient of this scale was 0.890, showing good reliability.

### Descriptive Analysis

The results of the descriptive analysis are shown in **Table 2**. The dimensions of inclusive leadership were ordered according to average score, from high to low: F1 (Leaders' encouragement and recognition of employees), F3 (Leaders' rational understanding and tolerance of employees' failures), and F2 (Leaders' respect and fair treatment of employees). The average score on the dimension of employees' psychological capital was 3.6, which was higher than the middle level. The average scores on the dimensions of employees' innovation outcomes and innovative thinking were 3.59 and 3.78, respectively. It is of interest to determine how to transform employees' innovative thinking into innovation outcomes, and this requires more attention during the process of team building.

### Correlational Analysis

The results of the correlational analysis in **Table 2** show that the three dimensions of inclusive leadership also had significantly positive associations with psychological capital,

innovation outcomes, and innovative thinking of employees. Psychological capital also had a significantly positive association with innovation outcomes and innovative thinking by employees. There are different correlation coefficients between the three dimensions of inclusive leadership and the psychological capital: the order from high to low is was F1, F3, and then F2. There were differences between the three dimensions of inclusive leadership and innovative behavior. The most strongly associated dimension of inclusive leadership with innovation outcomes and innovative thinking by employees was F1 (leaders' encouragement and recognition of employees).

### Mediation Analysis

To verify the influence of inclusive leadership on employees' innovative behaviors, we used regression analysis. We also tested psychological capital as the mediating variables, and the results are shown in **Table 3**. Referring to Baron's and Kenny's (1986) methods of testing mediating mechanisms, mediating effects should obey the following conditions: independent variables significantly influence dependent variables; independent variables significantly affect mediating variables; and mediating variables significantly influence dependent variables. When the independent and mediating variables were substituted into the regression equation to explain the dependent variables at the same time, the effect of the mediating variables was significant, while the effect of the independent variables disappeared (all mediating effects) or weakened (partial mediating effects).

The dependent variable in model 1 was employees' psychological capital. The three dimensions of controlling variables and inclusive leadership collectively accounted for 34.2% of the variation in the dependent variable of employees' psychological capital ( $F = 23.700, p < 0.001$ ). Leaders' encouragement and recognition of employees (F1,  $\beta = 0.196, p < 0.001$ ), leaders' respect and fair treatment of employees (F2,  $\beta = 0.092, p < 0.05$ ), and leaders' rational understanding and tolerance of employees' failures (F3,  $\beta = 0.140, p < 0.01$ ) were significantly associated with psychological capital. Therefore, Hypothesis 2 could be tested.

The dependent variable of models 2 and 3 was employees' innovation outcomes. In model 2, the three dimensions of controlling variables and inclusive leadership collectively accounted for 22.0% of the variation in the dependent variables representing employees' innovation outcome ( $F = 13.324, p < 0.001$ ). Among these, leaders' encouragement and recognition of employees (F1,  $\beta = 0.252, p < 0.001$ ) and leaders' respect and fair treatment of employees (F2,  $\beta = 0.115, p < 0.05$ ) positively influenced employees' innovation outcomes, while leaders' rational understanding and tolerance of employees' failures (F3,  $\beta = 0.017, n.s.$ ) could not significantly account for employees' innovation outcomes. Therefore, Hypothesis 1.1.1 and 1.1.2 could be verified. In model 3, the controlling variables of inclusive leadership and psychological capital accounted for 35.2% of the variation in employees' innovation outcomes ( $F = 22.130, p < 0.001$ ). Leaders' encouragement and recognition of employees (F1,  $\beta = 0.141, p < 0.05$ ) significantly accounted for the employees' innovation outcomes, while leaders' respect and fair treatment of employees (F2,  $\beta = 0.063, n.s.$ ) and

**TABLE 1** | Confirmatory factor analysis results of inclusive leadership style questionnaire ( $N = 200$ ).

| Scale                                | Chi-square/df | RMSEA | NFI   | IFI   | CFI   |
|--------------------------------------|---------------|-------|-------|-------|-------|
| The inclusive leadership style scale | 2.83          | 0.08  | 0.902 | 0.934 | 0.934 |



**TABLE 2 |** Results of descriptive and correlational analyses.

|    | Average | Standard deviation | N   | F1      | F2      | F3      | P       | C1      | C2 |
|----|---------|--------------------|-----|---------|---------|---------|---------|---------|----|
| F1 | 3.81    | 0.62               | 351 | 1       |         |         |         |         |    |
| F2 | 3.58    | 0.83               | 351 | 0.643** | 1       |         |         |         |    |
| F3 | 3.60    | 0.77               | 351 | 0.656** | 0.746** | 1       |         |         |    |
| P  | 3.60    | 0.50               | 351 | 0.491** | 0.466** | 0.485** | 1       |         |    |
| C1 | 3.59    | 0.63               | 351 | 0.367** | 0.305** | 0.283** | 0.557** | 1       |    |
| C2 | 3.78    | 0.58               | 351 | 0.409** | 0.310** | 0.292** | 0.543** | 0.702** | 1  |

F1 means leaders' encouragement and recognition to employees; F2 means leaders' respect and fair treatment of employees; F3 means leaders' rational understanding and tolerance of employees' failures; P means psychological capital; C1 means employees' innovation outcomes; C2 means employees' innovative thinking; \*\* means prominently positive relevance around 0.01; \*\* $p < 0.01$ .

**TABLE 3 |** The result of regression analysis.

|                                       | P            | C1           |              |              | C2           |  |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|--|
|                                       | Model 1      | Model 2      | Model 3      | Model 4      | Model 5      |  |
| Gender                                | −0.033       | −0.026       | −0.007       | −0.138*      | −0.122*      |  |
| Age                                   | 0.108***     | 0.107*       | 0.047        | 0.064        | 0.012        |  |
| Education                             | 0.016        | 0.108***     | 0.099***     | 0.094**      | 0.086**      |  |
| Working Time                          | −0.003       | 0.035        | 0.037        | 0.025        | 0.026        |  |
| Job Position                          | 0.004        | 0.009        | 0.007        | 0.020        | 0.019        |  |
| F1                                    | 0.196***     | 0.252***     | 0.141*       | 0.298***     | 0.204***     |  |
| F2                                    | 0.092*       | 0.115*       | 0.063        | 0.077        | 0.033        |  |
| F3                                    | 0.140**      | 0.017        | −0.062       | 0.013        | −0.054       |  |
| P                                     |              |              | 0.565***     |              | 0.481***     |  |
| R <sup>2</sup> (adj. R <sup>2</sup> ) | 0.357(0.342) | 0.238(0.220) | 0.369(0.352) | 0.267(0.250) | 0.378(0.361) |  |
| F                                     | 23.700***    | 13.324***    | 22.130***    | 15.601***    | 22.978***    |  |

F1 means leaders' encouragement and recognition of employees; F2 means leaders' respect and fair treatment of employees; F3 means leaders' rational understanding and tolerance of employees' failures; P means psychological capital; C1 means employees' innovation outcomes; C2 means employees' innovative thinking; \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

leaders' rational understanding and tolerance of employees' failures (F3,  $\beta = -0.062$ , n.s.) could not significantly account for this. However, psychological capital could account for the employees' innovation outcomes ( $\beta = 0.565$ ,  $p < 0.001$ ). F2 could significantly account for the psychological capital, but F1 had a weaker association. Therefore, leaders' respect and fair treatment of employees influenced employees' innovation outcomes through the mediating function of psychological capital, while leaders' encouragement and recognition of employees partially mediated innovation outcomes through psychological capital. Therefore, Hypothesis 3.1.1 and 3.1.2 could be verified.

The dependent variable of models 4 and 5 was employees' innovative thinking. In model 4, the three dimensions of controlling variables and inclusive leadership collectively accounted for 25.0% of the variation in the dependent variables representing employees' innovative thinking ( $F = 15.601$ ,  $p < 0.001$ ). Among these, leaders' encouragement and recognition of employees (F1,  $\beta = 0.298$ ,  $p < 0.001$ ) had a positive influence on employees' innovative thinking, while leaders' respect and fair treatment of employees (F2,  $\beta = 0.077$ , n.s.) and leaders' rational understanding and tolerance of employees' failures (F3,  $\beta = 0.013$ , n.s.) could not significantly account for employees' innovative thinking. Therefore, Hypothesis 1.2.1 could be verified. In model

5, the controlling variables of inclusive leadership and psychological capital accounted for 36.1% of the variation in employees' innovative thinking ( $F = 22.978$ ,  $p < 0.001$ ). Leaders' encouragement and recognition of employees (F1,  $\beta = 0.204$ ,  $p < 0.001$ ) significantly influenced the employees' innovative thinking, and psychological capital ( $\beta = 0.481$ ,  $p < 0.001$ ) significantly accounted for employees' innovative thinking. F1's explanatory ability for employees' innovative thinking was weak. Therefore, leaders' encouragement and recognition of employees partially mediated innovative thinking through psychological capital. Therefore, Hypothesis 3.2.1 could be verified.

The above analyses indicate that leaders' respect and fair treatment of employees can influence the employees' innovation outcomes through the mediation effect of psychological capital. Leaders' encouragement and recognition of employees can influence employees' innovation outcomes and innovative thinking through the mediation effect of psychological capital.

## DISCUSSION AND IMPLICATIONS

In today's society, new generation employees have gradually become the main drivers of workplace and enterprise development. This group's professional values and community

characteristics are different from those of the traditional labor force, which leads to great pressure and challenges for many traditional human capital management and leadership styles. Psychological capital might be a good prescription for such stresses (Shabir et al., 2014). Based on the concept of inclusiveness in Chinese culture, we have explored the relationship between inclusive leadership and employee innovative behavior with psychological capital as a mediator. We conclude the following. First, inclusive leadership has a significant positive influence on new generation employees' psychological capital and then innovative behaviors.

Second, we conclude that different dimensions of inclusive leadership have different influences on different dimension(s) of innovative behaviors. Among the three dimensions of inclusive leadership style, leaders' encouragement and recognition of employees has a significant influence on new generation employees' innovation outcomes and innovative thinking. Leaders' respect and fair treatment of new generation employees has a significant influence on their innovation outcomes. Further, we provide detailed information about practical implications. Leaders adopting an inclusive style know more precisely how to generate different innovative results for new generation employees. Third, psychological capital plays a mediating role between leaders' respect and fair treatment of employees' innovation achievements. It also played a partial mediating role between leaders' encouragement and recognition of employees' innovation outcomes and innovative thinking. Such results add to the existing literature by clarifying psychological capital's differentiated effects on different inclusive leadership-innovative behavior relationships. Fourth, different from the concept of fairness and justice in Western countries, this article integrates the traditional Chinese cultural aspect of "tolerance as a virtue" into the connotation of inclusive leadership style and emphasizes the concepts of tolerance and leniency. Combining the characteristics that differ between traditional employees and new generation employees, we used empirical research to verify how inclusive leadership style affects employees' innovative behavior. The results promote the reasonable use of the inclusive leadership style, adaptation to the characteristics of new generation employees, and giving a full audience to new generation employees. The results ultimately provide a basis for boosting the innovative thinking and behavior of the new generation employees.

This paper provides theoretical bases and implications for future studies. It also supplements and expands the research on the relationship between inclusive leadership style and employees' innovative behavior and provides new ideas for human resource management approaches among new generation employees.

Our results have practical significance for enterprise human resource management and the development of entrepreneurial leadership style in the new era. The results give leaders clear guidance regarding leadership style that can accommodate new generation employees' characteristics, give full play to

their advantages, and stimulate their innovative behaviors to facilitate enterprise development. In addition to caring about leadership style, leaders should simultaneously focus on cultivating employees' psychological capital to create more advantages and value for enterprises resulting from innovation (Luthans and Youssef, 2007). Encouraging, recognizing, respecting, including, and giving fair treatment to employees are all excellent qualities of new-era leaders that can promote employee innovation.

This article has some deficiencies. The questionnaires about inclusive leadership, psychological capital, and innovative behavior were all filled in by the same person, which may cause homologous data errors. However, we have made some efforts to lower potential biases. Before we collected the data, we re-ordered the questionnaire items according to the independent and dependent variables, preventing the raters from guessing the causal relationships between variables; thus, we reduced the possible bias caused by having the same person provide answers for both independent and dependent variables (Kozlowski and Klein, 2000). After data collection, Harman's test was conducted. The analytic results of the un-rotated factor solution showed that the variance of the principle component is 30%, which was less than 40%, and thus, no dominant single factor was extracted, indicating little potential for common variance bias. Additionally, our samples are all survey data from Zhejiang Province, China. This could raise some concern about generalizability. Although the currently surveyed city is representative of other similar cities in China, generalizability to other cities in other countries is indeed a common concern because the results might vary for cultural, institutional, or societal reasons. Follow-up studies could expand the scope of the survey and increase the number of samples to ensure the generalizability of the research conclusions.

## DATA AVAILABILITY

The datasets generated for this study are available on request to the corresponding author.

## AUTHOR CONTRIBUTIONS

Y-CF conceived and designed the research and provided guidance throughout the entire research process. J-YC wrote and supplemented the English manuscript. M-JW and C-YC participated in the data processing and writing of the Chinese Papers.

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**Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## APPENDIX

### Chinese Version of the Inclusive Leadership Scale

#### Encouragement and Recognition to Employees

- (1) In my work, the leaders actively ask my opinions and thoughts.
- (2) The leaders recognize the contribution of my efforts.
- (3) For my work, the leaders encourage me to come up with plans and ideas.
- (4) The leaders recognize our cooperation and exchanges across departments.
- (5) The leaders openly recognize the achievements of employees.

#### Respect and Fair Treatment for Employees

- (6) The leaders treat us equally and always adhere to certain commonly recognized principles.
- (7) The leaders focus on fairness and justice when managing teams.
- (8) The leaders treat employees fairly.

#### Failure Tolerance

- (9) When employees make mistakes, the leaders express emotional understanding and suggestions for improvement.
- (10) The leaders can rationally accommodate our mistakes.
- (11) When something went wrong, the leaders do not arbitrarily blame us without understanding the details.



# Potential Contributions of Psychological Capital to the Research Field of Marketing

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**Keywords:** psychological capital, marketing, sustainability, innovative research, cross-disciplinary studies

## INTRODUCTION

Psychological Capital is increasingly becoming an important and integral aspect in the management of most firms across the world with the advent of globalization. There are many components that come within the construct of psychological capital as a whole (Luthans et al., 2007). The interaction of these components yields high levels of efficacy along with motivation of the employees in the organization. These components include hope, self-efficacy, resilience and optimism. These four pillars of psychological capital play different roles in increasing the level of positivity and hence, help in increasing the levels of productivity within different institutions (Avey et al., 2009). These components of psychological capital specifically aim at increasing the level of goal-oriented initiatives taken up by the employees and also help the entire organizational structure to come up with a framework that will help in achieving the goals facing the firm within the stipulated period of time. This paper intends to study the role of these different components and psychological capital as a whole based on the marketing strategies taken up by firms and the related success of such strategies and techniques. Further, the paper is also aimed at understanding the role played by the relationship between psychological capital and marketing in the field of entrepreneurship. The role of psychological capital in the globalization decision of the firms through marketing is analyzed and discussed to understand how such components of decision making can help the new entrepreneurs to succeed faster and reach objectives facing the firm within a shorter period of time.

## PSYCHOLOGICAL CAPITAL AND MARKETING

The context of psychological capital is being applied in various contexts within the realm of management operations in order to increase the reach of the business and market the products of the different firms and institutions in ways that will increase the cohort of people belonging to the target market of the firm and hence generate higher revenues along with building a very high brand image. Psychological capital on the whole helps in building a very strong organizational culture (Avey et al., 2008). This section of the paper helps in understanding the contribution of psychological capital to various aspects of a business. It helps in understanding the role of positive psychology in both running and expanding a business (Avey et al., 2006). The level of marketing carried out by the employees of a firm, to a large extent, depends upon the level of job satisfaction that is offered to the marketing managers and other employees related to the marketing of the firm (Peterson et al., 2011). Hence, it is very important to understand the various ways in which the marketing employees of the firm need to be psychologically motivated in order to reach the related objectives. The major focus of this study is on the marketers

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(i.e., those who's daily life or profession involves deeply with marketing tasks) and the marketing operations of the firm because the level of psychological capital required for employees associated with this type of management is greater as compared to the other job roles because the level of external interaction is larger for such employees (Lee et al., 2017). The employees working in other departments within a corporate institution like finances and engineering do not need to interact and make use of external dynamics in their everyday life.

Below, we selectively discussed some potential intersections of PsyCap and Marketing. Note that these issues are emerged based on our constant and long-run survey of the PsyCap theory and the Marketing field, as well as academic communications with other colleague scholars. Of course, subjectivity should be cautioned as we did not conduct a thorough review of any intersections between PsyCap and Marketing.

## Psychological Capital and Customer Service Quality

Some papers portray the relevance of the concept of positive psychology in developing fruitful long run relationships with the customer base of the firm. There are several means by which customers are able to connect with the firm and become consumers of these products in the long run. This is observed in the case of firms that offer benefits to the society or community in which they operate through corporate social responsibilities. It helps the consumers to psychologically connect to the firm through cognitive, emotional and physical perspectives of benefits (Newman et al., 2014). Such benefit related perspectives help in yielding external motivational factors in the consumers of the firm. There are various theories which help in understanding the concept of engagement of customers with the employees of the firm. One of the most important theories is Kahn's engagement theory. This theory sheds light on the capabilities of employees to harness complete capacity utilization through the psychological conditions of meaningfulness, safety and availability (Blau et al., 2004; Gooty et al., 2009; Liu et al., 2019). This theory asserts that the level of engagement of an employee is more important compared to his everyday hard work. The greater the level of loyalty and feeling of satisfaction derived on psychological levels, the greater is the level of engagement of the employee. This theory also focusses on the fact that the level of engagement keeps changing along with the change in the circumstances in which the employees engage and function. Most studies that deal with psychological capital in terms of enhanced customers service quality assert that the level of customer engagement increases along with an increase in the level of satisfaction amongst the employees as in that case employees are able to deliver better services (Liu et al., 2019).

When the employees are well-engaged with the firm, they are able to play more important roles in the level of customer engagement that the consumers are able to build with the brand. This is so because of the bettering of customer interaction with the brand, the firm and the other customers of the firm. This helps not only in maintaining strong client relations but also in

securing new clients which in turn helps firms to increase the size of the target market.

## Psychological Capital and Relation of Employees With the Firm

Most of the studies that deal with the relationship between the variables of employee satisfaction and positive psychological environment tend to reveal that the concept of servant leadership helps in increasing the level of psychological capital within the sales and marketing employees. With practice of this form of leadership, the employees are able to increase their own levels of self-motivation and reduce lateness attitude (Blau et al., 2004). As a matter of fact, this form of leadership helps in developing the psychological needs within employees which causes them to contribute more toward providing better customer service quality and greater marketing of the goods of the firm (Liu et al., 2019). This is in relation to identifying themselves as a part of the firm in the long run for a longer span of time. It is reported that especially in certain industries where the relation between the clients and the sales employees happen on a regular basis, the concept of servant leadership provides huge psychological capital to these employees who interact on almost an everyday basis (Bouzari and Karatepe, 2017). This form of psychological boost is also reported to increase the level of competitiveness of the firm with the help of citizenship behaviors that are completely service oriented. As a matter of fact, it is asserted by other studies that even though the general perception is that in case of management roles that are generally of a higher order and interaction with customers at that level does not need the implementation of psychological capital. However, the presence of importance, respect and accountability plays a large role in bolstering the interaction between such managers and customers of the firm (Newman et al., 2010).

Other studies suggest that it is very important for firms to maintain high levels of resources in order to retain employees that use a high quotient of psychological capital to interact with the customers and hence, improve the existing level of marketing within the firm (Norman et al., 2010). The manner in which human resources are treated and managed also plays a crucial role in the marketing of the firm as a whole in the community in which it operates. The concepts of inclusion, work-life balance, and other concepts that helps in improving the performance and productivity of the employees. The psychological capital quotient of the firm rapidly increases with increase in the number of initiatives taken up by the leaders of the firm for taking care of the concerns and the needs of the employees. According to reports, in the absence of such management systems and policies in place, the employees generally lose the level of commitment and psychological capital which induces negativity and lateness attitude. If this behavior related to tardiness persists in the long run, the average businesses in the United States go through a loss of around \$3 billion on an annual basis (Bouzari and Karatepe, 2017). Thus, the variables of psychological capital and job performance even though not vividly explored in the past are related in a way that affects the sustainability and functioning of the firm in the long run. The concepts of job attractiveness,

job effort and a balanced corporate life play the roles of catalysts and mediators in increasing the level of psychological capital in the firm.

The role played by psychological capital is more in the case of marketers as they have to deal with a series of challenges and adversities in the external environment of the firm. We agreed that, of course, many other professions have to deal with external challenges and could benefit from owning high-levelled PsyCap. We do not assume that PsyCap is more important to marketers than to other professionals. But we do think PsyCap is of special importance to marketers. The rationale follows. To become a well-equipped marketer, one needs to have the qualities of understanding and empathizing with the consumers which requires high quotients of psychological capital (Sweetman and Luthans, 2010). It is also important for these employees to channelize and use these resources depending on the situation that they are in. The correct set of actions need to be taken up through instant decision making for marketers in order to achieve the resource use for goals facing the firm (Luthans et al., 2008). The same is also true in the exact opposite situations of extreme positive responses from the consumers wherein the marketers have to again channelize the different components of psychological capabilities to modify the situation in order to maintain a balance. The impact of the usage of skills pertaining to psychological capital has been found to be maximum in case of transition economies because of a number of underlying reasons including cultural shift and demographic shifts that such economies go through (Mathe et al., 2017). The impact of psychological capital on the job performance also varies depending upon the sector in which the firm is established and is operating. Most studies assert that hiring the right kind of marketers is important and should not only depend upon their educational levels and specialized skills attained but also on their level of psychological capital (Sulistyo, 2016). In addition to this, fostering and nurturing a high quotient of psychological capital is also important for firms and this should be managed and promoted with the help of sessions, conferences and trainings provided specifically to employees working or associated with the marketing departments of firms. To harness an environment that protects and promotes high levels of psychological capital, it is important to formulate and maintain appropriate policies and practices for efficient human resources management. Thus, human resources such as the marketers play a crucial indirectly in the marketing of products and dealing with clients of the firm.

Some of the business functions tend to focus on the allocation of the sales employees with different customers for different products based on the relatedness of the employees to the products, the experience level and the level of competence that the employee is associated with. Proper allocation based on the psychological capital helps these employees to exercise different levels of freedom and make use of their opinions which is reported to be successful in most cases (Paek et al., 2015). This has been proven to be especially true for the workers who have been able to build cordial and strong relations with the higher authorities of the firm including the management. It is reported that they possess greater amounts of psychological capital and are able to make the most out of challenging situations. These

employees are able to figure out methods and strategies in a very small span of time if the initial strategies developed by them fail to reach the desired outcomes. The probability of these employees to bounce back from adverse situations is reported to be higher than most other employees. This forms a very important strength in the competitive advantage context for the firm.

Moreover, psychological capital is reported to be one of the best and most efficient predictors of performance of the employees employed especially in the marketing department (Paek et al., 2015; Bouzari and Karatepe, 2017). Generally, firms are concerned with using the values of psychological capital for predicting the nature of productivity of the employees and not the four individual components that form the psychological capital.

## Psychological Capital and Innovation

Innovation such as new product development has been a critical part of marketing research. It has been found from most studies that the capacity of innovation is not enough for a firm to be able to successfully able to grow and develop (Chen and Lim, 2012). Simultaneously, efficient marketing skills are also required for gaining market exposure and brand value. This, in turn, requires the implementation of strategic and well-decided methods of marketing using psychological capital. Studies assert that in some specific countries like Canada, innovation requires a lot of investment in the marketing and advertising of goods and not only technological improvisation (Sweetman et al., 2011). Marketing in this context refers to a gamut of events including building up connections to increase the reach of the product and building a strong promotional network (Cole et al., 2009). Studies have asserted that the usage of positive psychology capital for innovation in the field of marketing is extremely important for achieving greater levels of competitive advantage and firm performance (Mathe et al., 2017).

Psychological capital in the context of marketing innovation involves the participation of various components of customer engagement (Nguyen and Nguyen, 2012). It involves consumers, suppliers, trademarks, and industry associations. Ensuring that all of these components are working together in an efficient and effective manner involves the implementation of psychological capital in the form of social capital. As a matter of fact, studies conducted in Italy portray that the production processes of firms are handled in a systematic manner with the application of psychological capital (Na Ayutthaya et al., 2016). This concept is a very useful tool for the transitioning economies as continuous innovation has to occur in these firms depending upon the continuously changing demands and preferences on the part of the consumers. Most of the knowledge required for innovation in terms of marketing comes from the usage of tools and techniques that render knowledge about the common strategies taken up by the majority of firms in the same industry with the help of pooling of psychological or social capital.

In countries like Malaysia, for example, it is generally noticed that firms need to bring together and equate the variables of social capital and mission culture in order to achieve certain



goals in terms of growth facing the organization in the long run (Lifeng, 2007; Hur et al., 2016). The amount of resilience also increases with the application of proper psychological capital which is equally important as diversified adversities are faced in the process of both technological and marketing innovation. With the help of the right strategies, the employees are able to connect to the customers and solve their problems in different ways at different points of time, which in turn allow them to retain themselves as well as the customers in the long run. As a matter of fact, it is observed that the level of psychological capital also helps in framing the type of empathetic response that most marketers need to use for solving different customer problems and challenges posed by the competitors. This helps a lot with the process of innovation as a lot of data can be used and the challenges persisting in the industry can be overcome.

## PROPOSITIONS FOR THE FUTURE RESEARCH DIRECTIONS

Although the concept of using psychological capital is becoming increasingly common with the advent of development and globalization all over the world, it is still comparatively a new concept that provokes interest and there are many aspects of using psychological capital in relation to the field of marketing that need to be addressed and future research should be taken up in those areas. A few such propositions aiming at future research based on these concepts are discussed in this section of the paper which helps in shedding light on the areas yet not researched.

Firstly, the most common and important method of research that can be undertaken involves the analysis of data related to relation between the variables of psychological capital and marketing objectives with the usage of time series data or even panel data over a substantially long period of time as compared to the current situation. This is crucial as this dynamic equation between the two variables is comparatively new and needs to be explored across different regions of the world over longer periods of time as these equations have been newly discovered and are being worked upon in the current span of time.

Secondly, studies should also be taken up in the form of comparison between the impact psychological capital has on marketing directly and the impact it has on employees that are associated with marketing for a firm in an indirect manner. In other words, research based on the differences in the impact of psychological capital on the back house and front house operations in the marketing department of different industries where both the operational systems play a vital role, like the hospitality industry should also be taken up. This will help in understanding the importance of positive psychological capital from different perspectives.

Research can also be taken up based on the role played by psychological capital in terms of the relation between psychological capital's impact on other business functions like accounting and finance. This should be further be compared to the correlation between marketing and psychological capital

such that the role played by psychological capital on these different business functions. These dynamics can further be used to enhance the strategies taken up to reach goals facing the firm using proper allocation of psychological capital in the different departments within the same firm.

There are other areas of research pertaining to psychological capital quotient of the marketers. These include components of personality apart from the four components of hope, self-efficacy, resilience and optimism. Research should be taken up in the future pertaining to these personality traits including their individual personalities and hardiness in terms of their individual psychological constructs. The role played by such traits in shaping or enhancing the characteristics of psychological capital of the marketers should also be taken up. Such research will also bring out the factors that motivate the marketers in terms of new challenges and work environment offered to them.

Studies related to the understanding the innovative capability of the employees especially in creative industries in relation to the level of psychological capital that they possess should also be taken up. This can further be correlated with the competitive advantage of the firm to investigate and analyse the performance of the firm in the long run. The success of the firm related to the innovative capabilities along with the role played by psychological capital can help find important insights in terms of hiring the right fit of employees for the long run success of the firm.

The level of engagement and involvement of employees within the various functions and operations of different firms and the satisfaction received by the same employees are considered to be important constructs in terms of psychological capital that motivates employees toward institutional commitment. A mechanism that helps in studying the structural relationships in between such constructs can also be studied in future researches. This will help in understanding the role of the human resources management in shaping the psychological constructs of the organization under consideration.

Moreover, there are many studies that directly relate the variables of innovation and competitive advantage to find out the rate of success of the firm. Future research can also involve investigating the relationship between social capital and long run success of the firm with usage of innovation capacity being treated as an intervening variable. This process of research can be implemented in various industries to find out the industries where the correlation between these three variables is the highest.

Studies can also be taken up in terms of the role played by psychological capital in shaping the level of customer engagement in different industries over a longer span of time. Understanding how the level of customer engagement varies over time for a particular firm and comparing this with the results from another firm in another industry will help in understanding the differences in ways which should be used for allocating and implementing psychological capital over time for marketing products and increasing the level of customer engagement.

One of the most important fields of research can be in the field of finance marketing. As most of the research has

been conducted to find out the relation between psychological capital and customer engagement and marketing for firms, further research should involve relating the success in terms of brand development and marketing of products to the financial products/services success of the firm in both the short run and the long run. These researches can be used for portraying the relationship between the customer relations developed through the four components of psychological capital and the financial attributes that determine the overall success of the firm. Moreover, most of the data used is from the perspective of firms. More studies should be conducted using the perspective of consumers as to how the behavior and the marketing techniques help them to choose products or firms better, especially in the long run.

Studies can also be taken up to explore further conditions and variables within a firm that affect the development and implementation of psychological capital within the employees. These can include the environment of the organizational culture and the type of hierarchical structure followed in the firms under study. Studies can also be undertaken to understand the impact of other business employees operating and functioning in other departments on the building of psychological capital in the employees operating in the marketing sector of the firm.

Another field of research where extensive development can be done involves the study of the role of psychological capital with marketing across employees belonging to different age cohorts and across different geographical areas of the world.

## EXTENSION: FROM SUSTAINABLE MARKETING TO ENTREPRENEURSHIP

With increased levels of technological innovation and increased barriers to entry for new and budding entrepreneurs, the level of research being conducted in the paradigm of psychological capital and entrepreneurship though less is gradually gaining momentum. Psychological capital is considered to be more related to the context of human resources and job satisfaction (Clapp-Smith et al., 2009). However, business and entrepreneurship are conducted in a process-oriented manner and depend on a set of factors that does not involve the four major components of psychological capital. Instead, these factors include factors like availability of opportunities, development and utilization of available opportunities (Woolley et al., 2011). It is often observed that factors like entrepreneurial ability and venture performance are given more importance unlike the concept of psychological capital. It is used as an explanatory variable in few researches and the idea of relating the success of individual business with psychological capital is increasingly becoming important and necessary (Abbas et al., 2014). However, the history of relating psychological capital with the performance of joint ventures has been traditional and is yet being explored. Studies conducted on these lines have claimed that as compared to human and social capital, entrepreneurial capital changes the way the venture performs and causes wide variations (Walumbwa et al., 2010). This is caused due to the dynamic external environment in which the

entrepreneur performs his business operations. It is asserted in such studies that the higher the level of dynamism in the external environment of the business, the higher is the correlation in between the variables of psychological capital and venture performance.

There are studies that help in understanding the simplest form of relation between the constructs of psychological capital and individual entrepreneurship. It is widely observed that most new and budding entrepreneurs fail to make the business establish and are often forced to exit the market in which they operate (Ming and Zuguang, 2013). This is because of the lack of proper forecasts and long run sustainable business operations. However, in spite of such problems, the firms and the entrepreneurs are individually still choosing to take up risks and set up their individual ventures in the face of such risks and challenges. This is because of the capacity of these entrepreneurs to make use of the psychological capital they possess in terms of self-confidence and self-efficacy (Roche et al., 2014). This is the basis for the setting up of numerous businesses and expansion of already established businesses all over the world.

In terms of the resource endowments of the entrepreneurs, the level of human resources possessed plays a crucial role in the formation of a well-established business in the long run. With the implementation of proper strategies in terms of human resources along with business development strategies, the businesses are noticed to survive in the long run. This is because of the crucial role played by psychological capital on the part of both the employees and the managers related to the business as well as the customers that are trying to build loyalty toward the new products and services of the firm (Kim et al., 2017). Moreover, the success of a potential business involves the use of effective leadership policies which are authentic and help in understanding the social cognitive framework in an easier manner with the help of psychological capital itself (Kobayashi et al., 2006). These leadership policies are mostly focused on the usage of proper human and psychological capital such that their deliberate usage is known to increase the level of growth for the firm in the initial years of setting up the business. As is observed in the earlier sections of the research, strategic use of psychological capital and other psychological resources help in attaining greater levels of customer engagement which is important for the firm in the initial years of setting up the business and even developing the brand value.

Moreover, psychological capital is also known to help in dealing better with the internal challenges of the firm for the entrepreneurs that saves a lot of time and resources for proper implementation in other areas of establishing the business. The use of goal directed mechanisms involve implementation of positive psychology in the initial years of business. As a matter of fact, after a few years, psychological capital can be used as a process of self-evaluation for the process of business (Dinh Tho et al., 2014). The use of psychological capital has in fact been found to affect the entrepreneurial decisions in a positive manner. The level of optimism also helps to go through the various challenges faced in the beginning of setting up the business. Proper usage of

psychological capital helps in increasing the level of curiosity which itself helps the firm to overcome the problems of failure and exit from the market. It helps the entrepreneurs to build better disruptive business models which can be used for collection and analysis of data which in turn helps to create solutions to most of the problems perceived on entry into the market. The use of psychological capital is also reported to better the level of organizational orientation and organizational performance.

The different components of psychological capital help to make the locus of control of the business stronger and more solution oriented. It also helps in creating a more conducive environment for the employees so that they are able to make full capacity utilization and increase the level of productivity (Karatepe and Karadas, 2015). One of the most important parts of setting up a business involves the setting up of a set of values whose integral significance remains the same over a particular span of time and which are also flexible in the long run such that with changes being introduced in the system, these values can also change. The component of hope in psychological capital helps in framing such values with the help of strategies that help in attaining and achieving goals lying ahead of the business operations in the upcoming years.

Some other studies assert that the role of both psychological and start-up capital is important in going on with a business as both help in predicting the achievable level of success in the first few years of establishing the business (Jung and Yoon, 2015). The component of psychological capital that helps in bringing together the components of startup capital and customer engagement is that of optimism. It helps in connecting the business to the needs of the customers which in turn helps the firm to provide efficient and effective services to the consumers and increase the standard of living of the community as a whole in which the firm operates. Psychological strength is extremely important for even setting up the infrastructure and arranging other start up contacts and sponsors in case of small businesses. Studies also reveal that psychological capital plays an important role in taking care of the people involved in setting businesses on an individual basis (Perkins et al., 2002). It helps different people in different ways. However, at the aggregate level, it helps to connect to the customers at an empathetic level and gain increased reach in the beginning years which is extremely important for building a base of loyal customers as well as a high brand value.

The level of psychological capital affecting the setting up and running of a particular business also depends on a lot of other conditions including the industry in which the firm operates, the geographical reach of the firm and even the culture of work that is to be followed while setting up the business (Jancencelle et al., 2018). Even to a larger context, psychological capital could influence marketing phenomena. For example, Chen and Wu (Chen and Wu, 2019) proposed that psychological capital is a foundation of food safety's social co-governance mechanisms, which incorporated and coordinate

among multiple stakeholders in the society (e.g., government, business, consumers, third-parties, etc). It could also be reflected by studies that as the level of psychological capital varies across different countries and different types of employees, the level to which it is used for the establishment and functioning of different businesses also differs. As a matter of fact, the age to which the different employees of a firm belong also plays a vital role in the relation between the psychological capital and the success of the firm in the long run as positive psychology plays completely role across different ages of the human demography.

## CONCLUSION

In order to conclude, it can be asserted that psychological capital is increasingly playing a very important role in the field of both management and entrepreneurship. It helps in connecting a potential business to its customers and also helps the consumers to understand the functioning of a business better. It has been found that most firms are not able to connect or use the human resources or other resources available to them using psychological capital. However, this variable is reported to help in a lot of operations including motivating employees and increasing productivity for the firms. It also helps the firms to increase the level of customer engagement while bettering the level of customer service quality. Reports suggest that most firms that implement the usage of psychological capital are also able to innovate more, not only in terms of technological improvisation but also in terms of marketing of the products and services created by them. As a matter of fact, the firms are trying to increasingly use the values of psychological capital as an intervening variable to relate the level of innovation to the level of customer engagement through efficient marketing. Although this is a new and increasingly interesting area of research, more work based in the field of research needs to be taken up using various nuances of business that relate psychological capital to efficient marketing. Studies also need to be taken up in order to understand the relations between the impact of psychological capital in between marketing and the various other related business functions. As the study is increasingly becoming important, future research pertaining to the analysis of long run data will also help in finding out trends that shape the relation between marketing and psychological capital and how the contribution to the realm of marketing changes over time.

## AUTHOR CONTRIBUTIONS

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# Moderation of Housing-Related Factors on Psychological Capital–Job Embeddedness Association

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This study identified three critical housing-related factors (HRFs) as moderators of the relationships between employees' psychological capital (PsyCap) and job embeddedness (JE) in China's entrepreneurial environment. The hypotheses were tested with multiple hierarchical regression modeling, using the data collected from 312 employees in manufacturing organizations. The results demonstrated that HRFs (i.e., home ownership, housing price satisfaction, and contributions to housing funds) moderate the relationships between employees' PsyCap and JE. Specifically, these relationships were stronger when the HRFs were high. Such results contribute to the PsyCap and JE literature by incorporating housing as an extrinsic life-aspect factor that might affect employees' psychological state and thus their retention in works. Implications for the organization policies and directions for future studies were discussed.

**Keywords:** psychological capital, job embeddedness, housing-related factors, entrepreneurship, China

## INTRODUCTION

In today's rapidly changing and hectic entrepreneurial environment, positive psychological factors are becoming much more important because such resources help people cope with work stress and anxiety and thus make employees more proactive, innovative, and resilient (Chin et al., 2019; Rafiq and Chin, 2019).

Psychological capital (PsyCap) is one of the most significant positive psychological resources of an individual because it enables individuals to keep positive, hopeful, confident, resilient, and optimistic at the workplace (Luthans et al., 2007; Chen and Pan, 2019; Wang et al., 2019). Hu et al. (2018) indicated that PsyCap has been considered as an important antecedent of individuals' wellness, health, and other behavioral outcomes in a performance-oriented work setting. Although a large body of research has demonstrated the effect of PsyCap on job-related behaviors (Luthans et al., 2007) and the significance of positive psychology in an entrepreneurial context is widely recognized, there have been limited studies addressing how individuals' positive psychological strengths affect or reinforce their positive mental functioning. To fill this gap, this paper aims to investigate the impact of a critical mental force (i.e., PsyCap) on a crucial manifestation of positive psychological functioning (i.e., job embeddedness) in China.

Mitchell et al. (2001) introduced the concept of "job embeddedness" as the forces that retain people's interest and energies in doing their jobs. These forces consisted of three dimensions: fit, link, and sacrifice. *Fit* is the extent to which an individual's ability is compatible with the

surrounding environment and organization. *Links* include the number of connections to individuals and groups within their organizations. *Sacrifice* is defined as what an individual would have to give up (i.e., perceived costs of social, psychological, and financial benefits) if they decide to leave their organization.

Despite a variety of antecedents of job embeddedness (JE) have been proposed, the association of PsyCap with JE has not been fully understood (Sun et al., 2012). In consideration of such a gap in existing literature, we aim to investigate the impact of PsyCap on JE.

Moreover, potential moderators, especially those from the off-the-job, external aspects, should be considered and incorporated as we study the PsyCap-JE relationships. The contingency theory (Donaldson, 2001) suggested that context does matter when looking into employees' motivational and behavioral functions. Such an argument is explicitly supported in the PsyCap literature, too (Newman et al., 2014).

In such vein, we suggest incorporating critical environmental factors; especially those come in line with the logic of PsyCap and JE, into our examinations. Scholars have begun to emphasize the importance to investigate how key environmental factors shape employees' psychological outcomes (Rafiq and Chin, 2019; Sung and Choi, 2019). Evidence reveals that home ownership and fund-related opportunities can raise residents' satisfaction on social security whereby their social responsibility and sense of national identity can be largely enhanced (Saunders, 1990; Yeung and Howes, 2006; Groves, 2007). These studies also find a positive association among all these HRFs. But the existing research on HRF for China is limited. According to Chinese history, housing-related issues have been of particular importance to individuals' positive psychological feelings in this context. We thus attempt to focus on investigating the moderation effects of HRF here.

China's preference for HRF has a deep historical and socio-cultural background. Not China's but also for everywhere, housing is the prime consumption item in their lifetime, and home is the setting where one finds satisfaction, refuge, and rest. But in China, the traditional culture of "having a house has a home" or "having a family and career is the aim of life" subtly makes many Chinese residents prefer to obtain housing ownership, which directly affects people's sense of belonging and wellbeing-related outcomes (Yeung and Howes, 2006).

While the HRF can be regarded as a very important part of the social welfare system in contemporary China, it is expected that HRFs are widely recognized as critical environmental factors affecting Chinese people's mental state and sense of wellbeing. We thus expect that the key HRF such as local house ownership, satisfaction toward housing prices, and the contribution to the national housing funds may moderate the psychological state-behavior mechanisms. To concern and make a contribution to the contextual thinking, we make the following hypotheses:

*Hypothesis 1:* Local house ownership positively moderates the relationship between psychological capital and job embeddedness in such a way that this

relationship is stronger when the level of local house ownership is high than when it is low.

*Hypothesis 2:* Satisfaction toward local housing price positively moderates the relationship between psychological capital and job embeddedness in such a way that this relationship is stronger when the level of satisfaction toward local housing price is high than when it is low.

*Hypothesis 3:* The contribution to housing funds positively moderates the relationship between psychological capital and job embeddedness in such a way that this relationship is stronger when the level of contribution to housing funds is high than when it is low.

## MATERIALS AND METHODS

### Samples and Procedures

The whole survey that lasted for about 6 months was conducted in four manufacturing organizations in Guangxi province of China. Before the formal date of collection, we carried out a pilot testing with a sample of 60 workers from a well-known manufacturing organization in Guanxi, so as to examine whether the overall survey was clear, thorough, and robust. After the pilot test, the investigators modified some items working according to the feedback from the participants. The formal survey was conducted in three large manufacturing firms in the same province. The researchers first contacted the human resource managers of all three organizations for their assistance to arrange an appropriate time and suitable venues to distribute the questionnaires. To control for extraneous influence, only the full-time employees were requested to participate in the survey, where confidentiality and anonymity were ensured. The human resource managers of all three firms helped us retrieve completed questionnaires at two separate time points. At time 1, participants completed the questionnaires on PsyCap, HRF, and demographics. After 3 months (time 2), the same participants were requested to complete the survey on the outcome variable, JE.

At time 1, a total of 380 surveys were distributed to the participants and 355 were returned yielding a response rate of 93.4%. Among them, 312 participants completed the time 2 questionnaires yielding a response rate of 87.8%. Finally, a total of 312 employees participated in this study, 260 were male (83.3%). The majority of the sample was male (83.3%) and had a undergraduate degree (41.7%). The age of respondents ranges from 19 to 45 years, with a mean age of 33.67 (SD = 0.70). Their average organizational tenure is 6.59 years (SD = 1.45).

### Measures

#### Psychological Capital

Psychological capital (PsyCap) short scale was used to measure PsyCap Luthans et al. (2007). It is a 12-item scale that originally reduced from the 24-item scale consisting of four dimensions

of PsyCap: hope (4-item), efficacy (3-item), resilience (3-item), and optimism (2-item). Sample items include: “There are lots of ways around any problem” (hope), “I feel confident presenting information to a group of colleagues” (efficacy), “I usually take stressful things at work in stride” (resilience), “I am optimistic about what will happen to me in the future as it pertains to work” (optimism). Responses were on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). In our sample,  $\alpha$ s were 0.834 (hope), 0.825 (efficacy), 0.902 (resilience), and 0.854 (optimism). Overall, Cronbach’s  $\alpha$  of employees’ PsyCap was 0.92.

### Job Embeddedness

Job embeddedness was measured with a 7-item scale developed by Crossley et al. (2007). Sample items include: “I simply could not leave the organization that I work for” and “It would be difficult for me to leave this organization.” The participants were requested to respond on a 5-point Likert scale range from 1 (strongly disagree) to 5 (strongly agree). In the current research, the Cronbach’s  $\alpha$  obtained was 0.94.

### Housing-Related Factors

Housing-related factors were treated as dummy variables: (1) whether or not the respondents had owned a house (0 = no, 1 = yes), (2) whether or not the respondents had satisfied with the current house price (0 = no, 1 = yes), and (3) whether or not the respondents had contributed to the housing funds (0 = no, 1 = yes).

### Demographic Variables

Gender, marital status, age, and education were applied as control variables in the data analysis.

### Analysis

The data were analyzed using statistical software’s SPSS 25.0. The Pearson bivariate correlation was used to explore the potential associations among variables. To examine the hypothesized moderation model, we used the SPSS macro PROCESS introduced by Hayes (2012). Additionally, we employed conventional methods for plotting simple slopes to understand moderation effects, at one standard deviation below and above the mean (Aiken and West, 1991).

## RESULTS

### Correlational Analysis

Before testing the hypotheses, we examined the means, standard deviation, Cronbach’s  $\alpha$  coefficients, and Pearson bivariate correlation among the study variables, as seen in **Table 1**. The Cronbach’s  $\alpha$  coefficients were all greater than 0.70 (Nunnally and Bernstein, 1994). Results in **Table 1** show that employees’ PsyCap was positively associated with JE ( $r = 0.26, p < 0.01$ ). House ownership, house price-related satisfaction, and the contribution to housing funds were also positively related to employees’ JE ( $r = 0.18, p < 0.01$ ;  $r = 0.11, p < 0.05$ ;  $r = 0.20, p < 0.01$ ), respectively. The results reflect a preliminary analysis of the anticipated associations.

### Hypotheses Testing

In this study, all the hypotheses were tested by using moderation examination. Specifically, we employed SPSS macro PROCESS to estimate moderations and obtain the bias-corrected bootstrapped confidence intervals (Hayes, 2012). The SPSS macro PROCESS runs each predictor construct individually, with added predictor constructs run as covariates. The model consists of employees’ PsyCap as the predictor construct (X), HRF as the moderator (W), and JE as the dependent (Y). For the analyses, all the continuous constructs were mean centered, a 95% bias-corrected percentile bootstrapped confidence interval (CI) method was used, and 5,000 bootstrap re-samples were produced for moderate examination.

In terms of *Hypothesis 1*, we proposed the moderation role of local house ownership on the association between employees’ PsyCap and JE. The results show that the local house ownership strengthened the association between employees’ PsyCap and JE ( $\beta = 0.144, p < 0.05$ ). Furthermore, a follow-up simple slope analysis demonstrated that the positive association between employees’ PsyCap and JE was more pronounced among the employees who have local house ownership as compared to those who do not have local house ownership (see **Figure 1**). Hence, *Hypothesis 1* was fully supported.

In supporting *Hypothesis 2*, the results show that the positive association between employees’ psychological and JE was positively moderated by satisfaction toward local house price

**TABLE 1** | Means, standard deviations, Cronbach’s  $\alpha$ , and Pearson bivariate correlations of the study constructs.

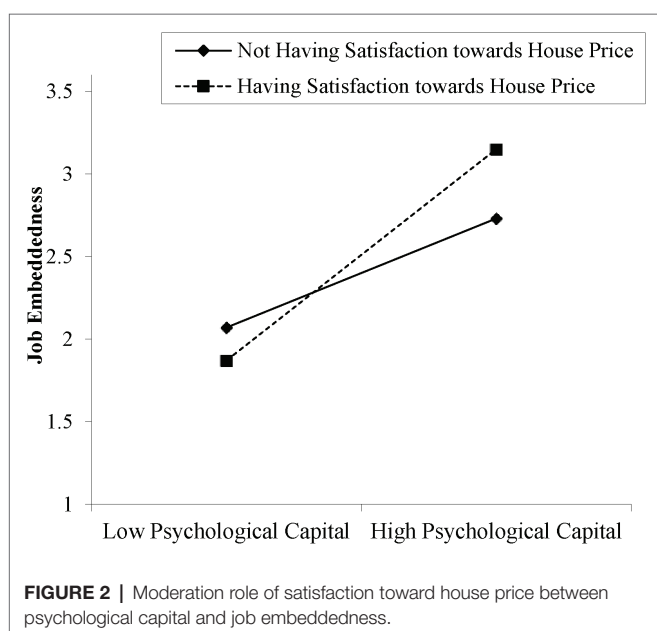
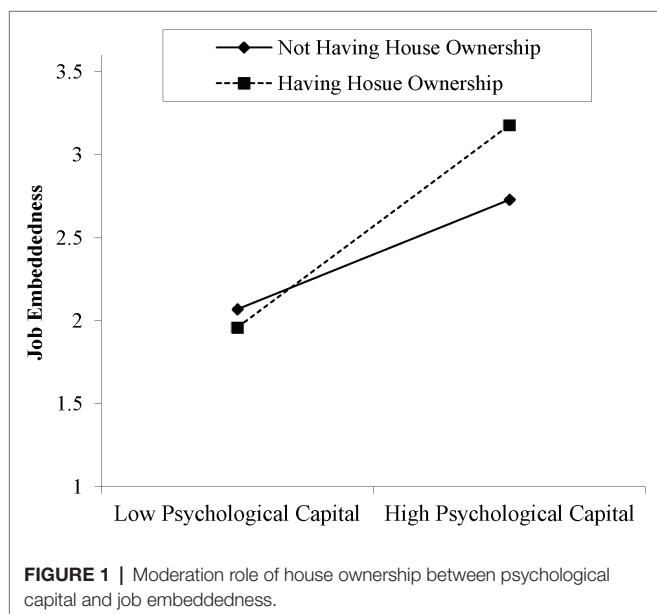
|                                | 1       | 2       | 3       | 4       | 5       | 6      | 7      | 8      | 9    |
|--------------------------------|---------|---------|---------|---------|---------|--------|--------|--------|------|
| 1. Psychological capital       | (0.92)  |         |         |         |         |        |        |        |      |
| 2. Job embeddedness            | 0.26**  | (0.94)  |         |         |         |        |        |        |      |
| 3. House ownership             | 0.54**  | 0.18**  | –       |         |         |        |        |        |      |
| 4. STHP                        | 0.45**  | 0.11*   | 0.57**  | –       |         |        |        |        |      |
| 5. Contribution to house funds | 0.38**  | 0.20**  | 0.56**  | 0.26**  | –       |        |        |        |      |
| 6. Sex                         | 0.07    | 0.21**  | –0.15** | –0.04   | 0.11*   | –      |        |        |      |
| 7. Marital status              | –0.33** | –0.09   | –0.16** | –0.09   | –0.25** | 0.44** | –      |        |      |
| 8. Age                         | –0.30** | –0.21** | –0.13*  | –0.31** | –0.10   | 0.18** | 0.76** | –      |      |
| 9. Education                   | –0.09   | –0.11*  | 0.04    | –0.29** | –0.16** | 0.15** | 0.14** | 0.29** | –    |
| Mean                           | 3.6     | 3.9     | 0.58    | 0.70    | 0.62    | 0.83   | 0.50   | 1.79   | 2.04 |
| Standard deviation             | 0.86    | 0.75    | 0.49    | 0.45    | 0.48    | 0.37   | 0.50   | 0.70   | 0.84 |

*N* = 312; numbers on the diagonal represent Cronbach’s  $\alpha$  of coefficients; STHP = satisfaction toward house price. \* $p < 0.01$ , \*\* $p < 0.05$ .



( $\beta = 0.261, p < 0.00$ ). Additionally, as presented in **Figure 2**, employees' PsyCap and JE were strengthened for those who feel satisfied toward local house price (see **Figure 2**) as compared to those who do not feel satisfied toward local house price. So, *Hypothesis 2* was supported.

Finally, in supporting of *Hypothesis 3*, the results show that the association between employees' PsyCap and JE was also positively moderated by the contribution to housing funds ( $\beta = 0.304, p < 0.00$ ). Additionally, as presented in **Figure 3**, employees' PsyCap and JE were strengthened for those who have a local housing funding-related benefit as compared to those who do not have local housing funding-related benefit (see **Figure 3**).

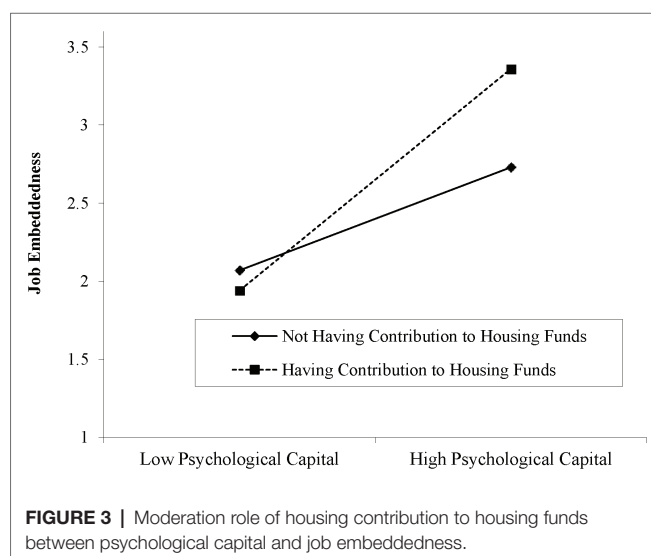


## DISCUSSION

All three hypotheses are fully supported; this current study thus examines the moderating role of HRF on the relationships between PsyCap and JE among manufacturing employees in an emerging entrepreneurial environment, China. By integrating contingency theory, our findings contribute to employees' PsyCap research by suggesting that the employees' PsyCap-JE linkage is affected by different housing-related factors, thus providing context-specific boundary conditions for this relationship. Overall, we make several theoretical and practical contributions to the existing body of knowledge in the following paragraphs:

First, we unveil the critical role of local house ownership in intervening the underlying linear mechanisms between employees' PsyCap and JE, such that the relationship is strengthened for those who have their own house. Prior studies have consistently found that an accessible and supportive residential environment for individuals has a positive influence on their overall employees' wellbeing (Rioux, 2005; Oswald et al., 2007; Ahn and Lee, 2016). This is an important extension to the employees' PsyCap and JE literature because previous research has not taken into account the possibility that house ownership-related factors could interpret embeddedness differently.

Second, our findings show that the housing-related factor and employees' satisfaction toward local housing price moderate the relationship between their PsyCap and JE, such that the relationship is stronger for those who feel satisfied toward local housing price. Our results to a certain extent echo prior research. Berry and Dalton (2004) reported that continuously increasing house prices have become the main reason for increasing the average wage level and social insurance of local people in major cities of Australia. Chen and Ellinger (2011) manifested that in no region of the world is the business environment more competitive and dynamic than in the hastily transforming and developing a nation of Republic of China where even during the global recession, the economy was growing exponentially and the housing price was continuously rising. Ren and Hu (2016) also argued that



the living and housing conditions in China have changed substantially after the Housing Reforms and housing price have become a major concern for all Chinese families. Viewed from this angle, we further argue that all firms in China should pay more attention to local housing price as it may largely influence employees' happiness at work and their willingness to stay or leave the organizations.

Third, we also found that the contribution to housing funds moderates the relationship between employees' PsyCap and JE, such that relationship is stronger for those who have housing-related social insurance. Moreover, our findings show that a place that provides circumstances making individuals feel more psychologically attached is more attractive and individual tends to reside there longer and also feels more embedded. Viewed from this angle, we further suggest that Chinese firms may consider the contribution to housing funds as a motivation strategy to retain good local employees.

Final, the findings of this study also support a "contingency perspective" (Donaldson, 2001) to HR practices. These practices are "contingent practices" in which they are more strongly related to employee attitudes and behavioral outcomes. Support for such a "contingency perspective" is also provided by Chen and Ellinger (2011), who reported that a necessary condition for employees' motivational and behavioral relationships is, depends on different critical environmental factors.

Findings provided are instructive to practitioners. Our findings reveal that individuals who have housing-related opportunities such as housing ownership, the higher level of satisfaction toward local housing prices, and contributions to housing funds as critical contingency factors that substantially change the relationship between employees' PsyCap and JE at the workplace. As such, critical contingency factors can also assist organizations in understanding employee needs and accordingly taking appropriate measures to increase employees' performance and retention. In particular, given the great importance of employees' PsyCap and JE on firm performance (Chin, 2015; Rafiq and Chin, 2019), firms in China should put housing as a critical incentive to motivate Chinese employees, while counselors and educators could use these three HRFs to diagnose the problems individuals have during their career development process. For example, in China's unique cultural context, these HRFs may be especially influential in increasing employees' PsyCap as well as embeddedness and "make them feel wanted."

Our study is not without limitations. First, given the research was conducted in the manufacturing industry in China, the generalizability of its findings to other societies or industries must be made with caution. As mention above, there is no country in the world that continuously makes progress in hastily changing, transforming, and developing a nation of Republic of China where the economy also keeps growing in the periods of recession (Chen and Ellinger, 2011). Therefore, our results might be unique to China and might not be applicable to other cultural contexts. Future research can be extended to include samples from other cultures or other industries for the aim of enhancing the external validity of the findings. Second, causal inference cannot be made due to the

non-experimental and cross-sectional nature of the current research design. Although the moderation model established by us was guided by empirical and theoretical research, it is possible that there are inverse relations between the variables. Furthermore, though we controlled for several potential demographic variables, we are unable to ignore the effects of all demographic variables. Thus, we call for future research to use a longitudinal design to further validate our hypothesized relationships found in the present research. Finally, our findings are based on self-reported data, which might be subjected to common method variance (CMV) issues (Podsakoff et al., 2012). Although we have employed several methods to reduce CMV (e.g., aggregation of individual responses and respondent confidentiality), and this problem may not be seen being completely eliminated. To better avoid potential CMV problems, we suggest that future researchers could incorporate multi-wave or multi-source data.

## DATA AVAILABILITY

The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

## ETHICS STATEMENT

This study was conducted in accordance with the ethical guidelines of the Institutional Review Board of Zhejiang University of Technology (ZJUT) in China, with written informed consent from all subjects. All the employees participated in the survey voluntarily. The protocol was approved by the Institutional Review Board of ZJUT and the Secretariat of Academic Committee of ZJUT, with the permit number 2019002.

## AUTHOR CONTRIBUTIONS

TR and MR were responsible for data collection. All authors contributed equally to formulating the conceptual framework, analyzing the data, and writing the manuscript.

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# Personal and Social Resources at Work: Reciprocal Relations Between Crafting for Social Job Resources, Social Support at Work and Psychological Capital

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The availability and development of social and personal resources are substantial components of a positive work experience. This study aims to inquire the reciprocal relations between the personal resource of psychological capital (PsyCap; hope, self-efficacy, resilience, and optimism) and the social job resource of social support, as proposed in the job demands-resources theory. There, job crafting is defined as a catalyst to the interplay of social support and PsyCap and is therefore added to this study. Moreover, we test the enabling hypothesis of social support in the context of work. We contribute to the field, as this research (a) examines propositions of a core theory, (b) adds and extends relevant hypotheses from health psychology into occupational psychology, and (c) aims to replicate findings. To capture the dynamic nature of the selected, relevant relationships of the job demands-resources theory, we used a three-wave, 3-month panel design to study 995 employees who were working in a broad range of economic sectors and occupations. Structural equation modeling was used to test hypotheses. Results showed, that social support at work positively influenced the development of PsyCap, supporting and extending the enabling hypothesis of self-efficacy. Counterintuitively, PsyCap and crafting for social job resources were negatively related, indicating (a) that the reliance on personal resources might reduce the necessity to generate social resources, and (b) that crafting is a strategy that consumes personal resources. Previously observed gain cycles were not replicable.

**Keywords:** psychological capital, social support, job crafting, job demands – resources theory, enabling hypothesis

## INTRODUCTION

Today, the so-called digital, or fourth industrial revolution, is ever-present. This development is noticeably changing the face of work in a significant haste, offering new options for employees and organizations, and at the same time poses challenges to both (Neufeind et al., 2018). Such a development implies a considerable demand for social and personal resources, to adapt to and to actively craft changing work situations. Thus, both, social resources, such as peer and supervisor



support, as well as personal resources, as self-efficacy, optimism, hope and resilience, are becoming more and more important. At the same time, new technologies facilitate the development of new working modes, including crafting job demands-resources at work, in accordance with own needs and standards. To our best knowledge, this is the first study that combines crafting with individual and social resources in the field of occupational health psychology, adding hypotheses regarding self-efficacy to the study framework.

These entities are captured and theoretically framed in one of the most established theories in the field of occupational health psychology, that is the job demands-resources (JD-R) theory (Demerouti et al., 2001; Bakker and Demerouti, 2017)<sup>1</sup>. The JD-R theory considers the interplay of job demands and resources as relevant for overall job performance (Bakker and Demerouti, 2017). This theory is the overarching framework for our study and defines two entities:

*Job demands are those physical, social, or organizational aspects of the job that require sustained physical and/or psychological effort and are therefore associated with physiological and/or psychological costs. Job resources are those physical, social, or organizational aspects of the job that (a) are functional in achieving work-related goals, (b) reduce job demands and the associated physiological and psychological costs, and (c) stimulate personal growth and development (Xanthopoulou et al., 2007, p. 122).*

For the development of our hypotheses, we highlight two aspects of the JD-R theory (Bakker and Demerouti, 2017, p. 275): Aspect 1 holds the assumption that personal resources could have similar functions as job resources. In addition, and for this study of particular interest, this aspect holds that both personal and job resources interact in a positive, self-reinforcing way with each other. This interaction is conceptually preceded by aspect 2, which states that job crafting leads to higher levels of both, personal and job resources.

Designing a job according to one's need, in other words, "crafting the job" (Wrzesniewski and Dutton, 2001), is a popular concept in the field of occupational health psychology. Crafting is the subject of a large body of literature. According to Tims et al. (2012) proactive job crafting aims for four key elements of the JD-R theory: (1) increasing structural job resources; (2) increasing social job resources; (3) increasing challenging job demands; (4) decreasing hindering job demands. Empirically, Tims et al. (2013) showed in a three-wave longitudinal study that job crafting predicted substantial changes in job demands and resources in general. Specifically, crafting for *social job resources* increased well-being (i.e., work engagement and job satisfaction) and decreased burnout.

As social job crafting seems to be crucial, recent studies have emphasized the need for more research on this social aspect of job crafting (Rofcanin et al., 2018; Zhang and Parker, 2018). Thus, in this study, we explicitly focus on crafting for social job resources. Regarding social job resources, we focus on social support at work as a highly important job resource. As a key aspect of the basic human need for relatedness (Ryan and Deci, 2000), social support

at work is relevant for job satisfaction and job tenure (Harris et al., 2007), and the reduction of work to family conflicts (Kossek et al., 2011). It has also been identified as a relevant buffer in overall work stress and strain (for a review see Viswesvaran et al., 1999), work-family conflict (Kossek et al., 2011), and turn-over intention (Nohe and Sonntag, 2014).

Because job crafting is a strategy used to establish a fit between the person and the environment, not only the social context (in the context of this study, the degree of social support at work) but also the person and his or her specific characteristics are of great importance, which is reflected in the JD-R theory (Bakker and Demerouti, 2017). According to this theory, job crafting has a positive effect on both job resources and personal resources. Therefore, in this study, we also focus on personal resources that are operationalized by the well-established concept of PsyCap, which is conceptualized as a state-like, higher-order factor that contains four subdimensions: hope, self-efficacy, resilience, and optimism (Luthans and Youssef, 2004). Regarding the relevance of PsyCap for the field of occupational health psychology, Avey et al. (2010) found that PsyCap was positively related to extra role organizational citizenship behaviors and negatively related to organizational cynicism, intention to quit, and counterproductive workplace behaviors. Additionally, these authors were able to predict self-evaluation, person-to-organization fit, and person-to-job fit by applying PsyCap. To study PsyCap, we integrate them into two hypotheses, that stem from self-efficacy research. To our knowledge, neither the enabling nor the cultivation hypothesis were verified with PsyCap, additionally, not in the work context. Beyond that, this study contributes to the field as it offers a broad picture by integrating relevant variables into a joint model.

## Aim and Hypotheses

This study aims to systematically assess the interactions among three highly important concepts as predicted by the JD-R theory: Crafting for social job resources, social support at work, and PsyCap. Previous research has provided fragmented evidence for unidirectional as well as reciprocal interactions among these concepts. In the following, we review this literature to develop hypotheses regarding unidirectional relationships of all three variables. We then introduce reciprocal hypotheses.

## Social Support at Work Leads to PsyCap and Vice Versa

Job resources, including social support at work, resulted in a higher dedication to work and a stronger organizational commitment (Bakker et al., 2003). Moreover, social support is an important source of extrinsic motivation in the workplace (Bakker, 2008). The *enabling hypothesis* (Benight and Bandura, 2004) states that social support enables self-efficacy by the positive experience of success and mastery. Through this psychosocial mechanism, one may assume, that social support at work fosters PsyCap in general. As an experience of success and mastery, this mechanism will also positively influence other subdimensions, such as hope, resiliency, and optimism. In summary, "events that are currently occurring in an employee's

<sup>1</sup> Approximately cited 7.500 times in Google Scholar – August 2019.

social environment continuously shape his/her confidence, hope, optimism, and resiliency” (Luthans and Youssef, 2004, p. 157). Therefore, we hypothesize the following:

*Hypothesis 1a: Social support at work at T1 has a positive, cross-lagged effect on PsyCap at T2 and correspondingly from T2 to T3.*

The *cultivation hypothesis* (Schwarzer and Knoll, 2007) states that self-efficacy enables social support. That is, because self-efficacious persons expect positive outcomes from their interactions with other persons, they will actively seek social interactions (Alessandri et al., 2009). Additionally, higher levels of self-efficacy result in positive perceptions of the received social support at work (Borgogni et al., 2011). In summary, individuals with high self-efficacy are more prone to interact in everyday work settings, which is in accordance with other PsyCap subdimensions. So far, there is no evidence above and beyond self-efficacy regarding this. Because of this, we will extend the cultivation hypothesis, which is so far specified on self-efficacy, and integrate the entire PsyCap complex into our research hypothesis. This is done, because positive psychological constructs, and in addition to self-efficacy, also optimism, resilience and hope may enable social support. We therefore hypothesize:

*Hypothesis 1b: PsyCap at T1 has a positive, cross-lagged effect on social support at work at T2 and correspondingly from T2 to T3.*

## Does Social Support Lead to Crafting for Social Job Resources and Vice Versa?

Most workplaces are shaped by social interactions (Grant and Parker, 2009). Job crafting depends on the quality of the social relations and interactions at work (Rofcanin et al., 2018), also because colleagues transmit their job crafting styles among each other (Demerouti and Peeters, 2018). Individual job crafting contributes to the proactivity of colleagues and team members and to their own job crafting behavior; it therefore seems to be a socially reciprocal concept that relies on social interaction (Bakker et al., 2015). It could be imagined that a stimulating and positive framework of social support at work would be a job resource that fostered individuals' opportunities at their workplace. In detail, crafting for social job resources refers to the resources social support, supervisory coaching, and feedback, as proposed by Tims et al. (2012). Hence, crafting might be executed according to agreements with colleagues and supervisors. Work-home interactions and others then could be crafted according to the individual's needs and standards. Therefore, job crafting could be supported and shaped by social support at work and depends on the quality of the social interactions. Therefore, we hypothesize the following:

*Hypothesis 2a: Social support at work at T1 has a positive, cross-lagged effect on crafting for social job resources at T2 and correspondingly from T2 to T3.*

Can crafting for social job resources also contribute to social support at work? It has been documented that job crafting

based on its social dimension can result in a substantial improvement in job resources on a general level (Tims et al., 2013). Thompson (2005) applied a social capital perspective to explain the positive interaction between the proactive personality and job performance. The social capital concept of Nan Lin (2002), to which Thompson referred, contains three elements: “resources embedded in a social structure; accessibility to these social resources by individuals; and use or mobilization of them by individuals *engaged in purposive action*” [Lin et al., 2001, p. 58 (emphasis added)]. These elements fit the association between crafting for social job resources and social support at work because they involve the action orientation of social capital. Crafting for social job resources reflects the proactive mobilization of social capital and therefore social support in workplace settings. Thus, we hypothesize that crafting for social job resources had a relevant effect on the extent of received social support:

*Hypotheses 2b: Crafting for social job resources at T1 has a positive, cross-lagged effect on social support at work at T2 and correspondingly from T2 to T3.*

## PsyCap Leads to Crafting for Social Job Resources and Vice Versa

In the present study, we are interested in the extent to which a person's PsyCap leads to a proactive action to specifically craft his or her working conditions. Bakker et al. (2012) showed that persons with proactive personalities, that can be seen as a personal resource and an individual level prerequisite to crafting, are more likely to change job-related circumstances in a positive way, and the same research group outlined that self-efficacy as a subdimension of PsyCap, is related to general job crafting (Tims et al., 2014).

Previous research has indicated, that individual factors, such as the Big Five personality traits, are predictors of job crafting. For example, increasing social job resources was significantly correlated with Agreeableness, Extraversion, and Openness to experience (Bell and Njoli, 2017). Consequently, a person with high PsyCap might craft a job more likely. This is, as optimism and hope are linked to motivation, and individuals with high optimism are more likely to engage in proactive behaviors or goal engagement, and they are better at balancing effort expenditures (for an overview see Carver and Scheier, 2014). A subdimension of PsyCap, self-efficacy is related to general job crafting (Tims et al., 2014), and it may specifically foster crafting for social job resources. Overall, it seems plausible that PsyCap might motivate an individual to behave proactively in general (Luthans et al., 2007b). Therefore, we hypothesize:

*Hypotheses 3a: PsyCap at T1 has a positive, cross-lagged effect on crafting for social job resources at T2 and correspondingly from T2 to T3.*

The dimensions of PsyCap have been characterized as state-like and open to development (Luthans et al., 2007), and they have been shown to alter and change significantly (Luthans et al., 2010). Moreover, because of its plasticity, training to foster

PsyCap has been emphasized (Luthans et al., 2012). In a quasi-experimental field study, Van den Heuvel et al. (2015) found that an intervention led to more affective well-being and self-efficacy through job crafting. Previous research also provided evidence for the contribution of job crafting to all PsyCap subdimensions (Vogt et al., 2016). Thus, the context in which one works and the opportunities to craft the job context, might have a substantial impact on the subdimensions of PsyCap. For example, employees who successfully adapted their working circumstances by crafting, may experience a positive result of their efforts in personal resources, as formulated in aspect 2 of the JD-R theory (Bakker and Demerouti, 2017). Consequently, PsyCap subdimensions such as hope, resilience and optimism will increase and accumulate as a result of this experience. Hence, the impact of job crafting on PsyCap could be interpreted as the generalization of self-determined workplace experiences to the accumulation of personal resources. Therefore, we hypothesize:

*Hypotheses 3b: Crafting for social job resources at T1 has a positive, cross-lagged effect on PsyCap at T2 and correspondingly from T2 to T3.*

## Reciprocal Interactions or Gain Cycles Between Psychological Capital, Social Support at Work, and Crafting for Social Job Resources

So far, we outlined evidence that positive interactions between 2 of the studied concepts are plausible. In the following, we therefore investigate the reasonable question whether all 3 concepts interact in a self-reinforcing positive gain cycle or even spiral which each other.

Several studies in the field of occupational health psychology have reported reciprocal relationships among job resources, personal resources, and health and well-being. For instance, a longitudinal study among school teachers found that personal resources (efficacy beliefs) and organizational resources (social support orientation, innovation orientation, rules orientation, and goals orientation) fostered flow experiences, which predicted future resources (Salanova et al., 2006). Hakanen et al. (2008) reported positive reciprocal associations among job resources, work engagement, and personal initiative. Similarly, Salanova et al. (2011) showed the reciprocal influence of the personal resources of efficacy and work engagement. In another study, interactions among PsyCap, job performance, and work engagement during a 1-year span indicted a gain cycle of respective variables (Alessandri et al., 2018).

In combination, aspect 1 and 2 of the JD-R theory form a starting point for a gain cycle as job resources and personal resources are hypothesized mutually re-enforcing and as job crafting is hypothesized to lead to higher levels of both job and personal resources. According to the conservation resources theory (COR; Hobfoll, 1989, 2001), individuals conserve existing resources and accumulate new resources to buffer the effects of stress. The theory was successfully adapted to the field of occupational health psychology in order to explain gain cycles

(Llorens et al., 2007; Harju et al., 2016). Therefore, we expect to find gain cycles of social support, PsyCap, and crafting for social job resources because (a) resources were reasoned above to interact bidirectionally, potentially adding up to a full gain cycle, and (b) all three components are relevant resources in the COR theory which substantiates gain cycles in the literature. We hypothesize:

*Hypothesis 4: Social support, PsyCap and crafting for social job resources are reciprocally interacting and establishing a gain cycle.*

## MATERIALS AND METHODS

### Participants and Procedure

This study is based on three waves of longitudinal data with a time interval of 3 months. Participants from German-speaking countries (Austria, Germany, and Switzerland) were recruited through an online panel data service. Participants received a minimal incentive to participate. Their participation was voluntary, and the anonymity and confidentiality of the data were guaranteed. Participants had to submit their informed consent prior to the study by clicking a check box in the online questionnaire. The composition of the sample was determined to ensure a representative distribution of participant characteristics, that is in line with the studied populations. This was done based on data provided by the census bureau of the respective country (<http://www.statistik> for Statistik Austria, [www.destatis.de](http://www.destatis.de) for Germany, and [www.bfs.admin.ch](http://www.bfs.admin.ch) for Switzerland). Regarding relevant demographic variables (age, organizational tenure, education, and the industrial sectors) it can be stated that the data collected represents the working population of the studied countries very well (for more details see Vogt et al., 2016).

Employees who indicated that they worked more than 20 h per week in an employed job were included in the study. Additionally, age constraints were set to a range of 18–65 years. These criteria resulted in a sample of 1,852 employees who completed the questionnaire in the first wave. After 3 months, 1,229 of the first wave participants participated in the second wave. Six months after the baseline measurement, 995 employees participated in wave three.

Moreover, we tested for the presence of non-random sampling by means of a logistic regression as recommended by Goodman and Blum (1996). Nagelkerke  $R^2$  indicated that the explained variance in all estimated models was not substantial, and therefore no variable systematically contributed to the dropout: PsyCap ( $B = 0.12$ ;  $SE = 0.06$ ;  $p < 0.05$ ; Nagelkerke  $R^2 = 0.00$ ), social support by managers ( $B = 0.00$ ;  $SE = 0.05$ ;  $p = 0.86$ ; Nagelkerke  $R^2 = 0.00$ ), social support by colleagues ( $B = 0.12$ ;  $SE = 0.06$ ;  $p < 0.05$ ; Nagelkerke  $R^2 = 0.00$ ), crafting for social job resources ( $B = 0.12$ ;  $SE = 0.07$ ;  $p = 0.07$ ; Nagelkerke  $R^2 = 0.00$ ).

Of the final sample across all three waves, 54% were from Germany, 32% were from Austria, and 14% were from Switzerland. There were more male participants (63%) with



a mean age of 41.2 years. In the health and social sector worked 10%; 12% in the public/defense/social security sectors; 8% in trading; 9% in the production of goods; 8% in information/communication; 6% in finance/insurance; 7% in technology/science; 5% in education. The remaining participants worked in the real estate, hospitality, transport and building industries. Forty percent had completed an apprenticeship, and 33% had earned a degree from a higher educational institution. The mean organizational tenure was 10.7 years ( $SD = 9.1$ ).

## Measures

All measures that were validated in languages other than German were translated into German and then checked for accuracy, using the back-translation procedure.

*Psychological capital* was measured by the PCQ-12 (Luthans et al., 2007a), which is especially compatible for use in longitudinal research (Avey et al., 2008). Its items apply a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The “hope” subscale was derived from the State Hope Scale (Snyder et al., 1996). The “optimism” items were adopted from Scheier and Carver’s (1985) measure of optimism. The “self-efficacy” in the workplace items were adopted from Parker (1998), and “resilience” was based on the Resilience Scale (Wagnild and Young, 1993).

*Crafting for social job resources* was assessed by the items of the subdimension *Increasing social job resources* of the Job Crafting Scale (Tims et al., 2012): “I ask my supervisor to coach me”; “I ask whether my supervisor is satisfied with my work”; “I look to my supervisor for inspiration”; “I ask others for feedback on my job performance”; and “I ask colleagues for advice.” All items were rated on a 5-point Likert scale with the endpoints of “never” and “very often.”

We assessed two sources of *social support* that are relevant to a broad range of jobs and organizations. Items are taken from the Management Standards Indicator Tool developed by the UK’s Health and Safety Executive (HSE; Cousins et al., 2004): *Peer support* (“I get the help and support I need from my colleagues”) and *manager support* (“My line manager encourages me”). Both items were selected because they had the highest factor loadings in the two subscales of the HSE indicator tool, that referred to social support (Cousins et al., 2004, p. 129). The items were measured using a 5-point Likert scale ranging from 1 (never) to 5 (very often).

## Data Analysis

The data were analyzed using structural equation modeling techniques with the IBM AMOS 25 software package (Arbuckle and Wothke, 1999). We assessed several nested models using the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the normed fit index (NFI), and the Tucker-Lewis index (TLI) with conventional cut-off values (RMSEA < 0.08; CFI > 0.95; NFI > 0.95; TLI > 0.95) (Schermelele-Engel et al., 2003). We compared them with the results of chi-square difference tests (Jöreskog and Sörbom, 1993). The error terms of the indicators and latent variables were allowed to covary with the corresponding error terms of the other

two waves and according to the resulting modification indices of model tests (Newsom, 2015, p. 126).

## RESULTS

### Cross-Lagged Interactions Between Study Concepts

As a first step of the analysis, correlations and reliabilities of scales and respective variables were calculated (Table 1). The fit indices of all tested models are shown in Table 2, which also shows the differences between the hypothesized models and the baseline (i.e., the null model). In meeting the preconditions, all tested models exceeded the null model. To test the hypotheses in the first step of the analysis, a stability model M1 was tested, in which baseline values were predictors of the latent variables. This model was compared to the initial null model and fitted better with the data (M0 vs. M1:  $\Delta\chi^2 = 3221.5$ ,  $\Delta df = 6$ ,  $p < 0.001$ ). In the second step, a fully mediated causality model M2 (in which PsyCap predicted crafting for social job resources and crafting for social job resources predicted social job resources over all three measurement timepoints) was compared to the stability model M1. The fit of the causality model M2 was not superior to that of the stability model (M1 vs. M2:  $\Delta\chi^2 = 3.23$ ,  $\Delta df = 6$ ,  $ns$ ). Furthermore, the fully mediated reversed causality model M3 (in which social job resources predicted crafting for social job resources and crafting for social job resources predicted PsyCap) matched the data significantly better than the stability model did (M1 vs. M3:  $\Delta\chi^2 = 82.74$ ,  $\Delta df = 6$ ,  $p < 0.001$ ). Therefore, the cross-lagged paths led to an improved model in comparison to the previously tested models, including temporal stability and simple causality. Finally, we tested the reciprocal model M4 with mediated pathways in both directions (i.e., causal and reversed causal). The statistical quality of this model did not significantly differ from the reversed model (M3 vs. M4:  $\Delta\chi^2 = 20.15$ ,  $\Delta df = 6$ ,  $ns$ ). Notwithstanding, we referred to model M4 for further interpretation because it contained more information regarding the research questions and hypotheses (see Figure 1).

Figure 1 shows that social support at work had no significant cross-lagged effect on PsyCap from T1 to T2 ( $\beta = 0.05$ ,  $ns$ ), but it did have an effect from T2 to T3 ( $\beta = 0.13$ ,  $p < 0.001$ ). Thus, Hypothesis 1a is partially supported.

The paths from PsyCap to social support at work were not significant at either interval (from T1 to T2:  $\beta = -0.06$ ,  $ns$  and from T2 to T3:  $\beta = 0.01$ ,  $ns$ ). Thus, Hypothesis 1b is rejected.

Social support at work had a significant cross-lagged effect on crafting for social job resources from T1 to T2 ( $\beta = 0.24$ ,  $p < 0.001$ ) and from T2 to T3 ( $\beta = 0.26$ ,  $p < 0.001$ ). Thus, Hypothesis 2a is fully supported. Crafting for social job resources had no significant cross-lagged effect on social support at work from T1 to T2 ( $\beta = -0.11$ ,  $ns$ ) or from T2 to T3 ( $\beta = 0.01$ ,  $ns$ ). Thus, hypothesis 2b is rejected.

The paths from PsyCap to crafting for social job resources were significantly negative from T1 to T2 ( $\beta = -0.11$ ,  $p < 0.001$ ) and from T2 to T3 ( $\beta = -0.06$ ,  $p < 0.05$ ). Thus, Hypothesis 3a is not confirmed. Testing for reverse effects, crafting for social



**TABLE 1 |** Means (*M*), standard deviations (*SD*), internal consistencies (Cronbach's alpha), and partial correlations (controlled for age, tenure, and education) of studied variables (*N* = 995).

|                        | <i>M</i> | <i>SD</i> | $\alpha$ | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       |
|------------------------|----------|-----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Support col/Mgmt T1 | 3.43     | 0.89      | 0.52     |         |         |         |         |         |         |         |         |
| 2. Support col/Mgmt T2 | 3.35     | 0.92      | 0.55     | 0.66*** |         |         |         |         |         |         |         |
| 3. Support col/Mgmt T3 | 3.38     | 0.90      | 0.58     | 0.63*** | 0.66*** |         |         |         |         |         |         |
| 4. Job crafting T1     | 2.61     | 0.69      | 0.79     | 0.50*** | 0.34*** | 0.43*** |         |         |         |         |         |
| 5. Job crafting T2     | 2.54     | 0.69      | 0.81     | 0.40*** | 0.42*** | 0.38*** | 0.62*** |         |         |         |         |
| 6. Job crafting T3     | 2.52     | 0.66      | 0.79     | 0.36*** | 0.34*** | 0.43*** | 0.60*** | 0.66*** |         |         |         |
| 7. PsyCap T1           | 4.50     | 0.81      | 0.87     | 0.36*** | 0.31*** | 0.32*** | 0.23*** | 0.11**  | 0.12*** |         |         |
| 8. PsyCap T2           | 4.47     | 0.81      | 0.87     | 0.28*** | 0.30*** | 0.30*** | 0.11*** | 0.16*** | 0.12*** | 0.75*** |         |
| 9. PsyCap T3           | 4.45     | 0.79      | 0.86     | 0.29*** | 0.30*** | 0.35*** | 0.16*** | 0.10**  | 0.15*** | 0.71*** | 0.74*** |

T1, wave 1; T2, wave 2; T3, wave 3. \*\* $p < 0.01$  and \*\*\*  $p < 0.001$ .

**TABLE 2 |** Fit statistics of the studied models.

| Model                 | $\chi^2$ | df  | CFI   | TLI   | NFI   | RMSEA | Model comparison | $\Delta\chi^2$ -Diff | df-Diff |
|-----------------------|----------|-----|-------|-------|-------|-------|------------------|----------------------|---------|
| M0. Measurement model | 3927.15  | 170 | 0.746 | 0.686 | 0.738 | 0.149 |                  |                      |         |
| M1. Stability model   | 705.64   | 164 | 0.963 | 0.953 | 0.953 | 0.058 | M0 – M4          | 3324.4***            | 18      |
| M2. Causality model   | 702.41   | 158 | 0.963 | 0.951 | 0.953 | 0.059 | M1 – M4          | 102.89***            | 12      |
| M3. Reversed model    | 622.90   | 158 | 0.969 | 0.958 | 0.958 | 0.054 | M2 – M4          | 99.66***             | 6       |
| M4. Reciprocal model  | 602.75   | 152 | 0.970 | 0.958 | 0.960 | 0.055 | M3 – M4          | 20.15 ns             | 6       |

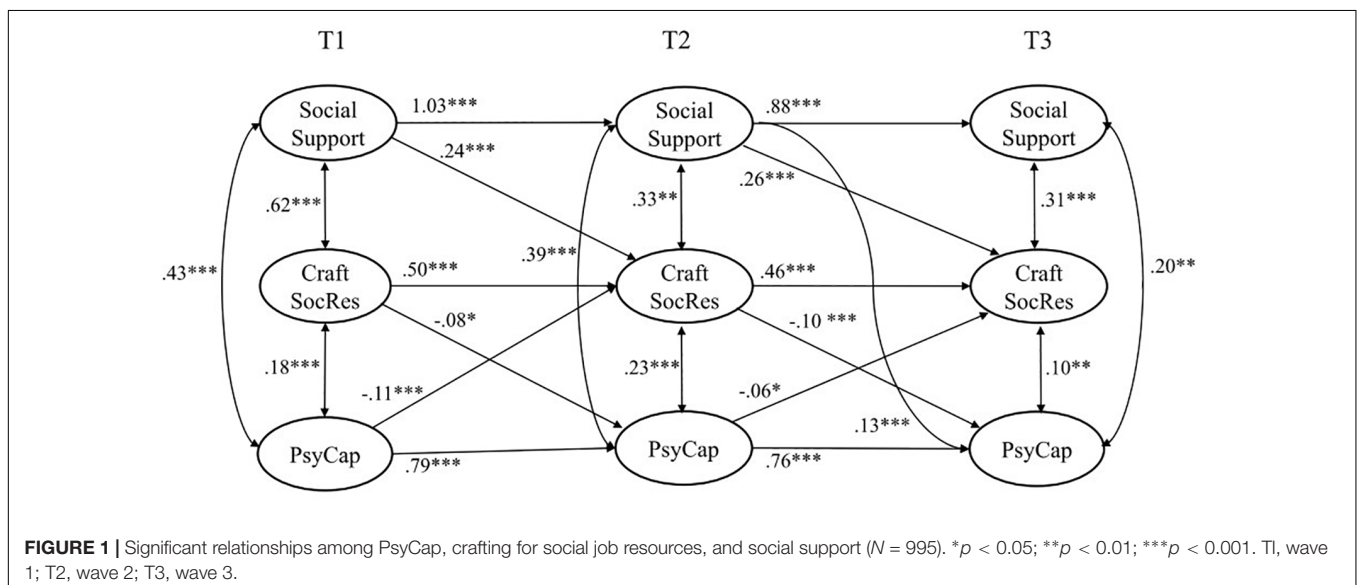
\*\*\* $p < 0.001$ .

job resources had a significant negative cross-lagged effect on PsyCap from T1 to T2 ( $\beta = -0.08$ ,  $p < 0.05$ ) and from T2 to T3 ( $\beta = -0.10$ ,  $p < 0.001$ ). Thus, hypothesis 3b is rejected.

It was expected that social support, PsyCap, and crafting for social job resources are resources that interact according to the COR theory and constitute gain cycles (Hypothesis 4). Several interactions were found to be substantial, such as the effects of social support on crafting for social job resources. However, a full systematic gain cycle of interacting resources between all stages of measurements was not found.

## DISCUSSION

The aim of the present study was to systematically assess the reciprocal relationships among three important concepts in occupational health psychology: PsyCap, job crafting, and job resources. The latter two were assessed according to their social dimensions, that is, crafting for increasing social job resources and social support from colleagues and supervisors. Even though, these concepts are highly relevant, the research on its reciprocal interactions is limited and is therefore extended by this study.



Specifically, we add an overall view of the integrated variables to the research in this area, that goes beyond previous analyses of singular and fragmented associations. An important feature of this study is that it integrates and examines established hypotheses on self-efficacy in the study of PsyCap, crafting and social support. To our best knowledge, this is done here for the first time.

Relationships among the concepts are proposed in the theoretical framework of the JD-R theory, which has influenced the discourse in occupational health psychology and beyond. In this theoretical framework, we integrated two hypotheses: The *enabling hypothesis* (Benight and Bandura, 2004) and the *cultivation of social resources hypothesis* (Schwarzer and Knoll, 2007). Both are directly related to self-efficacy, which is a subdimension of the higher order construct PsyCap.

Gain cycles have been observed, composed of the here studied concepts (e.g., Salanova et al., 2011). We were therefore interested in replicating these findings. To do so, a three-wave full panel design, that can be deemed as representative for the working population of Austria, Germany, and Switzerland, was analyzed with structural equation modeling.

## Social Support at Work Leads to PsyCap

The results indicated that social support at work had a positive effect on PsyCap over time, which was shown by the respective positive longitudinal effect (Hypothesis 1a). This finding supports the *enabling hypothesis* (Benight and Bandura, 2004), which states that social support enables self-efficacy by the positive experiences of success and mastery. For the first time, this hypothesis was expanded to the entire PsyCap complex, here in the context of occupational psychology. This finding is additionally in line with aspect 1 of the JD-R theory, in which it is stated, that job resources amplify personal resources. Social resources exert a positive effect on personal resources, an effect that was not reciprocal (Hypothesis 1b). These results did not support the *cultivation of social resources hypothesis*, which assumes that social resources increase because of higher degrees of self-efficacy.

We assume that the high degrees of self-efficacy and of PsyCap might imply that employees feel more self-sustaining, thus perceiving no need to further increase their social resources.

## Social Support at Work Leads to Crafting for Social Job Resources

Social support at work had a substantial positive effect on crafting for social job resources in all study intervals. Hence, those who had social resources at their disposal showed a high degree of crafting for social job resources and create situations at the workplace according to their needs. Social support at work was therefore shown to be a facilitating factor in job crafting behaviors on the social dimension. Thus, Hypothesis 2a is supported.

It was assumed that crafting for social job resources had the capacity to mobilize social capital and therefore social support at work (Hypothesis 2b), which could not be shown longitudinally. Accordingly, crafting was not successfully resulting in an enhancement of an individual's social capital (Lin, 2002).

Aspect 2 of the JD-R theory, that states that crafting leads to more job resources, cannot be confirmed for the job resource of social support.

It is noticeable, that crafting and social support were already linked at T1 cross sectionally. Potentially reaching a threshold of crafting at this starting point of our study. Afterward, this link remained stable on a high level and did not add any positive effects furthermore over time. This seems reasonable, because the studied concepts were notably constant. The finding leads to the future research question, when and if the effect of crafting can be saturated and individuals consequently do not invest further resources in it?

## Negative Associations Between PsyCap and Crafting for Social Job Resources

PsyCap integrates subdimensions that are highly relevant primers of behavioral outcomes. It was hypothesized that higher PsyCap as a personal resource deploys crafting for social job resources and vice versa. As expected, both components were positively related to one another at the cross-sectional level. Counterintuitively, PsyCap had a negative longitudinal effect on crafting for social job resources over time (between T1 and T2 as well as between T2 and T3: Hypothesis 3a). Once more, this finding discharges the cultivation hypothesis of self-efficacy. Moreover, it supports the notion that the availability of positive personal resources, makes job crafting in the social dimension redundant. This interpretation is also assisted by previous research results, that is (a) that social costs emerge from seeking support in the workplace (Putnam and Mumby, 2014) and (b) that personal resources and respective positive self-concepts lead to more self-reliant strategies in problem solving (Bandura, 2012).

Crafting for increasing social resources did not result in more PsyCap (hypothesis 3b), rather indicated slightly negative results. This finding contributes to the debate on job crafting as an adaptive behavior (Berg et al., 2010). For example, a parent of a young family must meet challenges regarding the compatibility of family and career. He or she adapt to these new situations using crafting behaviors. In the social dimension, crafting then might consume personal resources, which was indicated by the negative effect on PsyCap. That proactive behaviors require resource expenditure is part of an upcoming research stream (Strauss et al., 2017; Parker et al., 2019), to which this finding contributes. In addition, it may be mentioned, that Van den Heuvel et al. (2015) reported, that crafting did influence self-efficacy, but the effect was delayed over the period of a 4-week intervention study. They referred the occurrence of the effect to an additionally, during the studied intervention offered reflection session, that might have helped to establish the effect of crafting on self-efficacy. This underlying systematic may also be relevant for other PsyCap subdimensions. It is reasonable to assume, that the effects of job crafting are not immediately apparent to the person using it. This has so far not been sufficiently researched for PsyCap in organizational contexts. However, we cannot confirm the second aspect of the JD-R theory in this case.

The absence of expected gain cycles might have been caused by this special role of crafting for social job resources as an adaptive strategy in demanding circumstances. To our knowledge, the perspective of crafting as an adaptive strategy has not been studied in the context of gain cycles before.

## Limitations

Some limitations of this study need to be addressed. First, the measures were self-reported, which might have skewed the relationships between the studied concepts by the common method bias (Podsakoff et al., 2012). To counteract this bias, the recommendations of Podsakoff and colleagues were considered (e.g., the participants were informed that there were no wrong or right answers). Additionally, the panel design used in this study reduced the risk of the common method bias (Jakobsen and Jensen, 2015).

Second, the extent to which psychosocial constructs vary or remain stable over time is not yet clear (for a discussion of this phenomenon in the field of personality psychology see Fraley and Roberts, 2005). Nevertheless, the cross-lagged effects presented here indicate a certain stability because the measured constructs were stable over time.

Third, the hypotheses were tested by measuring changes in the levels of PsyCap, crafting behavior, and perceived social support. Even if the present study fulfilled the need for a longitudinal study design, the results did not demonstrate whether the effects would be valid in practice (Taris and Kompier, 2014).

Fourth, although the longitudinal design allowed for measuring the variance in the measured concepts over time, other external influences were not controlled for, which may have influenced the results. A future quasi-experimental design would help to control for external influences (Cook et al., 2002).

## Practical Implications

Crafting is widely promoted as an effective way of designing one's own working environment. This approach offers employees and organizations options for work design that has been proven in many studies. The results presented here show that crafting is not a stand-alone concept. Rather, the embedding in positive social contexts is relevant. In detail, requesting support can cost colleagues and supervisors time and effort. Consequently, if the absorption of social interaction is costly, this important job resource could remain unused. Therefore, working environments that enable efficient and resource-rich social interaction and support must be ensured. Otherwise, individuals who have resources of the PsyCap dimensions will rely on them and not craft for social support.

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## CONCLUSION

This study advances the knowledge of the interactions among the social resources of social support, crafting for social job resources, and the personal resource of PsyCap, in the realm of occupational health psychology. The study was conducted using a large longitudinal and heterogeneous sample, that included employees working in manifold areas of work and economic sectors. Its results support the enabling hypothesis of social support and yielded mixed support for propositions of the JD-R theory. It additionally contributes to the field, as this research examines basic theories and propositions by means of replication.

Social support at work positively supported PsyCap, in accordance with the enabling hypothesis of self-efficacy. For the first time, this hypothesis was tested in the field of occupational health psychology and extended to the whole PsyCap construct. PsyCap and crafting for social job resources were not supporting each other. We conclude that under the condition of high availability of personal resources, social resources are requested and accumulated less. That is also the case, as crafting might be a behavior that requires substantial resources. Previously observed gain cycles were at that point not replicable. Further research is needed to understand some of these unexpected results regarding demanding and resource depleting side of proactive behaviors at the workplace.

## DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

## ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

The data analysis and manuscript was prepared by PK with support from RB and GB. All authors critically reviewed and contributed to the manuscript, and approved the final version.

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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# Assessing the Mediation Mechanism of Job Satisfaction and Organizational Commitment on Innovative Behavior: The Perspective of Psychological Capital

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Due to increasingly intense competition among companies, employees' innovative behavior has not only become a crucial factor for company development but also a topic of broad and current interest among companies and researchers. It is a requisite for companies to identify the antecedents of employees' innovative behavior. The main objective of this study was to investigate the effect of psychological capital (PsyCap) on employees' innovative behavior through its relationship with job satisfaction and organizational commitment. The partial least squares method was adopted in this study to analyze 266 employees from China. The results showed that PsyCap had positive effects on job satisfaction and organizational commitment, and verified the relationship between employees' innovative behavior and their job satisfaction and organizational commitment. Moreover, the mediating effect of PsyCap in terms of job satisfaction and organizational commitment on employees' innovative behavior was verified by a mediation analysis. Employees' innovative behavior is not only essential for the research and development department; rather, it is also important for other departments. The empirical results of this study show that companies should consider taking measures to increase employees' PsyCap, so as to enhance their innovative behavior. Lastly, the study also provided the managerial implications of its findings and recommendations for future research.

**Keywords:** psychological capital, job satisfaction, organizational commitment, employee innovative behavior, partial least squares

## INTRODUCTION

Due to the rapid transformation of the global economy, companies nowadays have to face complex and ever-changing competitive environments. Leaders and members of an organization must be able to adapt to rapid changes in the working environment in order for the organization to pursue sustainable development (Spreitzer and Porath, 2012; Spreitzer et al., 2012). In such a highly uncertain environment, management costs can be saved and organizational effectiveness can be enhanced if employees are able to proactively seek the information required to achieve their work

objectives and, thereby, improve their work performance (Shipton et al., 2006; Grant and Ashford, 2008). Employees' innovative work behavior has always been an important factor for organizations to innovate and increase their competitiveness. Employees' expression of creativity in the workplace is beneficial for the innovation of the organizations' products, services, and workflows. For instance, knowledge workers are valuable human assets for companies in the knowledge-intensive high-tech industry (Fritz et al., 2011). As China shifts from a manufacturing giant to a knowledge-based economy, employees in knowledge-based companies have slowly transformed into working groups whose main job is to create, apply, and increase knowledge. These employees have a passion for challenging and creative tasks while striving to achieve perfection. Through the process of completing these tasks, they aspire to fully express their attributes, fulfill their self-worth, and gain approval and respect from organizations or teams. Therefore, it is important for companies to identify the important factors that promote employees to express their unparalleled creativity in the innovation of new products or services, so as to keep up with business trends and enhance innovative performance (Carmeli and Spreitzer, 2009).

Psychological capital (PsyCap) is reflective of a worker's positive mental energy and is an important intangible capital for companies (Avey et al., 2011; Baron et al., 2016; Manuti and Giancaspro, 2019). PsyCap can be effectively enhanced through specific development and training processes, such that it becomes an important capital for organizations (Luthans et al., 2005). PsyCap is an individual's positive psychological state of mind, and is characterized by self-efficacy, hope, optimism, and resilience (Luthans et al., 2005). In 2000, while acting as the president of the American Psychology Association, Seligman and Csikszentmihalyi (2000) proposed his theory of positive psychology, which was subsequently explored by many researchers. In this context, research on happiness has received increasing attention in the field of psychology. The field of positive psychology emphasizes the development of an individual's strengths, so as to promote their positive functioning, such as the characteristics or abilities that allow the individual to lead a better and happier life. Luthans et al. (2007a) proposed the concepts of positive PsyCap and defined positive PsyCap as the core construct of an individual's positive psychological state, which refers to the individual's confidence (or self-efficacy), hope, optimism, and resilience. In addition, they suggested that positive PsyCap can help an individual to adapt to their environment and stress, develop their competitive advantage, and improve their well-being.

Previous research have suggested that the support and encouragement an individual receives have positive impacts on their performance (Seligman and Csikszentmihalyi, 2000). Concepts of positive psychology, such as subjective well-being, positive PsyCap, and role identity, describe the abilities, attitudes, and values of workers, which are crucial for a company's innovations. Consider the following scenarios: (i) If an optimistic IT worker encounters a problem, would they have the hope and confidence to solve the problem? (ii) If an optimistic IT worker finds themselves facing adversity, would their psychological state be easily affected by the harsh conditions they face? (iii) If an IT

worker has a high sense of identification with their role, are they able to bravely accept challenges while implementing a project to develop new systems? Seligman (1988) and Luthans et al. (2007a) have pointed out that if an individual has been able to proactively develop the characteristics of positive PsyCap, they would have the confidence to achieve success in challenging tasks, in addition to having optimistic views on problems encountered in the present or future. Meanwhile, the individual would also attempt various approaches to achieve their goals, and would persevere even if they had failed. These studies demonstrated that an individual's optimism is positively related to their work performance or learning outcomes.

Advancements in technology, increasingly intense competition among companies, and innovation in products and technology can easily cause imitative behavior among competitors. Hence, organizations and companies should consider measures that can strengthen employees' innovative behavior. Based on the perspectives of positive psychology, this study aimed to investigate how employees' PsyCap affects their job satisfaction and their organizational commitment, thereby increasing their corporate coherence and innovative behavior. The empirical results of this study are expected to be beneficial for enhancing the managerial implications and the development of a company's academic and practical innovations.

## THEORETICAL BACKGROUND AND LITERATURE REVIEW

### Psychological Capital

In regard to the research on positive organizational behavior, Luthans et al. (2007a) believed that while there was no lack of research on personal positive constructs (such as self-efficacy and positivity) in the field of organizational behavior, a higher-level construct with a broader scope should be developed and used to represent an individual's psychological capacity. Based on previous literature and relevant theoretical derivations, Luthans et al. (2007b) proposed the concept of PsyCap and its four constructs, which are self-efficacy, optimism, resilience, and hope. Self-efficacy is a core principle in social cognitive theory, and is also one of the most often discussed concepts in behavioral science (Stajkovic and Luthans, 1998). Self-efficacy refers to an individual's belief in their capabilities to complete tasks. This belief also has positive predictive power on an individual's learning outcomes, interpersonal relationships, and work performance (Zimmerman, 2000; Judge et al., 2007). If an individual believes that they are capable of facing challenges, not only are they able to effectively de-stress, they are also able to adaptively rise up following setbacks in the workplace. This mentality is also beneficial for overcoming possible challenges during the process of innovation (Schaubroeck and Merritt, 1997; Tierney and Farmer, 2002).

Hope is rooted in hope theory (Snyder, 2002), and its essence covers motivation, direction, and goals. In other words, hope is an individual's belief in their determination to achieve their goals and to find possible pathways to overcome the difficulties that they encounter. Optimism is based on the

clear appraisal and judgment of current situations, and on understanding what can be done in such situations. This belief can enhance an individual's self-efficacy and their hope for a better future (Fredrickson, 2004). Regarding the difference between hope and optimism, the annotations of Snyder (2002) stated that hope is a motivational state with direction, while optimism focuses on having outlooks and making self-adjustments according to different circumstances. In previous empirical studies, both constructs showed distinct and significant predictive powers (Bailey et al., 2007). Resilience refers to the ability to recover from adversity or setbacks, proactively rise up to challenges, and adapt to an ever-changing business environment. An individual's resilience is beneficial for them in terms of seeking opportunities and strengthening their job-seeking skills (Fleig-Palmer et al., 2009), as well as making flexible adjustments when facing adversity in order to achieve desirable performance (Inzlicht et al., 2006). In other words, resilience is not only about enduring hardships in a passive manner, but also about seeking out opportunities to improve one's situation (Luthans et al., 2007a). Based on the literature available, it can be seen that there are significant correlations between job satisfaction and hope, optimism, resilience, and work performance (Youssef and Luthans, 2007).

## Job Satisfaction

Job satisfaction refers to the feelings or affective responses of a worker regarding factors such as the job itself, work experience, and the working environment (Robbins et al., 2015). It is the general attitude of workers' satisfaction or dissatisfaction with their jobs. A worker may feel more positive about their work if they are satisfied. The main objective of job satisfaction is to understand the current requirements of employees, and even though it is not the only factor determining the behavior of organizational members, it is a crucial factor affecting their behavior. An in-depth investigation of job satisfaction can help companies perform organizational diagnoses that in turn help them to improve their current operations and management. A study by Konstantinos and Zampetakis (2008) indicated that positive and negative work factors had a mediating effect between emotional control and job satisfaction. This effect was more pronounced in males as they were more influenced by positive work factors. Therefore, researchers have always been interested in the relationship between job satisfaction and work performance.

The theoretical frameworks of studies differ according to their perspectives and objectives. Hence, job satisfaction can be defined through different concepts, and these concepts are often categorized as follows:

- Overall satisfaction is defined as a unitary concept in which workers are able to balance the satisfaction and dissatisfaction from different job dimensions and achieve overall satisfaction with their jobs. This concept emphasizes the attitude of workers toward their working environments, and is the process of psychological change in a worker's personal satisfaction with their job. It does not involve

the facets, causes, and process of the formation of job satisfaction.

- Expectation discrepancy is defined as the gap between an individual's expected value and the actual value that they receive in a specific working environment. In other words, based on this discrepancy, job satisfaction can be defined as the gap between the actual value an individual receives from their working environment and their expected reward. Robbins (2005) suggested this approach for measuring job satisfaction. However, this approach negates the degree of satisfaction that the job itself presents to workers and emphasizes the workers' satisfaction. Job satisfaction is determined by the gap between the expected and perceived actual values. Satisfaction is low when the gap is large, yet it is difficult to measure this gap.
- In the frame of reference concept, employees will explain and compare their job characteristics based on factors such as job facets, personal reasons, and the job itself. This concept emphasizes a worker's affective response to characteristics of their job. The most important factor that influences the attitudes and behaviors of workers is the subjective perceptions and interpretations a worker has regarding their job characteristics, and not the objective evidence within the job or organization. Common dimensions include remuneration, working environment, and working groups. Many studies have used the Minnesota Satisfaction Questionnaire, in which job satisfaction consists of intrinsic and extrinsic satisfaction (Karsh et al., 2005).

Based on the objectives of this study and the perspectives of the aforementioned literature, job satisfaction is defined in this study as "the perceived agreement of an employee's expectations with their actual work process, responsibilities, and job context." Job satisfaction is high if most of their expectations are met, and vice versa. Since the concept of job satisfaction is broad, the unitary concept of overall satisfaction, which refers to the overall feeling or affective response of an employee regarding their role, was used in this study. Therefore, the attitudes or perspectives of employees on their job and working environment were emphasized in this study. The multidimensional analysis of job satisfaction, as well as the cause and process of the formation of job satisfaction, was not considered in this study.

## Organizational Commitment

Organizational commitment is an internalized normative force that enables the integration of behavior with organizational goals and interests. However, scholars have inconsistent definitions for organizational commitment, as these definitions differ according to the variety of schools of thought and research backgrounds and objectives. Alpander (1990) defined organizational commitment as an organizational member's sense of loyalty or affection toward their attachment to their organization. Organizational commitment is an important topic in the research of organizational behavior, as employees with high organizational commitment are able to identify with the



organizational goals and values, and are willing to exert extra effort in completing their work.

Organizational commitment refers to an individual's degree of identifying and engaging with a specific organization, which enables organizational members to internalize organizational goals and express behaviors that are beneficial for the organization (Mowday et al., 1982). The degree of organizational commitment is positively related to the degree of expression of employees' organizational citizenship behavior. Podsakoff et al. (2000) suggested that employees expressed organizational citizenship behavior as a form of supportive feedback for their organization. Organizational commitment refers to the relationship between employees and their organizations. Mowday et al. (1982) pointed out that organizational commitment includes the identification of employees with organizational goals and values, and their devotion, engagement, loyalty, willingness to maintain membership, and expression of proactive behavior toward their organizations. Meyer and Allen (1991) conceptualized organizational commitment into three components: (i) affective commitment refers to the belief in and acceptance of organizational goals and values; (ii) continuance commitment refers to the perceived loss in values and benefits when an employee leaves their organization; and (iii) normative commitment refers to the consistency between individual and organizational values, or the obligation to maintain in the organization due to work responsibilities. Organizational commitment is an important factor for understanding employees' work behavior, as it constitutes an attitude or orientation toward the organization which links or attaches the individual to the organization. Therefore, organizational commitment can be viewed as a behavior or a set of behavioral intentions and attitudes, which has a certain degree of effect on organizational members' behavioral outcomes (Goulet and Frank, 2002).

When employees identify with their organization and its goals, they will want to become a part of the organization, and organizational commitment will become negatively correlated to employee absenteeism and turnover rates (Robbins, 2005), which shows that organizational commitment is an emotional expression of an individual's sense of belonging, identification, and participation (McShane and Von Glinow, 2003). In other words, members with high organizational commitment are capable of increasing organizational coherence and competitiveness, and vice versa, that is, members with low organizational commitment feel insecure toward their organization or have turnover intentions. Individuals and organizations share an interdependent relationship, and organizational commitment is not determined solely by either party. Therefore, organizations should take measures to strengthen employees' sense of responsibility and enhance or develop proactive job attitudes, thereby strengthening employees' identification and attachment to their organizations to increase and enhance their beliefs in the organizations and their goals. Companies should recruit talents whose personal values and beliefs are consistent with organizational values. Organizations should encourage employees to express proactive actions and attitudes to enhance their trust toward the organization, so as to build desirable working environments within the organization

and stimulate employees' work motivation and job satisfaction. On the other hand, employees' job attitudes are crucial, as employees' loyalty and determination toward their jobs is important for organizations to realize their goals. Employees' expression of organizational commitment also indicates that they wish to maintain in and work for the organization.

Based on the aforementioned literature, organizational commitment is defined in this study as an organizational member's strong acceptance of organizational goals and values, as well as their willingness to devote themselves to the organization and maintain their position.

## Employee Innovative Behavior

According to the mantra "innovation or die," innovation is the main source of an organization's competitive advantage (Drucker, 1999). Organizational innovation originates from the expression of innovative behavior in members toward their jobs, which includes the use of creativity, sensitivity in problem discovery, and taking advantage of opportunities to evoke proactive creative thinking and implement creative ideas to develop new products, services, or even create new markets. Therefore, organizational innovation researchers are always delving into approaches to evoke the creativity of organizational members or to encourage them to implement their creative ideas (Scott and Bruce, 1994; Yuan and Woodman, 2010; Anderson et al., 2014). This also shows that high-tech companies like Apple, Google, and Facebook are always implementing various management practices to shape pleasant and comfortable working environments, so as to stimulate employees' innovative motivation or enthusiasm and to attract top talents.

Innovative behavior refers to the process of developing, finding support, and implementing new ideas (Scott and Bruce, 1994), or the development, introduction, and application of new ideas within responsibilities, working groups, or organizations (Janssen, 2000). Employees' innovative ideas are crucial for organizations, as they increase job efficiency and enhance organizational performance (Baer and Frese, 2003). Therefore, many studies strive to seek approaches to stimulate organizational employees' innovative behavior and create desirable working environments, as well as the practicality of supporting and assisting employees to implement their innovative ideas (Bandura, 1986; Tierney and Farmer, 2002).

The effect of organizational social context on members' innovative behavior can be reflected through the members' process of self-cognition (Yuan and Woodman, 2010). Therefore, employees must not only be able to feel the organization's management practices to support innovation, but must also believe that they are capable of achieving innovation tasks. The employees' self-confidence or creative self-efficacy in completing innovation tasks is an important factor for motivating individuals to do their best to achieve these tasks (Tierney and Farmer, 2002). The employees' process of sense-making and self-determination is mediated by creative self-efficacy, that is, the employees' agency with respect to innovation tasks.

Employees' innovative behavior is beneficial for companies to develop novel and useful ideas and solutions for relevant products, services, processes, and procedures. Nowadays,

companies must face rapid changes in technology and harsh business environments. Employees' innovative behavior is defined in this study as the overall performance of an employee in the process of creative searching, establishing, implementing, and successful realizing of new technologies, processes, techniques, or products, so as to generate useful products or services.

## RESEARCH METHOD

### Hypotheses Development

The empirical results of a study by Luthans et al. (2007a) on the relationship between PsyCap, job efficiency, and job satisfaction supported the positive effects of PsyCap on job satisfaction. Judge et al. (2001) suggested that the confidence (self-efficacy) construct in PsyCap influences the degree of job satisfaction, while Peterson and Luthans (2003) and Luthans and Youssef (2004) agreed that the degree of hope influences the job satisfaction and work performance of managers and employees. Recent studies have also supported the relationship between PsyCap and job satisfaction or performance (e.g., Luthans et al., 2007b; Avey et al., 2008; Walumbwa et al., 2009). A summary of the aforementioned literature suggests that the level of PsyCap of professionals and workers, regardless of career fields, is positively related with their job satisfaction, i.e., the better the PsyCap, the higher the job satisfaction. By increasing their PsyCap, employees may be able to set attainable work objectives and are less likely to back down from setbacks. They will have stronger motivation to face difficulties at work while controlling their stress and anxiety, devote themselves to solving problems while being continuously hardworking, and will not give up easily or feel helpless, thereby increasing their job efficiency and overall job satisfaction. Based on the discussions above, the following hypothesis (H1) was derived in this study:

Hypothesis 1: Psychological capital positively influences job satisfaction.

An empirical study on the hotel workplace by Wu and Chen (2018) revealed that PsyCap had positive effects on organizational commitment. In the medical and healthcare industry, a study by Zhou et al. (2018) underlined that the PsyCap of nurses with high stress and high workload was positively related to their organizational commitment. Another study by Çetin (2011) pointed out that the PsyCap constructs of hope and optimism of 213 employees in Turkey had significant effects on their job satisfaction and organizational commitment. Other relevant studies have also shown similar causal effects (e.g., Zhong, 2007; Newman et al., 2018). Hence, the following hypothesis (H2) was derived in this study:

Hypothesis 2: Psychological capital positively influences organizational commitment.

A study by Schwepker (2001) on the ethical climate of salespeople revealed that organizational commitment was the mediator between their job satisfaction and turnover intention. According to relevant studies, there is significant

positive correlation between job satisfaction and organizational commitment (Chu et al., 2005; Kim et al., 2005; Macintosh and Krush, 2014; Veličković et al., 2014), and the following hypothesis (H3) was derived:

Hypothesis 3: Job satisfaction positively influences organizational commitment.

In an organization, an employee's satisfaction with their job often affects their degree of work engagement and the degree of relevance with organizational goals. An employee with a high job satisfaction has less turnover intentions (Poon, 2003), which is beneficial for the development of the organization (Reiner and Zhao, 1999). Innovative measures should be taken by traditional and high-paying companies to improve their competitiveness and enhance their performance, as innovation has positive effects on company performance (Damanpour et al., 1989; Khan and Manopichetwattana, 1989; Luoh et al., 2014). Therefore, the following hypothesis was derived in this study:

Hypothesis 4: Job satisfaction positively influences innovative behavior of employees.

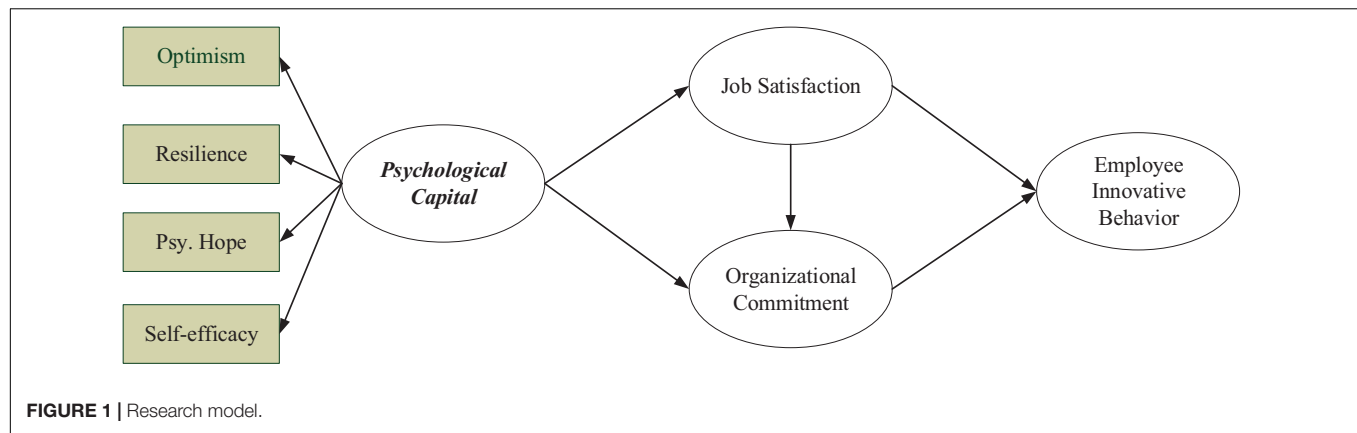
Organizational commitment refers to an individual's willingness to devote and be loyal to an organization. Therefore, organizational commitment is an internalized normative force that promotes the organization members' willingness to conform to the organizational goals and interests. Employees will agree with organizational goals and values if they have a strong sense of organizational commitment, and are more willing to express extra-role behaviors. Mathieu and Zajac (1990) also proposed that an individual's innovative behavior is an expression of their extra role behavior. Based on literature, there are positive relationships between organizational commitment and employees' innovative behavior (Jafri, 2010). Summarizing the discussions above, the following hypothesis was derived in this study:

Hypothesis 5: Organizational commitment positively influences innovative behavior of employees.

For the research model framework of this study, PsyCap was selected as the basis, and its effect in on employees' innovative behavior via job satisfaction and organizational commitment was investigated. The research model and research hypotheses are shown in **Figure 1** and **Table 1**, respectively.

### Measurement Items and Sample Structure

In this study, PsyCap was measured using the questionnaire developed by Luthans et al. (2007b), which consists of the four constructs of PsyCap, i.e., self-efficacy (six items), optimism (six items), resilience (five items), and hope (five items). Items developed by Kiffin-Petersen and Cordery (2003) were modified for measuring job satisfaction. Six items developed by Meyer and Allen (1991) were chosen for measuring organizational commitment, and six items formulated by Tsai and Kao (2004) and Scott and Bruce (1994) were used to measure employees' innovative behavior. The questionnaire was answered on a

**TABLE 1 |** Research hypotheses.

|              |  |
|--------------|--|
| Hypothesis 1 | Psychological capital positively influences job satisfaction.          |
| Hypothesis 2 | Psychological capital positively influences organizational commitment. |
| Hypothesis 3 | Job satisfaction positively influences organizational commitment.      |
| Hypothesis 4 | Job satisfaction positively influences innovative behavior.            |
| Hypothesis 5 | Organizational commitment positively influences innovative behavior.   |

seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). The variables, items, and relevant references within the research model framework for this study are summarized in **Table 2**.

In this study, employees were drawn, respectively, from various departments and from various organizations of different industries. Statistical hypothesis testing was performed on 266 valid samples to increase the external validity of the analysis results. Of the 266 individuals analyzed, 65.8% of the respondents were male, while 34.2% were female. The average of the samples was 32.8 years old. The industry classification of organizations and work roles of employees were not restricted throughout the process of sample collection, as the common behavior of employees from various fields was emphasized in this study, so as to discuss the general implications of different professional fields on employees' innovative behavior. **Table 3** showed the means, standard deviations, and correlations between variables.

## DATA ANALYSIS

### Measurement Model

The partial least squares (PLS) regression was adopted as the analytical method in this study mainly because PLS is suitable for investigating the causal effects between construct variables while concurrently processing models that contain construct variables and measurement variables (Petter et al., 2007). Furthermore, as PLS does not necessarily require variables to be normalized or randomized, it can be used to analyze the relationship between variables in a non-normal

distribution, in addition to having the ability to analyze complex predictive models (Chin and Newsted, 1999). The main objective of this study was to investigate the causal effects between PsyCap, job satisfaction, organizational commitment, and employees' innovative behavior, while in literature, each of these constructs consist of various measurement variables. Hence, in order to investigate the causal effects between these variables, reduce measurement errors, and avoid collinearity, PLS was deemed to be more suitable for this study than other analytical methods such as SEM. SmartPLS 3.2.8 analytical tool developed by Ringle et al. (2018) was used in this study.

Regarding the reliability analysis of this study, Cronbach's alpha and the composite reliability (CR) of potential variables were used to measure the internal consistency of each construct. Reliability is acceptable if the Cronbach's alpha is 0.7 or greater (Nunnally and Bernstein, 1994). High CR of potential variables indicates strong correlation between construct items and high internal consistency. Fornell and Larcker (1981) recommended that the CR value should be greater than 0.6. As shown in **Table 4**, the Cronbach's alpha and CR values of each construct were all greater than the recommended values, which indicates good internal consistency.

Convergent validity refers to the degree of correlation between or aggregation of multiple indicators used to measure the same construct. According to Fornell and Larcker (1981) and Hair et al. (2018), convergent validity must fulfill the following criteria: (1) the factor loading of each construct should be greater than 0.7; (2) the CR value should be greater than 0.6; and (3) the average variance extracted (AVE) should be greater than 0.5. As shown in **Tables 4, 5**, convergent validity exists in this study.

Discriminant validity mainly assesses the degree of difference between each construct in a measurement model. As shown in **Table 5**, based on the comparative results of the cross loading and factor loading of each indicator, the constructs of this study had good discriminant validity as the factor loading of each scale item of a specific potential construct was higher than the loading of any other construct (Hair et al., 2016).

**TABLE 2 |** Operational definition of constructs.

| Construct                    | Definition   | Source   |
|------------------------------|--|--|
| Psychology capital           | Psychology capital is characterized by confidence, optimism, hope, and resilience.   | Luthans et al., 2007b                                    |
| Job satisfaction             | The general attitude of an individual toward their job. It represents the degree of satisfaction or dissatisfaction of individuals toward their jobs. Employees reflect their feelings by expressing satisfaction and positivity on their jobs and organizations.      | Edwards and Rothbard, 1999; Crossman and Abou-Zaki, 2003 |
| Organizational commitment    | The degree of employees' state of being wholeheartedly in approval with the company, and their willingness to stay with the company based on a sense of belonging and happiness, instead of choosing to stay because of continuous commitment or normative commitment. | Meyer and Allen, 1991                                    |
| Employee innovative behavior | The overall performance of an organizational member in the process of creative searching, establishing, implementing, and successful realizing of new technologies, processes, techniques, or products, so as to generate useful products or services.                 | Scott and Bruce, 1994                                    |

**TABLE 3 |** Mean, standard deviations, and correlation matrix.

|      | Mean  | SD    | HOPE  | OPT   | RES   | SEEF  | SAT   | ORGC  | INNO  |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HOPE | 2.801 | 1.259 | 1.000 |       |       |       |       |       |       |
| OPT  | 3.071 | 1.300 | 0.689 | 1.000 |       |       |       |       |       |
| RES  | 2.833 | 1.322 | 0.785 | 0.671 | 1.000 |       |       |       |       |
| SEEF | 2.654 | 1.282 | 0.708 | 0.637 | 0.719 | 1.000 |       |       |       |
| SAT  | 2.952 | 1.416 | 0.369 | 0.438 | 0.374 | 0.469 | 1.000 |       |       |
| ORGC | 2.983 | 1.414 | 0.405 | 0.448 | 0.400 | 0.507 | 0.845 | 1.000 |       |
| INNO | 2.621 | 1.275 | 0.710 | 0.695 | 0.696 | 0.834 | 0.516 | 0.579 | 1.000 |

PSY, psychological capital; HOPE, psychological hope; RES, resilience; SEEF, self-efficacy; SAT, job satisfaction; ORGC, Organizational Commitment; INNO, employee innovative behavior.

**TABLE 4 |** Reliability and AVE.

| Construct          | Cronbach's alpha | Composite reliability | Average variance extracted (AVE) |
|--------------------|------------------|-----------------------|----------------------------------|
| PSY (second order) | 0.938            | 0.932                 | 0.773                            |
| HOPE               | 0.854            | 0.892                 | 0.581                            |
| RES                | 0.806            | 0.866                 | 0.564                            |
| SEEF               | 0.853            | 0.891                 | 0.579                            |
| OPT                | 0.772            | 0.868                 | 0.687                            |
| SAT                | 0.887            | 0.914                 | 0.639                            |
| ORGC               | 0.892            | 0.917                 | 0.650                            |
| INNO               | 0.883            | 0.906                 | 0.518                            |

PSY, psychological capital; HOPE, psychological hope; RES, resilience; SEEF, self-efficacy; SAT, job satisfaction; ORGC, organizational commitment; INNO, employee innovative behavior.

## Structural Model

Structural model analysis was performed in this study after the analyses of reliability and construct validity. The PLS estimation results and structural model path coefficient obtained using PLS were used to determine the relationship between the constructs. The statistical hypothesis testing results are summarized in **Figure 2** and **Table 6**.

## Mediation Analysis

The Sobel test and the path analysis approach were adopted to examine if the mediator variables in this study had any statistical significance. Prior to verifying the mediating effect, the

predictive effect of the independent variable on the dependent variable, and the predictive effect of the independent variable on the mediator variable must be established. When the mediator variable is introduced, partial mediation occurs if the path coefficient between the independent variable and the dependent variable displayed correlation; whereas full mediation occurs if the path coefficient did not display correlation. Three testing methods were used to verify the mediating effect in this study (Aroian, 1947; Goodman, 1960; Sobel, 1982; MacKinnon et al., 1995), while the obtained *Z* scores were converted to *p*-values to determine if the mediating effect had any statistical significance (as shown in **Table 7**). Moreover, the percentile bootstrap method was used in this study to calculate the confidence intervals of the mediating effect. The mediating effect exists if the percentile bootstrap confidence intervals does not contain zero. Incidentally, the relevant mediating effects of a certain pathway were not analyzed if the pathway was not statistically significant (for example, SAT → INFO).

## DISCUSSION AND CONCLUSION

### Discussion

The PLS was adopted to estimate five hypotheses proposed in this study. Based on the entire samples, one path is not supported (H4), while the remaining paths are all significant at the 0.05 level (H1, H2, H3, and H5 are supported). Properties of the causal paths, including standardized path coefficients and hypotheses testing results in the hypothesized model are presented in **Table 6**.



**TABLE 5 |** Factor loadings and cross loadings.

|       | HOPE         | OPT          | RES          | SEEF         | SAT          | ORGC         | INNO         |
|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| HOPE1 | <b>0.764</b> | 0.542        | 0.628        | 0.564        | 0.205        | 0.237        | 0.558        |
| HOPE2 | <b>0.808</b> | 0.578        | 0.617        | 0.572        | 0.226        | 0.265        | 0.586        |
| HOPE3 | <b>0.669</b> | 0.492        | 0.568        | 0.478        | 0.394        | 0.365        | 0.438        |
| HOPE4 | <b>0.703</b> | 0.417        | 0.516        | 0.452        | 0.300        | 0.305        | 0.449        |
| HOPE5 | <b>0.819</b> | 0.582        | 0.627        | 0.591        | 0.325        | 0.381        | 0.613        |
| HOPE6 | <b>0.797</b> | 0.521        | 0.626        | 0.565        | 0.257        | 0.306        | 0.578        |
| OPT1  | 0.574        | <b>0.829</b> | 0.551        | 0.488        | 0.298        | 0.341        | 0.552        |
| OPT2  | 0.554        | <b>0.834</b> | 0.547        | 0.531        | 0.355        | 0.340        | 0.578        |
| OPT3  | 0.584        | <b>0.823</b> | 0.568        | 0.562        | 0.434        | 0.431        | 0.596        |
| RES1  | 0.546        | 0.433        | <b>0.719</b> | 0.386        | 0.118        | 0.159        | 0.410        |
| RES2  | 0.511        | 0.423        | <b>0.725</b> | 0.455        | 0.209        | 0.240        | 0.485        |
| RES3  | 0.662        | 0.610        | <b>0.818</b> | 0.637        | 0.409        | 0.389        | 0.578        |
| RES4  | 0.679        | 0.585        | <b>0.805</b> | 0.657        | 0.334        | 0.366        | 0.630        |
| RES5  | 0.524        | 0.429        | <b>0.680</b> | 0.517        | 0.286        | 0.309        | 0.479        |
| SEEF1 | 0.630        | 0.526        | 0.636        | <b>0.852</b> | 0.417        | 0.461        | 0.742        |
| SEEF2 | 0.450        | 0.488        | 0.495        | <b>0.761</b> | 0.340        | 0.355        | 0.580        |
| SEEF3 | 0.564        | 0.508        | 0.575        | <b>0.790</b> | 0.407        | 0.464        | 0.698        |
| SEEF4 | 0.500        | 0.457        | 0.540        | <b>0.749</b> | 0.406        | 0.381        | 0.585        |
| SEEF5 | 0.520        | 0.386        | 0.473        | <b>0.708</b> | 0.299        | 0.345        | 0.548        |
| SEEF6 | 0.552        | 0.534        | 0.545        | <b>0.694</b> | 0.262        | 0.290        | 0.632        |
| SAT1  | 0.366        | 0.442        | 0.409        | 0.458        | <b>0.850</b> | 0.749        | 0.504        |
| SAT2  | 0.277        | 0.285        | 0.252        | 0.345        | <b>0.749</b> | 0.594        | 0.355        |
| SAT3  | 0.290        | 0.349        | 0.294        | 0.384        | <b>0.805</b> | 0.613        | 0.394        |
| SAT4  | 0.267        | 0.367        | 0.294        | 0.399        | <b>0.735</b> | 0.568        | 0.399        |
| SAT5  | 0.235        | 0.296        | 0.238        | 0.264        | <b>0.831</b> | 0.752        | 0.332        |
| SAT6  | 0.322        | 0.347        | 0.287        | 0.390        | <b>0.819</b> | 0.748        | 0.467        |
| ORGC1 | 0.351        | 0.380        | 0.320        | 0.420        | 0.781        | <b>0.845</b> | 0.465        |
| ORGC2 | 0.256        | 0.325        | 0.271        | 0.344        | 0.704        | <b>0.796</b> | 0.414        |
| ORGC3 | 0.311        | 0.374        | 0.332        | 0.397        | 0.734        | <b>0.862</b> | 0.489        |
| ORGC4 | 0.305        | 0.334        | 0.266        | 0.334        | 0.497        | <b>0.718</b> | 0.402        |
| ORGC5 | 0.324        | 0.384        | 0.342        | 0.452        | 0.624        | <b>0.783</b> | 0.466        |
| ORGC6 | 0.402        | 0.371        | 0.391        | 0.490        | 0.707        | <b>0.823</b> | 0.549        |
| INNO1 | 0.545        | 0.542        | 0.573        | 0.660        | 0.395        | 0.438        | <b>0.795</b> |
| INNO2 | 0.626        | 0.477        | 0.572        | 0.638        | 0.318        | 0.376        | <b>0.743</b> |
| INNO3 | 0.508        | 0.487        | 0.496        | 0.634        | 0.410        | 0.479        | <b>0.742</b> |
| INNO4 | 0.501        | 0.502        | 0.512        | 0.579        | 0.392        | 0.470        | <b>0.748</b> |
| INNO5 | 0.500        | 0.589        | 0.503        | 0.667        | 0.436        | 0.452        | <b>0.814</b> |
| INNO6 | 0.494        | 0.486        | 0.460        | 0.552        | 0.400        | 0.407        | <b>0.626</b> |
| INNO7 | 0.496        | 0.528        | 0.476        | 0.556        | 0.279        | 0.320        | <b>0.646</b> |
| INNO8 | 0.496        | 0.426        | 0.438        | 0.565        | 0.228        | 0.286        | <b>0.653</b> |
| INNO9 | 0.460        | 0.458        | 0.478        | 0.554        | 0.407        | 0.445        | <b>0.687</b> |

The bolded values are standardized factor loadings for each measurement items, and the others are cross loadings. PSY, psychological capital; HOPE, psychological hope; RES, resilience; SEEF, self-efficacy; SAT, job satisfaction; ORGC, organizational commitment; INNO, employee innovative behavior.

Employee innovative behavior is predicted by organizational commitment ( $\beta = 0.499$ ) and job satisfaction ( $\beta = 0.094$ ), which jointly explained 29.5% of the variance in employee innovative behavior. Organizational commitment is influenced significantly by job satisfaction ( $\beta = 0.783$ ) and PsyCap ( $\beta = 0.134$ ), with jointly 78.3% of the total variance

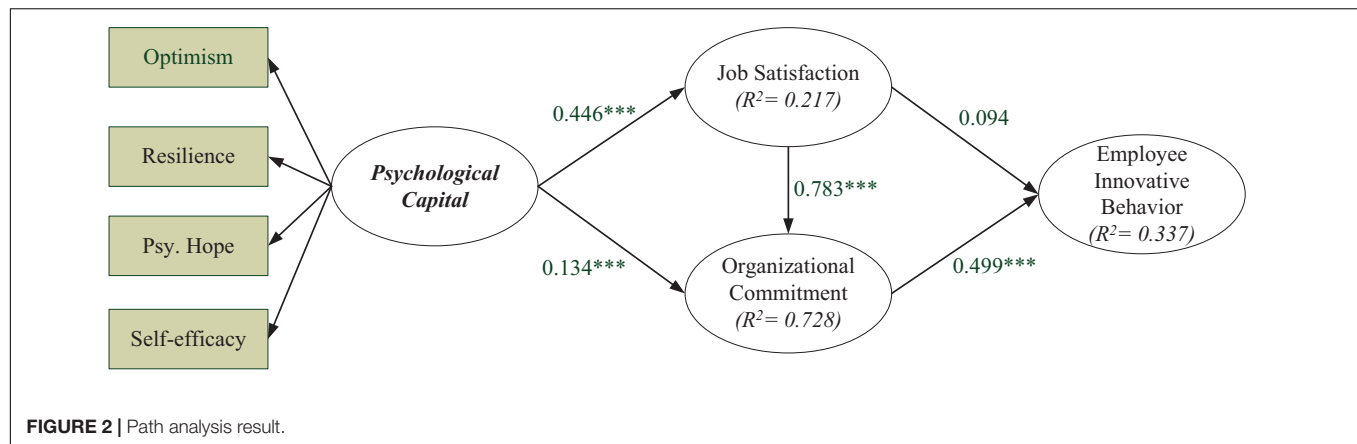
explained. Moreover, job satisfaction determined by PsyCap ( $\beta = 0.466$ ), which jointly explain 19.7% of error variance on job satisfaction.

Although the impact of job satisfaction had no significant influence on employee innovative behavior in this study, we also estimated the serial mediation (i.e., PSY  $\rightarrow$  SAT  $\rightarrow$  ORGC  $\rightarrow$  INNO) to prove the serial mediation effect (as shown in Table 7).

## Conclusion

Employees' innovative behavior has received considerable interest in recent years, as governments and companies have begun to prioritize innovative developments. Innovation enables companies to operate sustainably in addition to enhancing their competitiveness. Innovation is not only important for research and development departments; rather, it is also essential for other departments. Employees themselves are the subjects of knowledge and innovation. Thus, organizations and companies should consider measures to promote and stimulate the innovative behavior of employees, so as to effectively enhance organizational knowledge and generate employees' innovative behavior. In this study, the principles of positive psychology were applied in the field of positive organizational behavior to uncover the psychological strengths of individuals, and the PsyCap of individuals was proposed as an intrinsic mental resource that transcends economic capital, human capital, and social capital. Empirical studies have shown that an individual's PsyCap is closely related to their work performance (Avey et al., 2011), positivity (Avey et al., 2008), and creativity (Rego et al., 2012). This indicates that individuals with high PsyCap are not only able to withstand challenges and changes and become successful employees, managers, or entrepreneurs, but are also capable of overcoming adversities and achieve greater organizational accomplishments.

Compared with large enterprises, small-and-medium enterprises (SMEs) have become the main carrier of China's technological innovation and an important driving force for economic growth. In China, SMEs have become the mainstay of the Chinese economy because of their large number and scale. The innovative improvement of SMEs would enhance the industries transformation and industrialization of scientific and technological achievements, and the development of employment has shown remarkable development vitality. Based on the proposed model of this research, this paper explains how employees' PsyCap affect organizational innovation behavior through organizational commitment and job satisfaction for SMEs. SMEs have unique advantages in flexible market adjustment and specialized production. However, due to their own characteristics, SMEs are facing more difficulties and challenges than ever before in the context of the slow recovery of the global economy including sensitivity to market fluctuations, weak ability to bear risks, etc. Thus, SMEs should consider to promote and stimulate the innovative behavior of employees, so as to effectively enhance organizational knowledge and generate employees' innovative behavior.

**TABLE 6 |** Summary of structural model results.

| Path direction   | Standardized path coefficient | t-value | p-value | Result        |
|------------------|-------------------------------|---------|---------|---------------|
| H1 (PSY → SAT)   | 0.466***                      | 6.030   | 0.000   | Supported     |
| H2 (PSY → ORGC)  | 0.134***                      | 3.724   | 0.000   | Supported     |
| H3 (SAT → ORGC)  | 0.783***                      | 26.617  | 0.000   | Supported     |
| H4 (SAT → INNO)  | 0.094                         | 0.882   | 0.378   | Not supported |
| H5 (ORGC → INNO) | 0.499***                      | 5.256   | 0.000   | Supported     |

\*\*\*p-value < 0.001. PSY, psychological capital; HOPE, psychological hope; RES, resilience; SEEF, self-efficacy; SAT, job satisfaction; ORGC, organizational commitment; INNO, employee innovative behavior.

Innovation-driven development has become China's core national strategy. In 2015, China launched a major program of "Public Entrepreneurship and Innovation" to promote grassroots entrepreneurship across the country. This vision is also in line with China's economic development goals, from labor-intensive manufacturing to innovation-led growth. China also has large-scale domestic consumer groups who are eager to acquire new technologies. Therefore, in the era of technological globalization, China companies have increasingly diverse demands for employees, which leads to the question: What attributes should workers have to stand out from the crowd? From a human resource perspective, PsyCap is an intangible asset of an individual that is not only related to work performance and job satisfaction, but also strengthens employees' innovative

behavior. Moreover, the results of this study have indicated that the PsyCap of organizational members was more able to promote their feedback inquiries and active participation in their jobs when there were no additional resources. Therefore, PsyCap can be used in practice as a reference indicator when recruiting employees, while the PsyCap of employees can be enhanced through their training process. In other words, the human resources management processes of selecting, training, and developing the PsyCap of organizational members are beneficial for improving their active participation in their jobs and enhancing the organizational efficiency.

Compared to current PsyCap-relevant studies which focus on organizational performance, future studies can investigate the moderating effects of different work scenarios. Additionally, by integrating the standpoints from the absence or presence of organizational resources, further studies can investigate the efficacy of an individual's PsyCap when they were placed in advantageous or disadvantageous situations. For example, a recent study on leadership styles had stressed the effects of abusive supervision on subordinates' organizational commitment, job satisfaction, and creative performance (Hoobler and Brass, 2006; Tepper, 2007; Liu et al., 2012). Hence, the role and efficacy of workers' PsyCap on their expression of innovative behavior is a topic worth researching.

In this study, common-method variance may be present since self-reported data were concurrently collected from a common

**TABLE 7 |** Mediation effect examination.

| Mediation relationship | Path        | t-value of path | Sobel test's z-value | Aroian test's z-value | Goodman test's z-value |
|------------------------|-------------|-----------------|----------------------|-----------------------|------------------------|
| PSY → SAT → ORGC       | PSY → SAT   | 6.030           | 5.880***             | 5.877***              | 5.885***               |
|                        | SAT → ORGC  | 26.617          |                      |                       |                        |
| PSY → ORGC → INNO      | PSY → ORGC  | 3.724           | 3.038**              | 3.003**               | 3.076**                |
|                        | ORGC → INNO | 5.256           |                      |                       |                        |
| SAT → ORGC → INNO      | SAT → ORGC  | 26.617          | 5.156***             | 5.153***              | 5.160***               |
|                        | ORGC → INNO | 5.256           |                      |                       |                        |

\*\*p-value < 0.01; \*\*\*p-value < 0.001.

group of subjects. This bias was the main limitation of this study even though post-sampling statistical testing was performed to reduce it. For instance, the positive relationship between innovative efficacy and innovative behavior may be due to the employees' self-reported responses. Furthermore, employees' innovative behavior also includes personal innovation, which is neither easily observable nor understandable. Therefore, the use of employees' self-reported innovative behavior can be considered appropriate for this study (Kaufman et al., 2009). Future studies can substantially reduce common-method variance by collecting employees' innovative behavior data at different time points and utilizing data reported by managers and colleagues, or implementing other subjective methods.

## DATA AVAILABILITY STATEMENT

All datasets generated for this study are included in the article/supplementary material.

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## AUTHOR CONTRIBUTIONS

YT conceived and designed the research, and wrote and revised the manuscript. Y-FS and Y-JC gave guidance throughout the whole research process.

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# Psychological Capital and University Students' Entrepreneurial Intention in China: Mediation Effect of Entrepreneurial Capitals

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The aim of this study was to identify the influences of psychological capital (PC) on students' entrepreneurial intention (EI) in China's universities. The mediating effects of Entrepreneurial Capitals were also examined. Based on the analysis of the traditional capital and PC, the paper proposes that traditional capital is the direct factor to drive the behavior of entrepreneurship, while psychological factors do not directly affect EI, but improve EI by influencing traditional capital. A total of 1914 responses from universities in southeast China were analyzed using the structural equation modeling (SEM) approach to test study hypotheses. Results show that PC has a significant indirect impact on students' EI only through traditional financial, human, and social capital (SC). These results support the mediating role of the traditional entrepreneurial capitals in explaining the relationship between PC and EI. Additionally, the impact of SC on EI is higher than that of financial and human capital (HC). Finally, research limitations and implications are discussed and future research directions are suggested.

**Keywords:** psychological capital, entrepreneurial intention, entrepreneurial capital, SEM, university students

## INTRODUCTION

Entrepreneurship is an important way to improve a nation's economy (Kadiyono and Ashriyana, 2017), and it can provide more employment opportunities and accelerate innovation. Entrepreneurship can also solve problems such as social and environment challenges by setting up new firms and the application of new technology and products (Stephan et al., 2016). The success of American college students' entrepreneurship and Silicon Valley has made many countries realize the importance of college students' entrepreneurship. Most countries in the world have adopted various means to accelerate entrepreneurship, especially university students' entrepreneurship, which can accelerate the application of new technologies and promote innovation. The rising unemployment rate after the 2008 financial crisis has further prompted local governments to take steps to promote university students' entrepreneurship (Saputri, 2016). However, the earliest research on entrepreneurship was from the perspective of economics, and the researches explained entrepreneurial activities with standard economic models, and assuming perfect rational economic man (Obschonka, 2017). Economics analyze entrepreneurship from the general and macro

characteristics and draw the uniform conclusion. Researches based on economic perspective neglect entrepreneurs' heterogeneity and can't reveal the difference of individual entrepreneurial process. Each entrepreneur has different backgrounds, objectives, and aspirations. Some of them are the innovators who reject society's prevailing norm and want to live a freestyle life (Teal and Carroll, 1999). Some entrepreneurs are forced to earn a living and some want to realize their dream by setting up new firms. They are special in their personality and entrepreneurship can't be explored only by a simple hypothesis of rational economic man. Entrepreneurship must be analyzed from the perspective of individual context, especially considering its differences in background and the entrepreneurial capitals they occupied.

Scholars have studied the impact of traditional capital and psychological capital (PC) on the performance at workplace and enterprises, but they mostly took the capitals as juxtaposition factors, and have not analyzed their impact on entrepreneurial intention (EI) or willingness. This paper explores the impact of university students' PC on traditional entrepreneurial capital and ultimately the impact on EI. The study is presented as follows: Section "Theoretical Background and Hypotheses" explains the theoretical background and proposes the hypothesis. Section "Materials and Methods" outlines the details of the data and research method. Then, Section "Empirical Results" gives the results, and finally, Section "Conclusion and Implications" elaborates the conclusion, implications, limitations, and future research.

## Theoretical Background and Hypotheses

In economics, factors of production are crucial for competition and business success, which means financial and human factors are very important in entrepreneurship. Later, social capital (SC) (Schumpeter, 1909; Metzler, 1951) was introduced in the analysis and they are often referred to as traditional capital. There are many studies on the impact of traditional capital on entrepreneurship (Cooper et al., 1994; Honig, 1998; Kim et al., 2006; Orser et al., 2006; Cetindamar et al., 2012), but no research analyzes what influences the traditional capital. In the 21st century, scholars introduced PC and symbolic capital (Shaw et al., 2009) to analyze entrepreneurship. Many scholars combine PC with traditional capital to study performance at work. Although there have been many studies on PC in the past two decades, most of them took PC as an independent factor, without analyzing the relationship between financial, human, SC, and PC and their impact on college students' EI. Furthermore, the research regards financial, human, SC, and PC as parallel elements, and fails to analyze their inter-correlation and working mechanism. This paper suggests that different capital plays a different role in entrepreneurship and believes that there are some mechanisms among the four types of entrepreneurial capital, and analyze the relationship between them by structural equation modeling (SEM).

### Traditional Entrepreneurial Capital

Entrepreneurial capital is a concept that has been widely concerned since the rise of entrepreneurship, and its extension

has been expanding with time (Firkin, 2001; Erikson, 2002; Vinturella and Erickson, 2003; Fletschnier and Carter, 2008). In general, entrepreneurial capital includes economic, human, social, psychological, and symbolic capital (Shaw et al., 2009). Among them, economic (or financial), human, and SC are often referred to as traditional capital.

From the perspective of economics and managerial practice, starting up a business needs financial capital (FC) and human capital (HC). Financial and HC needed for setting up business will positively influence the success of entrepreneurship. FC includes both financial and tangible assets such as plant and equipment. In the early days of industrial revolution, technological progress was relatively slow, and FC was an important condition for the development of enterprises. FC is the prerequisite to set up enterprises. The stock of FC to support a new venture and its growth has been proven a key factor (Nasurudin et al., 2012). Therefore, this paper assumes that individual FC has a positive role in promoting EI.

Classical economics holds that the main factor of production of firms is FC, while labor force is subordinate to FC. With the increase of the amount of FC and the intensification of competition among enterprises, the role of pure FC in entrepreneurship begins to decline. Alfred Marshall emphasized the importance of HC (Marshall, 1890), Schultz clearly pointed out that HC is the main reason for promoting national economic growth in the present era (Theodore, 1990). With the increasing recognition of new resources as a competitive advantage in global competition, HC and SC are important for enterprises and being touted completely.

Human capital refers to the knowledge, skills, abilities, or competencies derived from education, experience and specific identifiable skills (Luthans and Youssef, 2004). The essence of HC is the necessary knowledge system to start a new venture. With the development of industrial revolution, technology has become an important recognition of enterprise competition, and the role of HC has become increasingly prominent, while the importance of FC has declined due to the development of financial derivatives. The condition of enterprise development is the guarantee of entrepreneurship, and HC in entrepreneurship is becoming important. Martin's empirical research reveals that there is a significant relationship between entrepreneurship-related HC assets and entrepreneurship outcomes (Martin et al., 2013). Murat found that the entrepreneurial HC plays a relatively more important role (Iyigun and Owen, 1998). The article believes that HC has a positive effect on entrepreneurship.

Social capital refers to the resources you can turn to for help both inside and outside a firm (Luthans et al., 2004). SC is an extension to financial and HC, which involves the size, structure, and composition of networks (Portes, 1998). SC means the ability of actors to secure benefits by virtue of membership in social networks or other social structures, which can bring better performance of the organization. In the process of economic transformation from shortage to surplus, the focus of business management concepts has shifted from production to products and to marketing and social marketing. SC has become a new form of capital beyond financial and HC. People with broad extensive SC, namely, internal and external networks, can turn

to more resources to solve the business problems. Adler and Kwon (2002) found that SC has a positive impact on both HR and organizational areas (Adler and Kwon, 2002). Many works proved that SC has a positive relationship with entrepreneurship (Cope et al., 2007; Light and Dana, 2013). Batjargal found that the interaction of SC and experience of entrepreneurs (human capital) has a positive effect on the survival likelihood of firms (Batjargal, 2007). SC can provide entrepreneurs with information, market, and other resources to ensure the success of entrepreneurship. The paper proposes that SC is also crucial to entrepreneurship. Based on the research above, the paper proposes the following hypotheses.

*Hypothesis 1a.* Financial capital influences the entrepreneurial intention positively.

*Hypothesis 1b.* Human capital influences the entrepreneurial intention positively.

*Hypothesis 1c.* Social capital influences the entrepreneurial intention positively.

## Psychology Capital

Many studies have confirmed that financial, human, and SC have an important positive relationship with job performance, satisfaction, and innovation. Some researches analyze traditional capital with newly emerging psychology capital together. Larson and Luthans empirically studied that human, social, and PC have positive effects on organizational loyalty and job satisfaction, and the correlation between PC and job satisfaction is higher than that between HC and SC, and the correlation between PC and organization is also much higher than that of SC (Larson and Luthans, 2006). Xiong explores the impact of human, social, and PC on innovation performance and finds that the human, social, and PC of the new generation of knowledge workers have significant positive effects on job satisfaction and innovation performance, respectively (Xiong et al., 2018). Ke's empirical study finds that HC, SC, and PC have positive correlations on entrepreneurship. They all have significant positive effects on task performance and contextual performance, but PC has the strongest influence, SC takes the second place, and HC is the weakest (Ke et al., 2010).

However, the researches above analyze the impact of financial, human, and SC on entrepreneurship together. This paper argues that the impact of four capitals on entrepreneurship is not at the same level, some of which have direct and some have indirect effects.

Psychological capital (PsyCap in short) initially was only used in the economics literature to study its relationship to wages (Goldsmith et al., 1998; Kossek et al., 2003) and deviates from positive psychology in the late 1990s, which emerged with a renewed emphasis on what is right with people, instead of what is wrong with people (Seligman and Csikszentmihalyi, 2000; Snyder and Lopez, 2002). Martin Seligman introduced the positive psychology and emphasized the important function of positive psychology (Seligman, 1975; Abramson et al., 1978). The positive psychology has two developments: the macro-oriented positive organizational scholarship or POS movement (Cameron et al., 2003) and the micro-oriented, state-like

positive organizational behavior or POB approach by Luthans. Luthans defines PsyCap as an individual's positive psychological state of development, including self-efficacy, optimism, hope, and resiliency (Luthans, 2002). The POB theory proposed to attaching importance to the management and cultivation of psychological factors (Thomas and Tankha, 2018). Luthans puts forward the difference between positive PC and HC and SC and the way of management and development (Luthans and Youssef, 2004; Luthans et al., 2004). Luthans believes the unique feature of PC is that it is "state-like" and open to development. Luthans pointed out that POB emphasizes positively oriented human resource strengths named psychological capacities. His works reveals the feature of PsyCap and concludes that it can be measured, developed, and effectively managed for performance in today's workplace (Goldsmith et al., 1998). He developed a highly focused, 2-h web-based training intervention and concluded that PC can be developed (Luthans et al., 2008b).

Psychological capital includes many aspects. Jiang and Na (2013) believe that PsyCap includes six facets of self-efficacy, hope, optimism, resiliency, opportunity recognition, and social ability. Ke's research indicates that the construct of PC has two factors: task-oriented PC including self-confidence and courage, optimism and hope, spirit of enterprise and diligence, resiliency and perseverance, and relation-oriented PC including toleration and forgiveness, respecting and courtesy, modesty and prudence, thanksgiving and dedication (Ke et al., 2009). Bockorny and Youssef-Morgan (2019) proposed that courage is also valuable as hope and optimism, and entrepreneurs' courage is related to their life satisfaction and the venture. At present, the popular classification is determined by Luthans in 2006 and they are self-efficacy, hope, optimism, and resiliency.

Psychological capital affects one's career and personal achievement and influences people's behavior in many ways. PC emphasizes more on power, success, embellishment, and happiness (Donaldson, 2013), and it can promote performance and increase satisfaction.

Generally, the PC has impacts on all workplace attitudes and performance, including employees' satisfaction, employees' presentation (Avey et al., 2010; Larson et al., 2013). Many empirical researches illustrated that an employee with higher PC gives better performance at the workplace than an employee with lower PC (Reynolds et al., 2005). In 1998, Luthans conducted a meta-analysis of self-efficacy and confirmed the correlation between self-efficacy and work-related performance (Stajkovic and Luthans, 1998). Luthans' study indicates a significant positive relationship regarding the composite of the four facets with performance and satisfaction (Kossek et al., 2003). In 2007, Luthans put forward the measurement tools and methods of PC and analyzed the relationship between job performance and job satisfaction through empirical research (Luthans, 2002).

Psychological capital also affects people's entrepreneurship. The meta-analytic findings showed that PsyCap such as self-efficacy and need for achievement, and entrepreneurial orientation are highly associated with entrepreneurship (Frese and Gielnik, 2014) and also reveal a small, positive relationship



between personality and risk-taking propensity and new venture creation and success, and a moderate, positive relationship between innovativeness, need for achievement, and self-efficacy and new venture creation and success. Some researchers also reveal that EI is related to all dimensions of PC, especially with self-efficacy and resilience. PC as an integrated construct is related to EI as a whole (Contreras et al., 2017). In other words, the entrepreneurs are high in PC. Hmieleski found that entrepreneurs' PC could explain significantly variance in new venture performance, above and beyond measures of FC, HC, and SC (Hmieleski and Carr, 2008).

The researchers believe that PC can influence the entrepreneurship directly. But we hold that PC could not be seen as a factor of production and can't determine the result of entrepreneurship. PsyCap can affect the entrepreneurs' ability to acquire the financial, human, and SC and there must be a certain correlation between entrepreneurial capitals. From the literature, we find that there are more achievements in the study of PC alone, but less work on entrepreneurship analyzing human, social, and PC together, and let alone FC. The process of entrepreneurship is an economic activity, so the factors of production in economics are crucial for setting up business. Martin's research found that optimism significantly moderates the relationship between entrepreneurial capitals and the success of new business. Both entrepreneurial capitals and PC are significant predictors of entrepreneurial success (Martin et al., 2016). Traditional capital plays a direct role in the process of entrepreneurship, while PC does not directly affect entrepreneurship. So, the paper proposes that the PsyCap doesn't influence the entrepreneurship directly but exert impact on the factors to startup business such as financial and HC. The empirical study showed that the employees' PsyCap had a significant additional impact over human and SC on these work attitudes and job satisfaction (Iyigun and Owen, 1998). The Attraction-Selection-Attrition (ASA) theory suggests that PC is negatively related to stress (Baron et al., 2016). Therefore, this paper proposes that the PC determined by personality will affect the individual's ability to acquire traditional capital and proposes the following hypotheses.

*Hypothesis 2a.* Psychological capital affects the financial capital positively.

*Hypothesis 2b.* Psychological capital affects the human capital positively.

*Hypothesis 2c.* Psychological capital affects the social capital positively.

### Mediating Roles of Traditional Entrepreneurial Capitals on Psychological Capital and Entrepreneurial Intention

For most entrepreneurs, PC is the important factor determining the entrepreneurship. Most entrepreneurs regularly confront the shortages of financial, human, and SC, and they have only themselves and their psychological state to rely on to get the job done (Hmieleski and Carr, 2008). The PC, especially hope and self-efficacy can promote entrepreneurial passion, which

is a driver and source of energy to work hard and persist in the process (Baum and Locke, 2004). Optimism and resilience can make entrepreneurs believe in the feasibility and success of an idea in entrepreneurship characterized by enormous uncertainty and a high degree of complexity (Baum and Locke, 2004) PC can produce strong entrepreneurial motivation, which positively affects the entrepreneurial decision-making process (Baron et al., 2016).

As discussed before, only the intention is not enough for innovation and entrepreneurship. Especially, graduates may leave universities or colleges with academic knowledge but it is not enough to help them tackle the problem of entrepreneurship because they are totally disconnected from their social environment. SC contributes an overtly social and interpersonal element to entrepreneurial behaviors, with access to entrepreneurial opportunities. Similarly, entrepreneurial ability to realize opportunities in the marketplace is greatly influenced by HC. Considering the relative scarcity of capital in earlier period of entrepreneurship, FC is the most important resource for setting up business. Therefore, the entrepreneurial capitals of human, financial, and social will enhance the relationship between the psychological intention and entrepreneurial behaviors, which connect universities and industry, and enhance the student experiences, equipping the graduates with capitals of knowledge and skills in their entrepreneurial areas. We propose the following hypotheses.

*Hypothesis 3a.* Social capital mediates the relationship between psychological capital and entrepreneurial intention.

*Hypothesis 3b.* Human capital mediates the relationship between psychological capital and entrepreneurial intention.

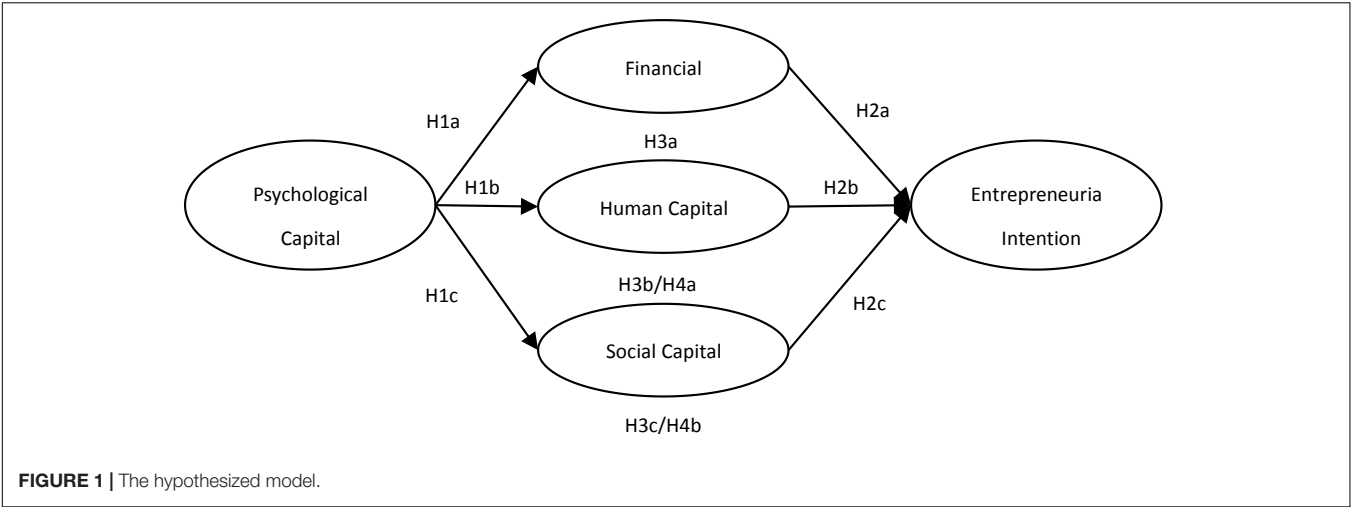
*Hypothesis 3c.* Financial capital mediates the relationship between psychological capital and entrepreneurial intention.

But as the basic elements of entrepreneurship capitals, their contributions to a successful upstart might be different. The importance of FC is decreasing currently due to affluent financing opportunities and various financing channels. The HC of the enterprise, that is, the knowledge of the market and the technology, creating a network of resources around them that can be used for entrepreneurship, has become a key factor for the success of business, so the mediation effect of PC on HC is greater than that of FC. Simultaneously, because of the importance of cooperation in a market economy, the mediation effect of SC is also higher than that of economic capital. So we put forward the following hypotheses.

*Hypothesis 4a.* The mediation effect of human capital on psychological capital and entrepreneurial intention is greater than that of FC.

*Hypothesis 4b.* The mediation effect of social capital on psychological capital and entrepreneurial intention is greater than that of financial capital.

**Figure 1** shows the hypothesized model depicting the relationships among PC, traditional entrepreneurial capitals, and their effect on EI.



MATERIALS AND METHODS

Measurement

The purpose of this study was to explore the relationships between PC (PsyCap or PC in short), FC, HC, SC, and EI in a sample group of students in the universities of Southeast China. The following hypotheses were tested: (1) PC is positively correlated with the level of FC, HC, and SC. (2) FC, HC, and SC have positive effects on EI. (3) FC, HC, and SC partially mediate the relationship between PC and EI.

To test our hypotheses, the study conducted a questionnaire survey. The questionnaire consists of three parts, entrepreneurial capital including PsyCap, financial, human, and SC (see **Table 1**), EI, and sample information.

The earliest measurement of PC was carried out separately on the four elements of PC, among which Snyder measured hope (Snyder et al., 1996), Wagnild and Young measured resilience (Wagnild and Young, 1993), Scheier and Carver measured optimism (Scheier and Carver, 1985), and Parker measured self-efficacy (Parker, 1998).

Then, PsyCap was measured with the 24-item PsyCap Questionnaire (PCQ) (Luthans et al., 2015; Luthans, 2002) by Luthans et al. (2008a) with six items for each of the four components (efficacy, hope, resilience, and optimism), PCQ

demonstrated adequate confirmatory factor analytic structure across multiple samples and had strong internal reliability ( $\alpha = 0.88$ ). In order to reduce the fatigue and boredom of the respondents, a short version of the scale with 16 items was used in this study to measure the PsyCap. We selected four of six 24-item PCQ and adapted it a little so as to be suited for Chinese students. Because most college students have no experience in the workplace, we modified the related items into items about their study and lives. To get a composite PsyCap score, all four responses for each of the four subscales were summed and averaged to get a subscale composite average.

Financial capital mainly refers to the acquisition of or various external financing, technology, and equipment that are needed for setting up new business. The questionnaire designs three items to survey the financial status of college students, including families' financial support for entrepreneurship, their own financial resources and technology, and equipment obtained through external channels.

Human capital can be expressed by education and working years (Snell, 1999), but college students do not have working experience, so it is expressed by three items: students' experience, knowledge and skills, and entrepreneurial ability.

Leana's Social Capital Scale is mainly expressed in terms of the number of participating organizations or activities (Leana and Van Buren, 1999). However, this study considers that SC is mainly the entrepreneurial support that individuals can obtain from outside, so it mainly includes three items: the status of support provided by social relations for entrepreneurship, the role of learning environment for entrepreneurship and the support of family and relatives and friends for entrepreneurship.

Entrepreneurial intention is based on Thompson's individual entrepreneurial intent Scale (IEIS), and we select five items related to students' entrepreneurship. The items that are reverse coded in scale are changed into obverse ones.

Sample Collection and Data

We used previously published and validated measures in this study. The questionnaires comprised demographic questions (e.g., age, sex, major and educational level) and five variables.

TABLE 1 | The structure of the questionnaire.

| Contents                  |                   |               | Items |
|---------------------------|-------------------|---------------|-------|
| Entrepreneurial capital   | PsyCap            | Self-efficacy | 4     |
|                           |                   | Hope          | 4     |
|                           |                   | Optimism      | 4     |
|                           |                   | Resilience    | 4     |
|                           | Social capital    |               | 3     |
|                           | Human capital     |               | 3     |
|                           | Financial capital |               | 3     |
| Entrepreneurial intention |                   |               | 5     |
| Sample information        |                   |               | 4     |

The independent variables were the PC, FC, HC, and SC. The EI with five items served as dependent variables in the model. All questions were rated on a five-point Likert scale (strongly disagree = 1, strongly agree = 5). Reliability testing of the scales was conducted before the questionnaires are distributed.

Survey data were collected from a random sample of university students in Southeast China, because Southeast China is well-developed and people have traditional business spirit, has a good market environment, and is currently the region with the most active entrepreneurial and innovative activities. We received a total of 2039 completed questionnaires with a return rate of 82%, among which 1914 are qualified. **Table 2** shows means, standard deviations, and correlations of the study variables. Scale reliability was tested by calculating items for total correlation coefficients and Cronbach's alpha for the overall scale. The composite reliability of each of the constructs was greater than 0.7, which indicates that all the variables meet the requirement of construct reliability.

The PsyCap of college students is quite high, and each of the facets is higher than the other traditional capital. The students' HC is the lowest among the four types of capital, and their EI is very low. From the perspective of different individuals' context, the scores of boys are higher than those of girls, and the scores of the students majored in science and engineering are higher than those of the students majored in liberal arts. The statistics demonstrate that boys prefer entrepreneurship more and the students majored in science and engineering have the advantage in technology.

## EMPIRICAL RESULTS

The goodness of fit of the models was evaluated using absolute and relative indices. The absolute goodness-of-fit indices calculated were the chi-square goodness-of-fit statistic, RMSEA, GFI, NNFI, IFI, and CFI. Non-significant values of chi-square indicate that the hypothesized model fits the data. Values of RMSEA smaller than 0.08 indicate an acceptable fit and values greater than 0.1 means the model should be rejected. Relative-fit index values are greater than 0.90, indicating a good fit.

Given the multivariate nature of the variables in the model and the need to assess both the measurement properties of the scales and the substantive relationships between them simultaneously, SEM (AMOS) with maximum likelihood estimation was used. In the paper, we take the FC, HC, and SC as mediators, and conduct Mediation Effect analysis. When considering the influence of independent variant PC on dependent variant EI, the influences are not directly but through these mediators. Therefore, AMOS was used to test two models: the one is a basic or direct model ( $PC \rightarrow EI$ ); the other is a fully mediated model that includes mediation effects ( $PC \rightarrow FC \rightarrow EI$ ;  $PC \rightarrow HC \rightarrow EI$ ;  $PC \rightarrow SC \rightarrow EI$ ).

We discuss the CFA analysis and measurement model of PC firstly, followed by the substantive model. We first tested the measurement model of PC to assess the items' correspondence to their respective latent variables. Briefly, parceling combines items randomly into following a parceling procedure for our constructs, and scales' items were parceled randomly into composites indicators, which entered the measurement model as multiple indicators to estimate their respective latent variables. The measurement model resulted in excellent fit statistics. Specifically, NFI (0.95), RFI (0.94), IFI (0.96), TLI (0.95), and CFI (0.95) exceeded the recommended 0.90 cutoff, and RMSEA (0.06) was below the recommended 0.10 level. In combination, these suggest uni-dimensionality of the scales used. The CFA model's chi-square was significant (chi-square = 893.64 with 100 degrees of freedom;  $p = 0.0001$ ). So, the test of reliability of PC scales in the survey is acceptable.

Exploring the mechanism of PC on EI, we use SEM. Raw data were used for the path analysis, and **Table 3** shows the results of model analysis. According to **Figure 2**, in the basic model, there is a direct and positive relationship between PC and EI. This is not surprising given the large sample size. The model fit statistics were excellent and within acceptable cutoff rates. RMSEA (0.06) was lower than the traditional 0.10 cutoff level. NFI (0.94), RFI (0.94), IFI (0.95), TLI (0.94), and CFI (0.95) were all higher than the 0.90 cutoff advocated by Hair et al. (2014). The model's chi-square was significant (chi-square = 1651.84 with 184 degrees of freedom;  $p = 0.0001$ ). The result of the basic model shows that PC is an important factor influencing students' EI and the total impact is 0.60.

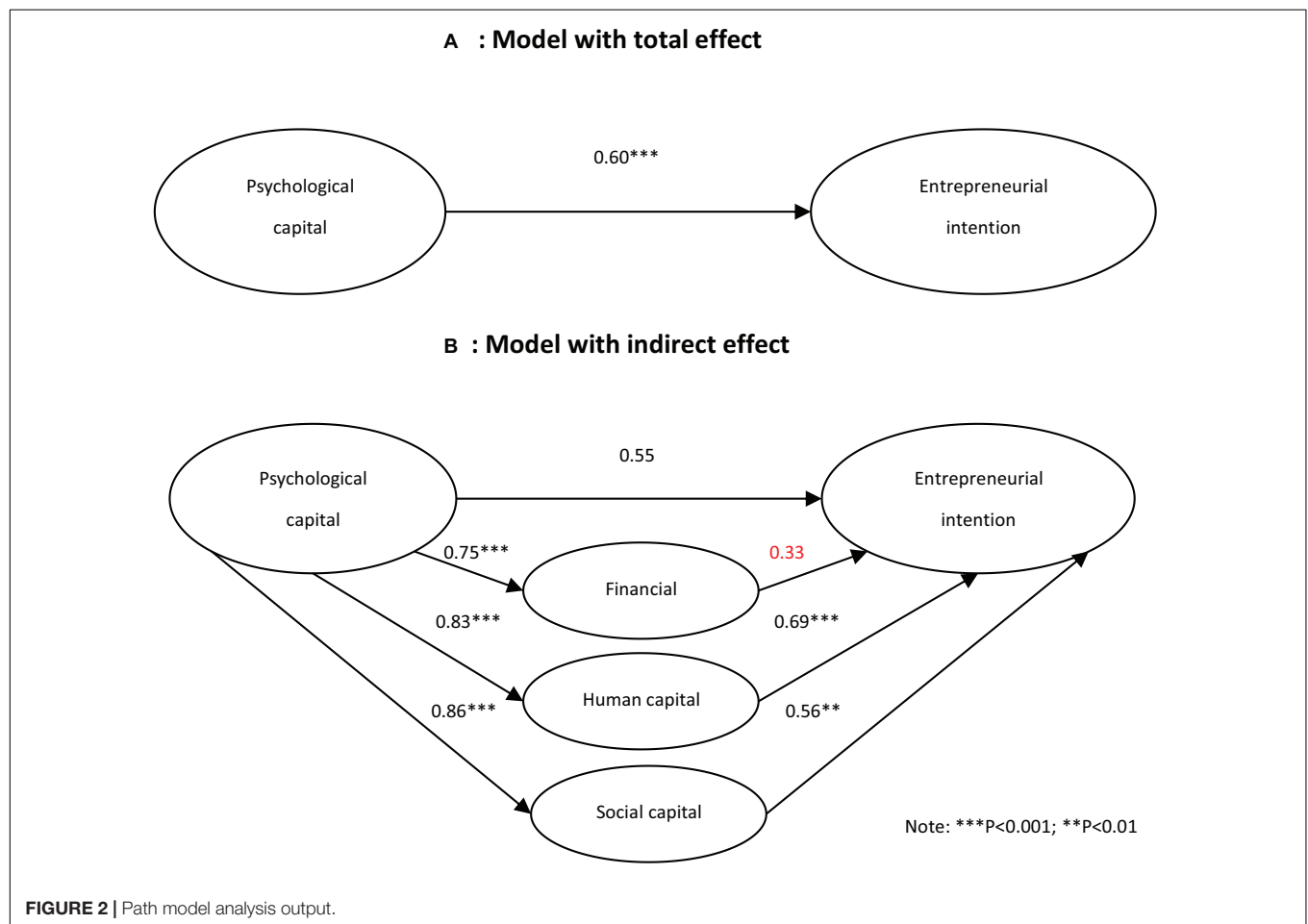
**TABLE 2 |** Descriptive statistics and variable inter-correlation.

|                           | Mean  | SD    | Inter-correlation |       |            |          |        |                   |               |                |
|---------------------------|-------|-------|-------------------|-------|------------|----------|--------|-------------------|---------------|----------------|
|                           |       |       | Self-efficacy     | Hope  | Resilience | Optimism | PsyCap | Financial capital | Human capital | Social capital |
| Self-efficacy             | 3.699 | 0.743 |                   |       |            |          |        |                   |               |                |
| Hope                      | 3.533 | 0.723 | 0.752             |       |            |          |        |                   |               |                |
| Resilience                | 3.539 | 0.773 | 0.695             | 0.746 |            |          |        |                   |               |                |
| Optimism                  | 3.508 | 0.780 | 0.594             | 0.681 | 0.702      |          |        |                   |               |                |
| PsyCap                    | 3.570 | 0.660 | 0.867             | 0.901 | 0.895      | 0.859    |        |                   |               |                |
| Financial capital         | 3.033 | 0.905 | 0.562             | 0.616 | 0.620      | 0.583    | 0.677  |                   |               |                |
| Human capital             | 2.895 | 0.950 | 0.559             | 0.628 | 0.604      | 0.589    | 0.677  | 0.775             |               |                |
| Social capital            | 2.944 | 0.941 | 0.530             | 0.630 | 0.624      | 0.602    | 0.679  | 0.791             | 0.863         |                |
| Entrepreneurial intention | 2.691 | 1.031 | 0.517             | 0.552 | 0.541      | 0.481    | 0.595  | 0.674             | 0.730         | 0.719          |

$N = 1914$ .

**TABLE 3 |** Structural model results.

| Relationship     | Model 1 (Basic model) |       |        |     | Model 2 (Full model) |       |        |       |
|------------------|-----------------------|-------|--------|-----|----------------------|-------|--------|-------|
|                  | Estimate              | S.E.  | C.R.   | P   | Estimate             | S.E.  | C.R.   | P     |
| PC→FC            |                       |       |        |     | 0.751                | 0.023 | 32.443 | ***   |
| PC→HC            |                       |       |        |     | 0.829                | 0.019 | 43.729 | ***   |
| PC→SC            |                       |       |        |     | 0.859                | 0.020 | 43.956 | ***   |
| FC→EI            |                       |       |        |     | 0.328                | 0.080 | 4.087  | 0.160 |
| HC→EI            |                       |       |        |     | 0.691                | 0.077 | 8.973  | ***   |
| SC→EI            |                       |       |        |     | 0.564                | 0.075 | 7.507  | **    |
| PC→Self-efficacy | 0.625                 | 0.018 | 33.870 | *** | 0.524                | 0.018 | 28.424 | ***   |
| PC→Hope          | 0.667                 | 0.018 | 37.308 | *** | 0.585                | 0.018 | 32.878 | ***   |
| PC→Resilience    | 0.669                 | 0.018 | 37.263 | *** | 0.589                | 0.018 | 32.800 | ***   |
| PC→Optimism      | 0.546                 | 0.021 | 26.246 | *** | 0.519                | 0.020 | 25.371 | ***   |
| PC→EI            | 0.595                 | 0.037 | 15.989 | *** | 0.551                | 0.148 | 3.729  | 0.526 |

\*\*\* $P < 0.001$ ; \*\* $P < 0.01$ .**FIGURE 2 |** Path model analysis output.

In the full model, when we introduce Financial Capital (FC), Human Capital (HC) and Social Capital (SC) as mediators in the relationship between PC and EI. The test results shows that the relationships between psychological capital (PC) and three mediators, and three mediators and EI, are significant except FC and EI. The results demonstrate psychological capital has

impact on financial capital ( $r = 0.75, p < 0.001$ ), human capital ( $r = 0.83, p < 0.001$ ), social capital ( $r = 0.86, p < 0.001$ ), which verifies the hypothesis of H1a, H1b, H1c. Simultaneously financial, human, social capital influence university students' entrepreneurial intention directly, and the effect of HC on EI ( $r = 0.69, p < 0.001$ ), SC on EI ( $r = 0.56, p < 0.01$ ) is significant,



FC on EI ( $r = 0.33$ ,  $p > 0.05$ ) is not significant, which testing the hypothesis of H2b and H2c, but H2a is not supported. The conclusion is also consistent with the theory of the convertible nature of entrepreneurial capitals by Shaw.

The testing for mediation to determine how the intervening variable (mediator) transmits the effect of an independent variable to a dependent variable was performed. To avoid Type I and Type II errors in testing our mediating effect, joint significance of the two effects comprising the intervening variable effect and independent variable was adopted as stipulated by MacKinnon et al. (2002).

It can be seen from **Figure 2** that the coefficient for PC on EI dropped significantly from 0.60 to 0.55 when SC, HC, and FC are introduced as mediators. After introducing three mediators, the relationships between PC and EI is not significant ( $p = 0.526$ ), which is 0.595 ( $p < 0.001$ ) before. The results suggest that SC, HC, and FC may be exerting a mediation effect. The findings support H3a, H3b, and H3c, suggesting that perceptions of PC indirectly predict EI through the mediating role of FC, HC, and SC. So, we could say that FC, HC, and SC mediate the relation between PC and EI. The measurement model resulted in NFI (0.90), RFI (0.90), IFI (0.91), TLI (0.90), and CFI (0.90), and all exceeded the recommended 0.90 cutoff, and RMSEA (0.05) was below the recommended 0.10 level. The model's chi-square was significant (chi-square = 4076.19 with 394 degrees of freedom;  $p = 0.0001$ ). Given the fit statistics, we proceeded to examine the estimated coefficients (**Table 3**). Therefore, from mediation analysis, it is confirmed that SC, HC, and FC mediate the relationship between PC and EI.

Regarding the degree of contributions, the results show that the mediation effect of PC on the financial, human, and SC is 0.248, 0.573, and 0.482, respectively, demonstrating that H4a and H4b are correct. China's entrepreneurship environment has shifted to high-level economic development based on knowledge and technology, and the role of FC in entrepreneurship and economic development is declining.

## CONCLUSION AND IMPLICATIONS

The paper investigates the relationship between PC and EI, as mediated by FC, HC, and SC. The paper reveals that PC has a mediating effect on college students' EI in China by influencing social, human, and economic capital, which supports hypothesis 3 of this study. All the results support the proposed hypotheses. This research could enhance knowledge of these factors, and the results could be expanded in future experimental studies.

### Main Conclusion

This paper clearly reveals the relationship between various forms of entrepreneurial capital, and proves that the PC is positively related to FC, HC, and SC, and explains the mechanism how PC enhances entrepreneurial willingness. The research emphasizes the role of PC in promoting entrepreneurship, linking economics with management.

- (1) The effect of PC on entrepreneurship intention is not direct, but through FC, HC, and SC to influence students' EI.
- (2) The four facets of PC play an unequal role in the construct of PC. The coefficients of self-efficacy, hope, resilience, and optimism are 0.52, 0.59, 0.59, and 0.52, respectively. Self-efficacy is the most important component of PC. This is nearly the same as Rauch's conclusion that self-efficacy has a stronger association with success especially (Rauch and Frese, 2007). Many researches reveal that self-efficacy has a positive impact on work-related performance (Bandura, 1997). Harudin also proved that the strongest relative influence toward the EI is self-efficacy (Harudin et al., 2016).
- (3) When setting up a new business, the role of traditional financial, human, and SC contributing to the behaviors of entrepreneurship is different, which is 0.33, 0.69, and 0.56, respectively. In traditional entrepreneurial capitals, the role of FC in promoting entrepreneurship is much lower than that of HC and SC. With the maturing financial market such as venture capital, the degree of its contribution to entrepreneurship is declining. The significant impact of HC and SC on entrepreneurship intention shows that China's economic development has shifted from capital-driven to human capital-driven and social capital-driven, and the contribution of technology and social network to economic development is constantly emerging.
- (4) Psychological capital plays an important role in increasing FC, HC, and SC, which is rarely involved in the literature. Some researchers have paid attention to the relationship of traditional capital. For example, Danes summarizes the influence of family capital (human, social, and financial) on financial success of family firms (Danes et al., 2009). Luthans noted that SC contributes to the creation of HC (Luthans and Youssef, 2004). But no research studies the impact of PC on traditional capital. The influence coefficients of PC on financial, human, and SC are 0.75, 0.83, and 0.86, respectively. Psychological capital has the weakest impact on FC and the most significant impact on SC, which fully proves the important role of PC in social and economic development. PC has become an important form of modern capital. PC can not only improve job performance, job satisfaction, and innovation (Donaldson, 2013), but also enable individuals to overcome difficulties in order to obtain more financial support and improve financing capacity and FC. PC can enable individuals to have higher self-efficacy, so as to formulate more scientific and reasonable individual learning plans, improve self-control and perseverance to acquire more knowledge to set up business. The psychological factors were strongly associated with SC outcomes (Steinfeld et al., 2008). PC can enable individuals to get along with colleagues and classmates more optimistically, form a larger network of social organizations, and have more SC.

- (5) At present, the most important factor affecting university students' EI in China is the insufficient traditional capital, which has become an important factor affecting students' entrepreneurial willingness.

## Managerial Implications

Increasing entrepreneurship spirit in university study is a key factor affecting the university students' EI. Actually, only the PC is not enough to improve the EI. Therefore, this study established a mediation effect (hypothesis 3) in which social, human, and FC mediated the relationship between PCs on EI. While PC alone cannot lead to entrepreneurship, tests indicated that the level or the degree at which three capitals contribute to entrepreneurship is different, and the FC is weaker compared to social and HC. Hence, education is not only the source of HC, but also the source of entrepreneurial willingness and SC. Successful business management depends on both HC and SC (Belliveau et al., 1996; Podolny and Baron, 1997). The important foundation of human and SC is to improve students' PC. The positive PC can be invested in and managed as human and SC, but with less monetary cost (Luthans et al., 2004). In the cultivation of university students' entrepreneurship ability, we should focus on the cultivation of students' PC. At present, there are fewer courses on the development of PC in university education, and less research and practice on the cultivation of university students' PC.

The curriculum of entrepreneurship education should be diversified to provide more ways and skills for students to acquire startup capital. It is very important to give students more opportunities to participate in social organization to form more SC.

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## Limitation and Future Research

Firstly, the sample size of this study is small, which can only explain the general situation of students' entrepreneurial capital in Fujian Normal University, but cannot explain the overall situation of the students in the whole country. Secondly, the paper finds that there are differences in startup capital and willingness among students of different genders and majors, but there is no in-depth analysis.

The general situation of college students' startup capital in China, the mechanism of PC affecting traditional capital, and the reasons for the difference of students' PC can be researched in the future.

## DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

## AUTHOR CONTRIBUTIONS

GW and JZ: conceptualization, methodology, and formal analysis. JZ and K-HC: software. JZ: writing – original draft preparation. GW and J-MY: writing – review and editing.

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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# The Relationship Between Entrepreneurial Intention and Action: The Effects of Fear of Failure and Role Model

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The purpose of the study was to examine the moderating effect of business role model and fear of failure on the relationship between entrepreneurial intention and behavior. The participants were sampled from 1865 college students who graduated from universities in China from 2012 to 2018. The experimental instrument was comprised of four scales concerning entrepreneurial intention, entrepreneurial behavior, fear of failure, and business role model. The data were analyzed using hierarchical regression. The results showed that: (1) Entrepreneurial intention was positively influenced the entrepreneurial behavior; (2) Fear of failure weakened the relationship between entrepreneurial intention and action; (3) The moderating effect of business role model on entrepreneurial intention and behavior was confirmed. We concluded that entrepreneurial intention was positively related to the entrepreneurial behavior, fear of failure hindered college students from taking entrepreneurial behavior, and business role model will enhance their entrepreneurial intention. The paper suggest that some measures should be taken to overcome college students' fear of failure, and to improve the education system of entrepreneurship in order to cultivate talents with creativity.

**Keywords:** entrepreneurial intention, entrepreneurial behavior, business role model, fear of failure, China

## INTRODUCTION

The process of entrepreneurship can be divided into two stages: the formation of entrepreneurship intention and the implementation of entrepreneurship behavior. Every entrepreneurship starts from the generation of entrepreneurship intention, which has a good predictive effect on entrepreneurship behavior. At present, many studies focus on entrepreneurship intention, they explored the factors affecting individual entrepreneurship intention from many aspects, such as personal characteristics, self-efficacy, risk perception, system design and so on. It is undeniable that the entrepreneurial intention is a necessary condition for the development of entrepreneurship. Relevant research results have a positive effect on our understanding of the entrepreneurship process. But can entrepreneurship behavior be guaranteed with entrepreneurship intention?

Liu et al. (2011) believed that people with entrepreneurial intentions may not really be able to start new businesses because of personal characteristics and the surrounding environment. That is to say, although entrepreneurship intention is a necessary condition for the occurrence of entrepreneurship, not all potential entrepreneurs can take action even if they want to start

a business. Why do some people start businesses instead of others? What promotes or hinders the action of potential entrepreneurs? These are issues which deserve exploration and research. Relevant studies have shown that risk tendency, business role model, and entrepreneurial climate have a significant impact on individual entrepreneurship, but only focus on entrepreneurial intention, not extended to entrepreneurial practice. Therefore, fear of failure and business role model are chosen to explore the mechanism of individual entrepreneurial intention transforming into entrepreneurial behavior.

College students are an important part of mass entrepreneurship. Compared with other groups such as the new generation of migrant workers, college students have a more solid theoretical knowledge and advanced entrepreneurial concept, with active thinking and the spirit of adventure that they do not have, and with the gradual promotion of entrepreneurship education in schools, college students have a more comprehensive and profound understanding of entrepreneurship. As a result, College Students' entrepreneurship has gradually broken through the scope of the original education, and has attracted more and more attention of scholars in other fields. They have studied it from the aspects of cultivation of entrepreneurship ability, construction of social environment, policy support, etc. However, they ignore the lack of social experience of college students and the fact that most Chinese students are less confident. Compared with other groups, it is more necessary to explore the role of positive psychology and role model in the process of college students' entrepreneurship. The results of this study not only contribute to the entrepreneurship of college students in mainland China, but also provide an important reference for all Chinese groups in the world.

## LITERATURE REVIEW AND RESEARCH HYPOTHESIS

### Theoretical Foundation-Psychological Capital

Psychological capital first appeared in the economics. A person's psychological capital is likely to govern their motivation and general attitude toward work. Goldsmith believes that Psychological capital is the integration of individual's work, ethics, self-life belief, attitude and cognition, and some personality characteristics that can affect individual productivity (Goldsmith et al., 1997). Subsequently, psychological capital has attracted the attention of active psychologists and active organizational behaviorists. Seligman believes that the psychological factors that may lead to individual positive behavior should be included in the category of capital (Eligman and Csikszentmihalyi, 2000). Luthans and Youssef (2004) put forward the concept of psychological capital from the perspective of positive organizational behavior, and pointed out that psychological capital is a psychological state that can affect individual positive behavior. Psychological capital helps to regulate individual cognitive process, guide individual positive behavior process, and improve individual performance. Scholars

selected job satisfaction, organizational commitment, coping style, interpersonal harmony, altruistic behavior, occupational well-being and mental health and other performance-related behavioral state variables to study the role and impact of psychological capital on these variables. The results showed that the effect of psychological capital on behavioral attitude was positive and significant, which can improve individual attitude and behavior by adjusting individual cognitive process, and ultimately affect individual performance (Du and Zhao, 2012).

Entrepreneurs with high psychological capital can balance the costs of failure better than those with low psychological capital, learn from failure and further manage and control enterprises effectively. According to the study, individuals with high psychological capital show a positive psychological state. When facing difficulties, they are more inclined to seek solutions to overcome problems. They can take failure as an excellent opportunity to learn, reflect on and summarize failure, and further improve to achieve their entrepreneurial goals (Zhuang, 2018). Therefore, psychological capital can correct entrepreneurs' fear of failure. When encountering setbacks or hard work in the process of entrepreneurship, a successful entrepreneur can help them build a positive psychology of entrepreneurship, reduce the frustration of entrepreneurship, and then regain confidence (Chlosta et al., 2012; Tsai and Hsieh, 2012; Lafuente and Vaillant, 2013; Yang et al., 2013; Liu and Lin, 2015; Zapkau et al., 2015; Zampetakis et al., 2017; Bockorny and Youssef-Morgan, 2019; Wei et al., 2019).

### Entrepreneurial Intention and Entrepreneurial Behavior

DeNoble et al. (1999) holds that entrepreneurial intention is the entrepreneur's intrinsic cognition, preference and behavioral tendency to create a new business. Krueger (2000) interpret entrepreneurial intention as a subjective attitude and expectation of potential entrepreneurs about whether they engage in entrepreneurship activities or not. Thompson (2009) defines entrepreneurial intention as the belief that entrepreneurs intend to start a business. In a word, entrepreneurial intention is a psychological state that guides our attention toward specific business goals in order to achieve entrepreneurial results. It is also a recognition that individuals take actions to develop new businesses or create new values in existing enterprises.

Entrepreneurial behavior is the process in which entrepreneurs put their entrepreneurial vision into practice. It is also the process in which entrepreneurs transform and create more wealth and value and achieve their entrepreneurial goals in a certain way by using the information, resources, opportunities or technologies they owned. McMullen and Shepherd (2006) argues that entrepreneurial behavior is an activity that entrepreneurs struggle to change and reach their goals by using their creativity and influence. Entrepreneurship is a combination of consciousness and planned behavior. It is a subjective state of entrepreneurs' attention, energy and behavior oriented to a specific goal (Bird, 1988). The decision to build a new business is considered as a thoughtful thinking activity and planned behavior of entrepreneurs (Liu et al., 2011).

Therefore, entrepreneurship ideas stimulated by inspiration must be reached through entrepreneurial intention. Entrepreneurial intention is the premise of entrepreneurial behavior. People with high entrepreneurial intention are more likely to start a new business than those with low. Based on this, this study proposes the following hypothesis:

Hypothesis H1: Individual entrepreneurial intention is positively correlated with Entrepreneurial behavior.

## Business Role Model and Entrepreneurial Behavior

A role model is a person who can influence others to some extent in social life. In social practice, individuals tend to look for similar examples. Individuals cannot participate in social activities in isolation, but act in groups with others. In this process, individual behavior decisions are often influenced by other people's opinions and behaviors. Such "others" are often referred to as "role models" (Gibson and Barron, 2003). Whether "others" can become "role models" is related to your perception. When you think that you are somewhat similar to "others" and therefore tend to imitate or deliberately avoid certain attributes or behaviors of "others," "others" become your "role models" (Bosma et al., 2012).

As the carrier of social learning, role model provides individuals with a reference to learn experience. Through observational learning of role models, individuals can acquire successful or unsuccessful experience of role models, and form clear self-judgments about certain attributes or behaviors of successful imitation or avoidance of role models in similar situations. In addition, the role models can directly affect individuals by involving them in learning activities.

For entrepreneurship, the role of business models is to provide individual spiritual incentives and behavioral guidance, which has an important impact on individual entrepreneurship activities (Bosma et al., 2012). Krueger's research shows that business role models play an important role in the career decision-making process in which individuals choose to become entrepreneurs. As far as potential entrepreneurs are concerned, business role models can provide indirect experience such as business information, improve the probability of discovering and utilizing business opportunities, and then enhance the possibility of triggering entrepreneurship events. That is to say, if your relatives or friends are entrepreneur, you may also start a business. Li et al. (2017) takes farmers as the research objects, empirically studied the relationship between business role model and entrepreneurial behavior. The results showed that the farmers with business role model are more likely to trigger entrepreneurship events than those others. Based on the above discussion, this paper puts forward the following hypotheses:

Hypothesis H2: business role model is positively correlated with entrepreneurial behavior.

## Fear of Failure and Entrepreneurial Behavior

Fear of failure develops gradually from the study of achievement motivation. Avoiding failure is an instinctive behavior of people.

Birney et al. (1969) believes that fear of failure refers to the inner fear of an individual when he or she perceives that he or she may not achieve certain goal. The fear of failure is the opposite of the desire to succeed and the motivation to avoid punishment for failure. For most people, fear of failure is uncontrollable. Individuals are often affected by fear of failure and adopt the behavior of avoiding achieving goals, if he can't be guaranteed success (Ajzen, 1991).

Fear of failure is closely related to uncertainty and risk aversion. Lipshitz and Strauss (1997) argues that uncertainty is a kind of sensory doubt that can hinder or delay the occurrence of behavior. Therefore, uncertainties in the process of entrepreneurship can lead to hesitation and procrastination, which is so damaging to entrepreneurial behavior. In addition, risk aversion may also be a manifestation of fear of failure. It is believed that the more risk-averse a person is, the more afraid he is of failure. In the process of entrepreneurship, entrepreneurs are more inclined to choose entrepreneurial behavior with moderate risk or even zero risk (Ekore and Okekeocha, 2012).

Both professionals and college students, the fear of failure may become an obstacle to their entrepreneurship. In general, employees have formed a relatively stable living condition. For them, entrepreneurship means changing the original rhythm of life. Once failed, it will not only be unable to maintain the original living standard, but may also be in a dilemma. This will invisibly delay or put aside the entrepreneurship ideas of the incumbents. The results showed that fear of failure had a negative impact on female entrepreneurs. Liu et al. (2011) argued that some potential entrepreneurs would not start a business because they were afraid of various risks brought about by business failure. Entrepreneurship not only needs to raise funds, human resource and equipment during the preparatory period, but also faces many challenges and crises at any time. Considering their abilities and possible risk of failure, the number of people who really start a business may be greatly reduced. Accordingly, this study proposes the following hypotheses:

Hypotheses H3: Fear of failure is negatively correlated with Entrepreneurship behavior, and negatively regulates the relationship between individual entrepreneurial intention and entrepreneurial behavior.

## Business Role Model and Fear of Failure

The role of the role models has been extensively studied in different fields such as sociology and psychology. Child development psychology has proved that role models can help children overcome fear; even adults, positive role models can alleviate their social fears, which results from imitative learning of role models. As far as entrepreneurship is concerned, business role models set a benchmark for individuals. Through social comparison, observation Learning and imitation learning, potential entrepreneurs deepen their understanding of entrepreneurship projects similar to those experienced by business role models. They have a more intuitive and accurate understanding of the resources needed for entrepreneurship and the problems that may arise in the process of entrepreneurship, which can eliminate the anxiety and fear of entrepreneurship.

As for the relationship between role models and overcoming fear, it seems that we can also draw inspiration from the children's story of "Pony across the river." After receiving his mother's instructions, the pony happily went to the village with his hunched grain. On the way to the river, he dared not cross the river because he did not know the depth of the river. Even if he had acquired the external experience knowledge such as cow and squirrel, he could not rule out the fear of crossing the river. So, he went home to ask for his "role model" mother's advice. With his mother's encouragement, the pony fight down the fear and successfully crossed the river. In this story, the pony gradually overcomes the fear of the river and finally reaches the other side of the river based on his trust in the "role model." Relevant studies in the field of entrepreneurship also believe that business role models can not only provide entrepreneurship information, but also provide spiritual and material support. These supports reduce many "worries" for potential entrepreneurs, strengthens their confidence in overcoming difficulties in the process of entrepreneurship, and improves the positive evaluation of the possibility of success of entrepreneurship. Although the above views have not been proved by empirically studied, but at least to show that there is a link between business role models and fear of failure. Based on the above discussion, this study put forward the following hypotheses.

Hypotheses H4: Business role models are negatively correlated with fear of failure. Business role models could help potential entrepreneurs overcome fear of failure.

These four hypotheses constitute the framework of this study, as shown in **Figure 1**.

## RESEARCH METHODS AND DATA COLLECTION

### Operational Definition of Variables

Therefore, in this study, the "yes" and "no" of each variable are assigned to "1" and "0," respectively, for correlation analysis and regression analysis.

### Entrepreneurial Intention

This paper drew lessons from this item, and changed the topic for the respondents. The revised topic is: Do you expect to start a business one day when you graduate from university? Answer "yes" on behalf of their entrepreneurial intention, on the contrary,

they do not have entrepreneurial intention, and "yes" to "1," "no" to "0."

### Entrepreneurial Behavior

The measurement of entrepreneurial behavior has always been a difficult problem in the academic community, which is very challenging, but also an important issue to be solved in the process of entrepreneurial research. The initial entrepreneur plays a key role in the process of enterprise creation is. Although there are few definitions, the initial entrepreneur is always regarded as a person if he starts a series of behaviors at first, and if the intention is to create the enterprise at last, that is the entrepreneurial behavior (Aldrich and Martinez, 2001). Four related items were designed. Each item was answered in the form of "yes or no" (yes was given a value of "1" and "no" was given a value of "0"). After that, the selection scores of the four items were added up, with the highest score of 4 and the lowest score of 0. The entrepreneurial behavior was measured by this score. The higher the score, the higher entrepreneurial behavior. This study also uses this way to measure entrepreneurial behavior, just the words of the title have been revised, so as to make it more in line with Chinese vocabulary habits. The revised topics include "Are you currently trying to start a business," "From graduation to now, have you participated in or invested in other people's business" and so on.

### Fear of Failure

Fear of failure is used to measure whether an individual will give up the idea of starting a business because he was afraid to fail. The answer "No" means that they will not be held back by fear of failure, and the "yes" to the value of 1, "no" to the value of 0.

### Business Role Models

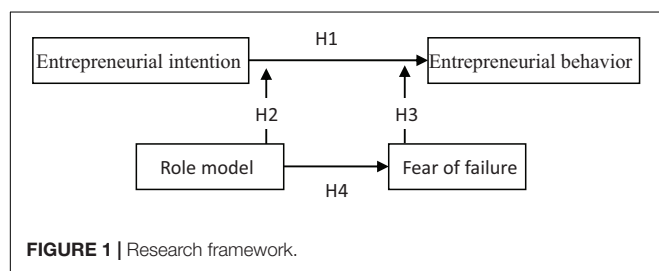
Business role models are used to measure whether individual entrepreneurship decisions are influenced by role models. This paper also uses this form to set up "Are there successful entrepreneurs among your family, teachers, relatives and friends?" The answer "Yes" means that they are influenced by business role models, "No" means that they are not affected by role models, and the "yes" value is given to 1, and the "no" value is given to 0.

### Control Variables

Previous studies have shown that the entrepreneurial intention of males is significantly higher than that of females, and individuals with different professional backgrounds and family economic conditions have different entrepreneurial intention. Therefore, in order to avoid these factors affecting the role model effect of this study, gender, major and household income were taken as control variables.

### Data Collection

The main purpose of this paper is to explore whether business role models and fear of failure have an impact on individual entrepreneurial behavior. According to two-stage model of entrepreneurship (Mcmullen and Shepherd, 2006), the problem studied in this paper belongs to the transition stage of





**TABLE 1 |** Variable description.

| Variable                                      | Sample number | Proportion (%) |
|---|---------------|----------------|
| <b>Sex</b>                                    |               |                |
| male  | 426           | 61.03          |
| female  | 272           | 38.97          |
| <b>Specialty</b>                              |               |                |
| Economic management                           | 201           | 28.80          |
| Humanities and social sciences                | 146           | 20.92          |
| Science and engineering                       | 312           | 44.70          |
| Agriculture cure                              | 39            | 5.58           |
| <b>Household income (CNY/Year)</b>            |               |                |
| <50 thousand                                  | 12            | 1.73           |
| 50–100 (50 ≤ , <100, the same below) thousand | 74            | 10.60          |
| 100–200 thousand                              | 221           | 31.66          |
| 200–300 thousand                              | 212           | 30.37          |
| 300–1000 thousand                             | 145           | 20.77          |
| ≥1000 thousand                                | 34            | 4.87           |

entrepreneurship, so we choose graduates as respondents, which can not only avoid the errors caused by the retrospective approach, but also meet the needs of research purposes. We selected more than 1800 students who graduated from 35 universities in China from 2012 to 2018 and sent questionnaires by e-mail and QQ group. A total of 1865 questionnaires were sent out, 769 were actually recovered. After eliminating the invalid questionnaires, 698 valid questionnaires were finally obtained. The descriptive statistical results of the samples are shown in **Table 1**. According to Standards for Classification of Family Income in China in 2015, the paper divided household income into six categories.

**Table 1** shows that 61.03% of the students are male, 44.70% in science and engineering, 28.80% in economy and management, and only 5.58% in agriculture and cure. The distribution of household income is almost in line with China's household income statistics, with 82.9 percent of the total number of households in the well-off and middle-income categories.

## ANALYSIS OF RESEARCH RESULTS

### Reliability and Validity Test

Reliability analysis, also known as reliability testing, is used to test the reliability of collected data. At present, most scholars use Cronbach's  $\alpha$  as an indicator to test the reliability, and its value is greater than 0.7 to be considered as having a good reliability. This paper also uses this method to analyze the reliability of entrepreneurial behavior. The results show that the Cronbach's  $\alpha$  of the variable is 0.872, and the factor load of each item is above 0.6, which indicates that the scale of entrepreneurial behavior has good reliability.

Validity usually includes content validity and structure validity. Because the measurement of variables in this paper is based on more mature scales used in European and American

**TABLE 2 |** Sample correlation.

| Variable     | 1     | 2     | 3       | 4       | 5        | 6       | 7 |
|--------------|-------|-------|---------|---------|----------|---------|---|
| 1 Sex        | 1     |       |         |         |          |         |   |
| 2 Specialty  | 0.03* | 1     |         |         |          |         |   |
| 3 Income     | 0.01  | 0.01  | 1       |         |          |         |   |
| 4 Intention  | 0.042 | 0.10* | 0.03    | 1       |          |         |   |
| 5 Behavior   | 0.04* | 0.09* | 0.10**  | 0.33*** | 1        |         |   |
| 6 Fear       | 0.02  | 0.04  | −0.12** | −0.03   | −0.26*** | 1       |   |
| 7 Role model | 0.01  | 0.02  | 0.006   | 0.46*** | 0.13*    | −0.15** | 1 |

The diagonal number is the square root of average variation extraction, \*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

countries, it can be considered that it has a good content validity. The detection of structural validity is usually based on factor analysis. Since most of the variables involved in this paper are single-dimensional variables, factor extraction is not necessary. Therefore, this paper only analyzes the validity of the variable of entrepreneurial behavior. Before factor analysis, the KMO value and Bartlett's spherical test were used to test whether the samples were suitable for factor analysis. The results showed that the KMO value was 0.796, the chi-square value was 892.327, and the significance probability was significant at the level of 0.05, which indicated that the data were correlative and suitable for factor analysis. The test results showed that a common factor is extracted, and the cumulative variance of the factor reaches more than 60%, which is more than 50% of the basic standard. It can be considered that the scale of entrepreneurial behavior has good structural validity.

### Relevance Analysis

Using SPSS20.0, Pearson correlation coefficient was used to analyze the correlation between various variables. The results are shown in **Table 2**. There was a significant positive correlation between entrepreneurial intention and entrepreneurial behavior, and there was no significant correlation between fear of failure and entrepreneurial intention, but there was a significant negative correlation between fear of failure and entrepreneurial behavior and business role model. There was a significant positive correlation between business role model and entrepreneurial intention and entrepreneurial behavior, but the value of correlation between business role model and entrepreneurial intention was significantly greater than that between business role model and entrepreneurial behavior. After analyzing the correlation between fear of failure and other variables, we analyzed the correlation between fear of material loss, fear of mental loss and entrepreneurial intention, entrepreneurial behavior, and business role model. The results showed that fear of material loss has a significant negative correlation with entrepreneurial intention, entrepreneurial behavior and business role model. The relationship between the fear of mental loss and entrepreneurial intention is not significant, but it is significantly negatively related to entrepreneurial behavior and business role model. In the correlation statistics, men we give the value 1, women give the

**TABLE 3 |** Regression role model.

| Variable  | Entrepreneurial behavior |              |              |              |
|---|--------------------------|--------------|--------------|--------------|
|   | Role model 1             | Role model 2 | Role model 3 | Role model 4 |
| <b>Control variable</b>                           |                          |              |              |              |
| Sex   | 0.01                     | 0.01         | 0.02         | 0.02         |
| Specialty   | 0.08                     | 0.08         | 0.07         | 0.07         |
| Household income                                  | 0.15*                    | 0.12*        | 0.10*        | 0.07         |
| <b>Independent variable</b>                       |                          |              |              |              |
| entrepreneurial intention                         |                          | 0.31***      | 0.24**       | 0.12*        |
| <b>Moderating variable</b>                        |                          |              |              |              |
| Fear of failure                                   |                          |              | −0.29**      | −0.17*       |
| Business role model                               |                          |              | 0.01         | 0.02*        |
| <b>Product-item</b>                               |                          |              |              |              |
| entrepreneurial intention and fear of failure     |                          |              |              | −0.35***     |
| entrepreneurial intention and business role model |                          |              |              | 0.18**       |
| $R^2$   | 0.03                     | 0.09         | 0.11         | 0.10         |
| Adj $R^2$   | 0.02                     | 0.06         | 0.12         | 0.13         |
| $\Delta R^2$                                      | 0.02                     | 0.08         | 0.17         | 0.13         |
| $F$ -Value  | 22.18***                 | 41.52***     | 66.67***     | 58.26***     |

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

value 0, and household income is given the value 1–6 in a low to high order.

## Hypothesis Test

### Relationship Between Entrepreneurial Intention and Entrepreneurial Behavior

The correlation of **Table 2** shows that the correlation coefficient between entrepreneurial intention and entrepreneurial behavior is 0.326, reaching a significant level of 0.001, indicating that entrepreneurial intention and entrepreneurial behavior are significantly positively correlated. Relevance only indicates that there is a certain correlation between them, but it cannot explain the action. In order to study whether entrepreneurial intention can predict entrepreneurial behavior, this study uses entrepreneurial behavior as dependent variable and entrepreneurial intention as independent variable to make regression analysis. The results are shown in **Table 3**, model 2. The study found that the relationship between entrepreneurial intention and entrepreneurial behavior is very significant, with a standardized coefficient of 0.321, indicating that entrepreneurial intention has a significant positive relationship with entrepreneurial behavior, Hypotheses H1 has been verified.

### Moderating Effect of Business Role Model and Fear of Failure

This study used hierarchical regression analysis to test the moderating effect of business role model and fear of failure, and regarded gender, specialty and household income as the control variables, entrepreneurial intention as the independent variable, entrepreneurial behavior as the dependent variable, business

role model and fear of failure as the moderating variables. Considering the effects of control variables, the hierarchical regression analysis to test the moderating effect generally consists of four steps: The first step is the control variable model, the second step is the model with the independent variable, the third step is the model with the moderating variable, and the fourth step is the model with the interaction term of the independent variable and the moderating variable.

Firstly, the paper tested the control variables model (**Table 3**, Role model 1). The results showed that the model fits well, and the regression weights of gender and specialty are not significant. However, household income has a significant effect on entrepreneurial behavior, indicating that the level of family income may affect whether college students with entrepreneurial intention engage in entrepreneurship action. Secondly, the paper tested the moderating variable model (**Table 3**, Role model 3). The results showed that the model fits well and that fear of failure has a significant effect on entrepreneurial behavior, but the effect of business role model is not significant, indicating that business role model may not have a direct impact on entrepreneurial behavior. Thirdly, we put the product-item of independent variables and moderating variables into the model (**Table 3**, model 4). In order to avoid co-linear between independent variables and interactive terms, the product terms of independent variables and moderating variables are averaged. From **Table 3**, role model 4, we can see that the product-item of entrepreneurial intention and business role model has significant positive effect on entrepreneurial behavior. According to the above, Hypotheses H2 is supported. At the same time, it could be concluded that product-item of entrepreneurial intention and fear of failure has significant negative effect on entrepreneurial behavior from Role model 4, Hypotheses H3 was supported.

### The Relationship Between Business Role Model and Fear of Failure

According to the sample correlation in **Table 2**, the correlation coefficient between business role model and fear of failure is −0.15, which reaches a significant level of 0.01, indicating that business role model is negatively correlated with fear of failure. Then, this study regarded business role models as independent variables and fear of failure as dependent variables for regression analysis. The results showed that the relationship between business role models and fear of failure is very significant, and the standardization regression weight is −0.25. It shows that business role models have a significant negative effect on fear of failure. That is to say, the business role models would help potential entrepreneurs overcome fear of failure. Hypotheses H4 has been verified.

## CONCLUSION AND DISCUSSION

### Theoretical Contribution

The purpose of this study is to explore the transformation mechanism of individual entrepreneurial intention to entrepreneurial behavior, and explain the role of business

Role model and fear of failure in the process. Most studies have supported the view that entrepreneurial intention is the best predictor of entrepreneurial behavior. However, they almost stay at the stage of theoretical discussion, or directly regard this view as the presupposition basis of research, while there are few empirical studies. This study takes Chinese university graduates as a special group to study the relationship between entrepreneurial intention and entrepreneurial behavior. In order to ensure the reliability of the survey results, the questionnaires were sent and taken back by the teacher in charge of the class through e-mail, class group, etc. Questionnaires are distributed to many universities in different regions, which ensures the diversity of sample sources. The results showed that individual entrepreneurial intention has a positive impact on their entrepreneurial behavior. That is to say, when individuals have a higher entrepreneurial intention, the more likely they are to carry out entrepreneurial behavior. This empirical research conclusion not only supports the existing theoretical presupposition, but also indirectly shows that although culture influences individual behavior, the phenomenon that intention is the premise of individual behavior is common to different cultures (even if it cannot exclude the occasional behavior).

The business role model positively regulates the relationship between entrepreneurial intention and entrepreneurial behavior. Most of the existing studies focus on the impact of entrepreneurial role models on entrepreneurial intention, less on entrepreneurial behavior, while this study tried to find out the relationship between business role model and entrepreneurial behavior. From the results of sample correlation, business role models are significantly positively correlated with entrepreneurial intention and entrepreneurial behavior, but the correlation coefficient with entrepreneurial intention is significantly greater than that with entrepreneurial behavior, which may indirectly indicate that the impact of business role models on individual entrepreneurship is mainly focused on willingness motivation. Regression analysis also showed that the regression weight of business role model on individual entrepreneurial behavior is not significant. Based only on the result, business role model may not have a direct effect on entrepreneurial behavior. From the interaction effect between business role model and entrepreneurial intention, the regression weight of entrepreneurial intention on entrepreneurial behavior decreases after adding the moderating variable of business role model, while the regression weight of business role model on entrepreneurial behavior changes from insignificant to significant, and the interaction effect is significant, which showed that business role model plays a positive moderating role between entrepreneurial intention and entrepreneurial behavior. According to the research on the relationship between business role models and entrepreneurial intention, it seems that entrepreneurial intention plays a part of intermediary role between business role models and entrepreneurial behavior. That is to say, business role models not only positively affect entrepreneurial intention, but also indirectly affect entrepreneurial behavior through the intermediary role of entrepreneurial intention, which needs to be explored in future research.

Fear of failure negatively regulates the relationship between entrepreneurial intention and entrepreneurial behavior. To answer the question, "Why do some people, not others, take entrepreneurial actions?" This study also introduced the fear of failure as a variable. The sample correlation showed that the correlation between fear of failure and entrepreneurial intention is not significant, but it is significant with entrepreneurial behavior, and the regression weight also reaches a significant level. This indicated that fear of failure has a negative effect on entrepreneurial behavior. That is to say, the more you worry about failure, the less you dare to start a business. Therefore, helping potential entrepreneurs overcome the fear of failure can increase the probability of their entrepreneurial behavior. In terms of the dimension of fear of failure, the fear of material loss is stronger than the fear of mental loss. This may indicate that the would-be entrepreneurs think first of all about making money, then reputation and self-realization.

Child development psychology has proved that role models can effectively overcome children's fear. Can this research result extend to the field of adult entrepreneurship? In order to answer this question, this study proposed and tested the hypothesis that business role models are negatively correlated with fear of failure. From the results, there is a significant negative correlation between business role models and fear of failure, and the regression weight has reached a significant level, indicating that successful business role models could help individuals overcome fear of failure, and then stimulate their entrepreneurial behavior. Positive psychology advocates that human beings should face many psychological phenomena with a positive mentality, and use it to stimulate some actual or potential positive qualities and positive forces inherent in each person, so that everyone can move toward their own happiness. Business role models may help stimulate the positive forces of individuals, thereby eliminate negative perceptions such as fear, and ultimately adopt entrepreneurial behavior.

According to the theory of social action, structure determines action, and the elements of structure are various. Different structural elements have different effects, and there may be cross-interaction among them. As far as entrepreneurial behavior is concerned, its structural factors are far beyond the business role model and fear of failure, at least including the identification of business opportunities, access to entrepreneurial resources and other factors. This paper only examines the impact of business role models and fear of failure on entrepreneurial behavior. It didn't consider the role of other factors, nor consider the possible cross-interaction between business role models and fear of failure and other factors. This range of issues need to be studied in the future.

## Practical Enlightenment

Set up role model and stimulate the entrepreneurial willingness of College Students. The role model has a subtle influence on the entrepreneurial willingness of college students, so colleges and universities and the government should pay attention to the role of entrepreneurial models. Role models have a very good incentive effect. When college students see that someone

around them is successful in starting a business, their self-confidence will be significantly enhanced, and their passion for starting a business will be significantly improved. Therefore, colleges and universities should strengthen the publicity of entrepreneurial models, invite successful entrepreneurs to the school to share their experience in starting a business, and let students get a chance through observing, learning and imitating the entrepreneurial process of role models. Connect with entrepreneurial experience, and then enhance entrepreneurial self-efficacy and entrepreneurial willingness. Secondly, the government should make full use of newspapers, TV, Internet and other ways to publicize the entrepreneurial model, improve the public's recognition of entrepreneurship, create a strong entrepreneurial atmosphere that encourages entrepreneurship, supports entrepreneurship and tolerates failure, and stimulate the entrepreneurial willingness of college students.

Create a good entrepreneurial environment, reduce the fear of failure of college students' entrepreneurs. Some college students who are willing to start their own business, but because of lack of entrepreneurial experience and resources, they are afraid of failure and delay or avoid taking entrepreneurial behavior. Therefore, the government and colleges and universities should strive to create a good entrepreneurial environment, provide more preferential entrepreneurial policies for college students, give entrepreneurial fund support, establish a complete entrepreneurial insurance system, and other policies to eliminate college students' worries about entrepreneurship as much as possible. So as to reduce the entrepreneurial failure of college students. They can objectively understand entrepreneurial activities, accurately identify and grasp entrepreneurial opportunities, and then improve the proportion of entrepreneurship.

Strengthen the psychological quality education of college students. The process of entrepreneurship is long, complex and hard. In the process of entrepreneurship, there will be many unexpected difficulties. This requires that potential college students' entrepreneurs not only have certain entrepreneurial knowledge and skills, but also have good entrepreneurial psychological quality, so as to cope with the complex and changeable situation in the process of entrepreneurship. Therefore, colleges and universities should strengthen the psychological quality education of students, through the entrepreneurial psychological workshop, group entrepreneurial psychological guidance, personalized psychological guidance,

psychological mutual assistance of friends and elders, willpower training, environmental tolerance and psychological adaptability guidance, so that college students will be more rational and confident on the road of entrepreneurship in the future, and less detours.

## DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

## ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

## AUTHOR CONTRIBUTIONS

FK wrote the original manuscript. LZ collected and analyzed the data. C-HT reviewed the manuscript and validated the all research procedures.

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# Psychological Capital of Entrepreneur Teams and Human Resource Development

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The ability of an organization to materialize its objectives largely depends on the psychological and physical participation of the employees and staff members. The theory of psychological capital focuses on how an individual is changing or evolving, rather than who that individual is. Thus, the concept of PsyCap should be tightly tied and discussed with human resource development (HRD), both from practical and theoretical lens. This paper sets to discuss the strategic and entrepreneurial associations between PsyCap and HRD. The goal is to shed light on potential practical designs and theoretical improvement in the future.

**Keywords:** psychological capital, human resource development, future research, entrepreneurship, human capital

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## BACKGROUND

The human resource of an entrepreneurial venture plays a crucial role in determining its short-term survival and long-term success, thereby necessitating an in-depth analysis of the underlying influencing factors. The ability of an organization to materialize its objectives largely depends on the psychological and physical participation of the employees and staff members. A higher degree of participation and voluntary commitment to organizational goals can lead to higher competitive advantages, which is crucial for the long-term growth of the company (Cavus and Gokcen, 2015). The organizations, in their pursuit of improving performance and operational efficacy, are looking forward to achieving positive organizational behavior, through developing positive psychological states among the team members.

In this context, the concept of ‘psychological capital,’ also commonly known as “PsyCap” can be discussed, and its influence on teams and human resource development (HRD) can be reviewed. Luthans et al. (2007) have provided a comprehensive definition of the psychological capital as the positive psychological state of development which is characterized by hope, efficacy, resilience, and optimism. The theory of psychological capital focuses on how an individual is changing or evolving, rather than who that individual is. The four characterizing factors of psychological capital have been formed into an acronym “HERO.” The article by Youssef-Morgan and Luthans (2015) has described the four constituent characteristics as the key resources of psychological capital. Hope is defined as the positive motivational state of an individual which is based on the interactively derived sense of successful agency and pathways. From the organizational perspective, Cavus and Gokcen (2015) have mentioned that hope is the internalized willpower and determination of an individual to invest the energy to materialize organizational objectives. The hope of a leader influences the motivation, job satisfaction, and performance of the team members. It has been mentioned that hope supports the desire for positive outcomes and provides a feeling of emotional well-being. Hope has also been

defined as a feature that drives people emotionally to voluntarily commit to their job roles and perform to the best of their abilities.

The second resource of psychological capital is efficacy. Youssef-Morgan and Luthans (2015) have defined efficacy as the personal belief of an individual to mobilize cognitive resources, motivation and courses of action to carry out a specific action in a particular context. It has been mentioned that there is a strong relationship between efficacy and individual performance. From the organizational perspective, Cavus and Gokcen (2015) have mentioned that efficacy, self-efficacy or confidence is the general belief of an individual which he/she perform in daily job roles. Team members with a high degree of self-confidence are able to improve their motivational levels, which is beneficial for their individual performance and eventually, for the performance of the organization as a whole. The authors have further mentioned that people with high self-efficacy often choose challenging tasks which pushes them to improve their performance while working against all obstacles to meet their goals. For an organization, working with team members with high efficacy can lead to higher competitive advantage, as it is able to undertake challenging tasks, thereby, generating more value for their stakeholders.

The third resource of psychological capital is resilience, which has been defined by the ability of an individual to rebound from conflict, adversity, and failure. It determines the reactive encounters of a challenge or a personal setback (Youssef-Morgan and Luthans, 2015). Cavus and Gokcen (2015) have mentioned in their article that the resiliency of an individual is his/her tendency to recover from a situation of negative emotional state and motivates to perceive an overwhelming situation in an optimistic manner. From the organizational perspective, it can be stated that individuals with high resiliency can overcome setbacks in their professional fields and look at the situation optimistically, rather than being demotivated by the situation. Thus, it is essential that employees should have a higher degree of resiliency in order to overcome negative emotional barriers, associated with professional setbacks. It also plays a crucial role in facilitating a seamless change management process. Resilient employees are least affected by the new changes brought in the operational processes and are likely to view the changes in a positive light. Thus, it can be stated that resiliency, as a part of psychological capital, can lead to better organizational performance, through higher engagement in their job roles.

The final resource of psychological capital is optimism. Youssef-Morgan and Luthans (2015) have defined optimism as a generalized positive outlook and expectancy of an individual toward external situations. Optimistic outlook defines positive events with the desirable outcome, in terms of permanent, personal and pervasive causes, whereas, the negative events are defined as situation-specific, external and temporary in nature. Just like Hope, Optimism has been explained as a dispositional trait and a state of mind that can be achieved or developed. Cavus and Gokcen (2015) have defined optimism in terms of the mental and physical health of an individual. It has been mentioned that optimistic people working in an organization are more likely to expect positive outcomes from any situation, which can lead to a reduction of work-induced stress and depression. Leaders with an

optimistic attitude expect positive results from the subordinates, which, in turn, motivates them to work harder. Moreover, it also drives the employees to bear a positive outlook toward their job role and the organization as a whole.

A close look at the concept of psychological capital indicates that it allows employees in an organization to have a positive state of mind which enables them to perform at a superior degree. It creates a positive attitude toward work and fosters behavior among the employees, which leads to better organizational performance and higher competitive advantage. The article by Paterson, has described the psychological capital in light of 'thriving at work.' Thriving at work has been defined in terms of learning and vitality, both of which are essential for individuals to strive at in their respective organizations. These two factors can be achieved through higher psychological capital.

From the perspective of HRD, psychological capital plays a crucial role in organizational performance. This is especially applicable for entrepreneurs as a kind of strategic human resource, since psychological and cognitive elements of entrepreneurs could heavily determine entrepreneurial processes, decisions, and success (Baron, 2004, 2008; Baron and Ensley, 2006). For instance, Hmieleski and Baron (2008, 2009) indicated that both optimism and self-efficacy could significantly influence new venture success. Individuals with higher psychological capital are coincident about successful completion of their allocated task (efficacy), they are emotionally driven to pursue their goals and proactively plans for alternative ways to meet their objectives (hope), they are not affected by negative outcomes or professional setbacks in their day to day work (resiliency) and carries a positive outlook to every situation, irrespective of its outcome (optimism). Therefore, organizational leaders should ensure to create a work environment that can lead to higher psychological capital within the team members.

Paterson et al. (2014) have further mentioned that the behavior and attitude of an entrepreneur as an organizational leader can have a strong impact on the degree of psychological capital of an individual. It has been mentioned that supervisors or leaders who are able to create a supportive climate can foster higher psychological capital among the employees. Expressing concern about the well-being of the employees regarding their career development can drive them to push their own limits of individual performance. Moreover, working in a supportive climate can encourage employees to try new things and not be afraid of taking risks. Employees are more confident in their job role and are optimistic about the outcome of their actions. Moreover, the support of the leader also enables them to overcome negative outcomes and setbacks easily. Thus, supervisor support plays a crucial role in the development of human resources.

## COMMENTARY

In the above sections, various articles have been reviewed, which have shed some light on the importance of psychological capital and its underlying resources. The discussion presented in this paper is in the context of entrepreneurial performance,

competitive advantage, achieved by creating a positive mental state of the entrepreneurs. This article wishes to share some thoughts for the links between the PsyCap and HRD of entrepreneur (teams). Note, however, this article is not a comprehensive review of the literatures of PsyCap, HRD, and Entrepreneurship, which is nearly impossible to cover in a review article. On the contrary, the article focuses on the intersections of these key concepts and tried to shed some lights for future studies. Thus, is it also understandable that the article comes without an empirical part of a specific research question.

Psychological capital has been expressed in terms of the mental state of individuals and how it can positively influence their attitude toward their work and job role. It can be stated that the concept of psychological capital appropriately describes how the psychology and mental state of individuals determines their behavior and attitude at work. As mentioned previously, there are four key resources of psychological capital, such as hope, efficacy, resilience, and optimism. Each of these factors determines how individuals of entrepreneur teams or ventures perceive their job role and their relationship with their employer.

We think that a positive mindset of an employee regarding their work can prove to be beneficial for the organization. The employees are likely to have positive expectations from their employer, especially in terms of professional development and career prospects. As these expectations are met, the employees will have high hopes from their employer, which can motivate them to work harder and exhibit a higher degree of job engagement. We can also highlight that the hope of a leader or an entrepreneur can influence the mindset of an employee. Having high hopes from the team members emotionally drives them to materialize their objectives. Psychological capital is also defined in terms of the confidence of the employees. The confidence of an employee determines one's ability to take up challenging tasks and complete them with ease. Highly confident employees are likely to have a strong impact on the ability of the organization to carry out challenging tasks, thereby, increasing its competitive advantage.

Amidst the steep competitive global business environment, it is essential for a firm to be able to differentiate itself by offering unique value to its customers and stakeholders. This can be achieved by working with entrepreneur teams with high confidence or efficacy. Psychological capital also determines the resilience of an individual and determines their ability to deal with setbacks and negative outcomes. We can discuss this aspect of psychological capital in the light of emotional intelligence. People with high emotional intelligence are more efficient in monitoring and regulating their own emotions (Petrides et al., 2016). Here, we can emphasize that employees with high resiliency factors are likely to have a high degree of emotional intelligence, as they are not easily affected by negative or undesired outcomes and even by uncertain situations. Employees who are largely unaffected by negative situations and are able to maintain a positive outlook on their work are more motivated to invest their cognitive resources into their job roles, leading to better performance. The final factor of psychological capital is optimism. As we

have found, optimism is associated with the general perception of an individual toward a situation. An optimistic person is likely to have positive expectations from his/her work and job roles. Optimistic employees are motivated toward their job roles and are likely to work harder in their pursuit of professional development.

We can establish that psychological capital is defined as the mental or cognitive functions of an individual which determines their behavior and attitude toward the external environment, such as their profession. It has been found that psychological capital can be developed within an individual just like any other professional skills and abilities, which makes them more capable and efficient in their work. Therefore, it can be stated that organizational leaders seek to develop an entrepreneur team with a high degree of psychological capital, which can be beneficial to achieve better organizational performance and higher competitive advantage. It has been found that creating a supportive environment, where the leaders show genuine concern about the well-being and professional development of the team members can have a significant effect on improving their psychological capital.

From the works of literature, discussed in this paper, we can understand that, in order to achieve professional excellence, vocational skills and abilities are not the only underlying factors, that an entrepreneur should focus on. Developing and maintaining the right state of mind is also essential in determining how they are able to perform their daily activities. Apart from the skills and abilities of the employees, their willingness and motivation toward their work is also a crucial factor that entrepreneurs need to consider in the HRD activities.

## FUTURE RESEARCH OPPORTUNITIES

An in-depth assessment of psychological capital and its relationship with HRD has revealed that psychological capital can prove to be a crucial asset for an organization, which allows it to improve its performance and competitive advantage. Therefore, further studies are required to highlight how organizations can develop a team member with a high degree of psychological capital.

We have found that most of the existing studies are dedicated to defining and simplifying the concept of psychological capital and its importance for business organizations. The scholarly articles have explained the underlying resources of psychological capital but have failed to provide a deeper understanding of how organizations will be able to achieve it. We have learned from the articles that psychological capital can be developed just like any other skill, over time, thereby, necessitating the emphasis on training the employees, in order to ensure that the workforce has a high psychological capital.

Future research opportunities lie in the area of organizational training that can positively influence all four resources of psychological capital, which are hope, efficacy or self-confidence, resiliency, and optimism. Since psychological capital is associated with the behavioral and attitudinal aspects of the employees,



training programs should be developed that specializes in those aspects. The study conducted by Owoyemi et al. (2011) has indicated that training programs can play a crucial role in improving the commitment level of the employees toward their work. Thus, training programs have been found to have a strong impact on moderating the behavior, attitude and perception of the employees. In this case of improving the psychological capital of the entrepreneur teams, it is essential for the firms to develop training programs that can improve upon all the four associated factors such as hope, efficacy, resilience, and optimism. In-depth research is required to find out how different aspects of training can influence each of the four factors as discussed previously.

Moreover, from the organizational perspectives, the importance of researching the cost-benefit ratio of such training programs can be highlighted. Almost all training programs, come with some degree of the cost that the organization needs to bear, in order to ensure that all the employees are prepared to meet their allocated job roles (Walker et al., 2016). In this case, before implementing new training programs dedicated to improving the psychological capital, the firms need to ensure that the positive benefits can outweigh the cost of running the training programs. New researches are required to empirically find out the commercial value of the training programs. The validity and reliability of the training programs need to be evaluated before they are implemented by the entrepreneur teams. The sole purpose of the training program is to improve the overall performance of the organization, eventually increasing the competitive advantage. Therefore, new researches that determine the economic validity of such training programs can prove to be helpful for organizations.

Future researches are also required to assess the effectiveness of the training programs on the team members with different personality traits. It has been found that psychological capital is associated with the behavior, attitude and perception of the individuals, therefore it is crucial to conduct an in-depth study about the personality traits which govern individual behaviors. As mentioned in the article by Matzler and Renzl (2007), different employees have different personality traits, which determine their behavior and response toward various external stimuli. Therefore, training programs which are designed to moderate the behavior of the employees can have a different impact on different employees, based on their personality traits. It can be further stated that based on the personality traits, different employees may react differently to their current organizational setting and may exhibit a different attitude toward their job role. Therefore, it is essential for the organization to selectively provide training to the employees who can benefit from it the most. Further researches are required to identify the potential candidates for the training program. New frameworks to determine the personality fit for the training programs should be developed. This can prove to be beneficial from the organizational stand point and also from the academic perspective. Future researches conducted in this area can help in developing new theories that can be applied to understanding the acceptance and effectiveness of behavior-moderating training among the employees.

Thus, it can be stated that entrepreneurs can be benefited by these future researches that determine the effectiveness of the training programs to improve psychological capital in the team members. The effectiveness of the training programs can only be ascertained if there are appropriate auditing methods that can identify significant changes in the organizational performance. Thus, new research is required to develop new auditing methods that can accurately measure the emotional state of an employee in a quantitative manner. It is essential to quantify the four identified resources of psychological capital, such as hope, efficacy, resiliency, and optimism. A theoretical framework that can quantitatively measure each of these factors for individual employees, can greatly help the organizational leaders and entrepreneurs to assess which area of psychological capital needs more emphasis. It can thus, help in implementing more effective training programs, which can have significant positive results. Furthermore, new measurement techniques need to be developed through further research which can help to identify the improvement in organizational performance by consequent increase in the four resources of psychological capital. Therefore, it is suggested that developing measurement and evaluation techniques by future research can help organizations to accurately measure the effectiveness of their initiatives to improve employee attitude and behavior.

The research suggested above can help to establish the relationship between psychological capital and HRD by entrepreneur teams and organizational leaders. In this context, the impact of national culture should also be explored. As mentioned in the study by Hofstede (2011), different nations have different cultural practices and they also determine the values, beliefs, and perceptions of its people. Therefore, we believe that employees from different cultural backgrounds will have different attitude toward their work and work environment. Employees with high scores in masculinity factor are likely to be more competitive in their work environment and employees with low score in individualism are likely to prefer working in teams. Thus, it can be stated that behavior and attitude of employees are likely to differ largely across national cultures. This, as a result, can make it quite challenging for entrepreneurs and organizational leaders to assess the mental state or the psychological capital of the entrepreneur teams. Thus, new research works are required to establish the impact of cultural background on the four resources of psychological capital. Moreover, establishing a relationship between different cultural dimensions and psychological capital will also enable organizations to design their training programs more efficiently. It is essential for firms to ensure that training programs are aligned with the cultural aspects of a nation, so as to improve the acceptance of the training program.

In the context of national culture and psychological capital, we should also highlight that achieving higher psychological capital in a diverse work environment can be challenging. As mentioned in the article by Saxena (2014), globalization has allowed organizations to hire employees from the global talent pool, which as a result has opened new possibilities in improving its competitive advantage. At the same time, it has also increased

the cultural diversity of the team members, where employees from different national cultures, with different values, beliefs, and psychological profiles work together. Therefore, for the organizational leaders it can prove to be quite challenging to improve the psychological capital of the employees belonging to different cultural backgrounds. In order to address this issue, new research needs to be conducted in order to understand how cross-cultural management can be integrated within psychological capital. Entrepreneurial teams need to have a clear understanding of how a diverse employee base can be positively influenced in terms of their psychological capital. Moreover, developing and implementing a training program to improve the psychological capital of the diverse team can also become quite challenging. Since, different employees with varying values and beliefs are likely to have different responses and exhibit different degrees of acceptance toward the training programs, new researches are required to shed more light in this area. Further studies can help in formulating new cross-cultural management practices which can help in improving the psychological capital of the entire team members, even if it is culturally diverse in nature. Thus, it can be highlighted that more emphasis should be given on future research which focuses on workplace diversity. This should help the entrepreneurs develop their human resources in a globalized business environment.

The leadership practices within an organization can largely influence its performance and its corporate image. As mentioned in the article by Ahmad et al. (2014), leadership style followed in an organization can project a significant impact on the employee behavior, especially in terms of motivation and job engagement. The way in which an entrepreneur or an organizational leader interacts with the employees, devises organizational policies and encourages certain practices can have a prominent impact on the mental state of the employees, which can either drive them to voluntarily commit to organizational success or can also make them demotivated leading to increase in disengagement from their job roles. In this case, we can emphasize that future researches are required which are related to the leadership styles adopted by an entrepreneur and the degree of psychological capital of the team members. It is essential to find out how different leadership approaches can influence each of the psychological capital resources, which are hope, efficacy, resiliency and optimism. Different leadership styles can have different impact on an individual, based on their personality traits and psychological profile. Therefore, further research is required to determine how entrepreneurs can adopt different leadership styles to improve the psychological capital in the workplace.

Current researches have shown that psychological capital is associated with factors like hope, efficacy, resiliency and optimism. However, new research is required to identify various other factors which can have moderating effects on the psychological capital of the entrepreneurial teams. The identification of new moderating factors, can help the entrepreneur teams and organizational leaders to develop more effective HRD plans. It is also essential to conduct an in-depth study on various organizational factors that can have a prominent influence on the psychological capital within a firm. The study

conducted by Anitha (2014) has highlighted how the working environment to which the employees are exposed on a daily basis can have a significant effect on their attitude and behavior toward their job role and fellow colleagues. In this context, it can be also stated that the factors associated with the work environment such as employee relationship, hygiene factors, interaction and engagement of the supervisors can influence the psychological capital of the employees. Thus, new study should be conducted in order to identify different work environmental factors and how they are responsible in influencing the psychological capital. This should help organizational leaders to create a work environment which can lead to better work performance. Moreover, it will also help to identify the negatively influencing factors which needs to be avoided. Thus, we can highlight the further research in the field of work environment and psychological capital should be empathized.

My commentary on psychological capital and its association with entrepreneur teams and HRD has revealed that the mental state or the psychological profile of an employee can have a strong impact on one's attitude and behavior at work. Based on the in-depth review of various scholarly articles, we have found that psychological capital of an individual depends on four key factors which are hope, efficacy, resiliency and optimism. It plays a crucial role in determining the job engagement of the employees and their voluntary commitment toward their job roles. However, this area of study has significant potential for future researches. In this commentary we have looked at several suggestions for future researches, which can be beneficial for entrepreneurs and organizational leaders in order improve the psychological capital in their organization. Further studies can be conducted in the area of developing new training programs to improve psychological capital, its measurement, influence of cultural background, relationship with cross-cultural management, personality types, etc. We have also found that further study should be conducted to identify the impact of different leadership styles and work environment within an organization. These researches should help organizations to understand how the different aspects within an organization can have different impacts on the mental state or the psychological capital of the entrepreneur teams.

## AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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# The Influence of Volunteers' Psychological Capital: Mediating Role of Organizational Commitment, and Joint Moderating Effect of Role Identification and Perceived Social Support

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This study explores the relationship between volunteers' psychological capital and their commitment to volunteering. We tested whether volunteers' psychological capital had a positive predictive effect on volunteering and whether this effect was mediated by organizational commitment, role identification, or perceived social support. A sample of 1165 volunteers who were registered in the national volunteer service information system of China were recruited in the study. The results showed a significant and positive relationship between volunteers' psychological capital, volunteering, role identification, perceived social support, and organizational commitment. Volunteers' psychological capital not only had a direct effect on volunteering but also affected volunteering through the mediating role of organizational commitment. Additionally, the influence of the volunteers' psychological capital on organizational commitment was affected by the joint moderated effect of role identification and perceived social support. Volunteers with low role identification and low perceived social support, high role identification and low perceived social support, and low role identification and high perceived social support committed to their volunteer organization faster when they had a high level of psychological capital; whereas, volunteers with high role identification and high perceived social support committed to their volunteer organization faster when they had a low level of psychological capital.

**Keywords:** volunteering, psychological capital, organizational commitment, role identification, perceived social support

## INTRODUCTION

Volunteers are organized actors who voluntarily provide public service without making any profit or fame; thus, the scale, service effect and sustainability of volunteer work greatly affects the health condition of civil society (Musick and Wilson, 2003; Hustinx et al., 2010). The Chinese government and the Communist Party of China (CPC) have been paying close attention to voluntary service activities. For example, the 19th National Congress of CPC proposes that we should promote the



construction of good faith, the institutionalization of voluntary service, and the strengthening of the consciousness of social responsibility, rules and dedication. Furthermore, while inspecting Tianjin in January 2019, President Xi Jinping emphasized the value of voluntary service and its meaningful relationship to the Two Centenary Goals. Volunteers make important contributions to large-scale competitions, emergency rescue, and community service at home and abroad; their work helps to make up for the lack of governmental and market services and is beneficial to the development of social harmony.

The effectiveness of voluntary service is closely related to the psychological state of volunteers (Min and Ming-Jie, 2017). Therefore, in order to strengthen and promote voluntary service, it is necessary to continue researching ways to improve the psychological wellbeing of volunteers. However, previous studies on volunteers focused on volunteer motivation and function (Arbak and Villeval, 2013; Dickson et al., 2013, 2015; Erasmus and Morey, 2016; Li et al., 2016), voluntary incentive and management (Prestby et al., 1990; Edwards, 2007; Dickson et al., 2013; Gong, 2018; King, 2018), volunteerism and values (Beverley, 1975; Johnson et al., 1998; Misener et al., 2009; Shen et al., 2019), and leisure perspective (Stebbins, 1996; Green and Chalip, 2004). Only a few studies have looked at psychological mechanisms that influence volunteering (Spector and Fox, 2002; Kang et al., 2007; Fornyth, 2010; Chacón et al., 2017). Moreover, previous research on volunteering has mostly focused on cultural capital (Harflett, 2015), social capital (Bailey et al., 2003; Wang and Graddy, 2008), and human capital (Choi and Chou, 2010; Lindsay, 2016) at home and abroad; yet research on psychological capital with respect to volunteering has yet to appear.

Psychological capital—which surpasses social capital, cultural capital, and human capital—is an inexhaustible force and has a more significant impact on individual attitude and behavior (Luthans et al., 2007). However, the exact relationship between psychological capital and volunteering remains to be further explored. Therefore, our study sought to understand how psychological capital influences volunteering in order to provide a new theoretical perspective, enrich the application of psychological capital in volunteers, and widen the research on the sustainable development of volunteering.

## THEORY AND HYPOTHESIS

### The Positive Predictive Effect of Volunteers' Psychological Capital on Volunteering

Psychological capital is a kind of positive mental state or psychological quality that individuals possess throughout the process of growth and development; it includes four dimensions: self-efficacy, optimism, resilience, and hope (Luthans et al., 2004). According to the resource conservation theory, psychological capital is also a kind of psychological resource which helps to strengthen the emotional connection between individuals and organizations (Hobfoll et al., 2018). It has been found that the impact of psychological capital on the attitude and behaviors of

individuals is strong (Luthans et al., 2007; Avey et al., 2011), and surpasses material capital, human capital, and social capital (Luthans et al., 2007). Studies have found that high levels of psychological capital and volunteering are associated with increased odds of older adults using the internet for health-related tasks (Choi and DiNitto, 2013). Individuals who are more confident/efficacy, hopeful, resistant to setbacks, and inclined toward optimism show more altruistic behavior (Myers, 2012; Min and Ming-Jie, 2017). Since volunteering is an altruistic behavior, the present study hypothesized that volunteers' psychological capital would positively predict volunteering (H1).

### The Mediating Effect of Volunteers' Organizational Commitment

Organizational commitment has been defined as a psychological index measuring the relation between a volunteer and the quality of the relationship they have with their volunteer organization (Meyer et al., 1993). Studies have shown that individuals' psychological capital can effectively predict organizational commitment and values (Green and Chalip, 2004; Larson and Luthans, 2006; Shahnawaz and Jafri, 2009), and individuals' organizational commitment and values has a positive prediction on their attitude and behavior (Spector and Fox, 2002; Cooper-Hakim and Viswesvaran, 2005; Edwards, 2007; Matsuba et al., 2007). At present, the high draining rate of volunteering and mental instability of volunteers greatly impact the formation of positive working atmospheres and seriously hinder the sustainable development of volunteering. To face this challenge, it is necessary for volunteer organizations to cultivate the organizational commitment of volunteers in various ways to strengthen the volunteers' psychological attachment and emotional connection with their respective organizations. Studies show that the first six months after individuals enter an organization is usually the critical period of developing their role identification and organizational commitment (Kramer, 1994). Therefore, the present study also hypothesized that organizational commitment would play a mediating role in the impact volunteers' psychological capital has on volunteering (H2).

### The Joint Moderated Effect of Role Identification and Perceived Social Support

Role identification is the internalization or self-definition of the role expectation that individuals possess (Stryker and Burke, 2000). Role identification is also a significant source of self-concept and the individuals' self-image of being at a certain social level (Mccall and Simmons, 1966) and is closely related to donation and volunteering (Penner and Finkelstein, 1998; Lee and Lee, 1999; Grube and Piliavin, 2000; Finkelstein et al., 2005; Finkelstein, 2008). Resource conservation theory considers role identification to be another psychological resource that increases volunteering behavior. Role identification theory posits that self-concept and social relations are two important sources of self-identification (Riley and Burke, 1995). According to resource conservation theory (Hobfoll et al., 2018), role identification

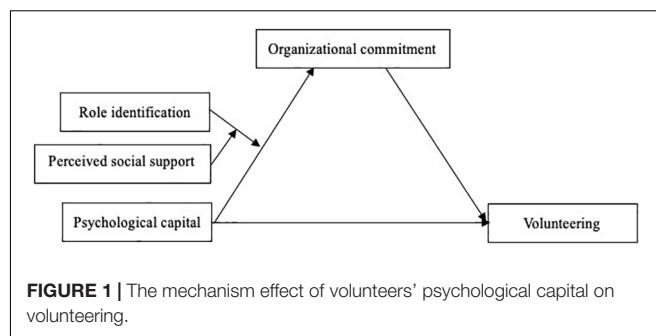
is also an important psychological resource that increases organizational commitment.

Volunteers' role identification can change with the change of factors such as social expectation and feedback from other volunteers, self-evaluation and awakening of volunteers, and the experiences of success and failure (Callero et al., 1987; Riley and Burke, 1995). At the same time, role identification of volunteers with a background in Chinese culture usually presents aspects such as value identification, emotional connection, and the loyal devotion of individuals to their volunteer organization; the level of this devotion will lead to a change in organizational commitment (Edwards, 2005). Therefore, the effect of role identification on the relation between volunteers' psychological capital and organizational commitment can be speculated. In addition, both trait activation theory and resource conservation theory consider that the behavior and attitude of individuals are influenced by their internal psychological resources and external situation such that we cannot examine the internal psychological factors isolated from the external situation (Tett and Guterman, 2000). The moderated effect of role identification cannot effectively work unless in a specific situation.

One type of external situation is perceived social support, which refers to the various levels of social support which individuals can perceive from friends, family, and others. Perceived social support has an important role in activating the level of role identification and regulating the relationship between psychological capital and volunteering. According to the social exchange theory, there is an exchange relationship between people; when individuals receive help and support from others, they tend to pay it forward in return (Wilson et al., 2010). Studies have shown that supportive feedback environment helps to improve employee role clarity, job satisfaction and performance, as well as the professional adaptability of nurses (Gong and Li, 2019). Volunteers view support from their organization, family, and friends as a kind of potential pressure and driving force of development, and as such, they try their best to respond with their own altruistic actions. Studies find that a high level of perceived social support (Conn et al., 2004; Kim and Hopkins, 2015) and role identification (Kumar et al., 2012) have a positive predictive effect on improving organizational commitment (Griffin et al., 2000) and increasing volunteering (Piliavin and Callero, 1991). Based on these findings, the present study hypothesized the following: that role identification would play a moderating role on the impact of volunteers' psychological capital on organizational commitment (H3), and that role identification and perceived social support would play a joint moderating role on the impact of volunteers' psychological capital on organizational commitment (H4).

## The Present Study

The present study focused on the relation between volunteers' psychological capital and volunteering, as well as the mediating effect of organizational commitment and the joint moderating effects of role identification and perceived social support. Based on the above theory and hypothesis of this study, a theoretical



model of the mechanism effect of volunteers' psychological capital on volunteering was constructed in **Figure 1**.

## MATERIALS AND METHODS

### Participants and Procedure

The present study was approved by seven universities (including South China University of Technology, Campus of Zhuhai of Zunyi Medical University, Southern Medical University, Linyi University, Guangdong Polytechnic of Industry and Commerce, Yichun University, and the Guangdong Teachers College of Foreign Language and Arts) and six social workers' organizations located throughout the Guangdong, Shandong, Guizhou, and Jiangxi provinces, as well as in Shanghai, China. We contacted the leaders of the voluntary organization within each unit and, with their help, randomly distributed about 100–200 questionnaires (1600 questionnaires in total). After giving their informed consent, the participants were instructed to complete the survey on-site; their data was kept completely anonymous.

We recovered 1204 questionnaires. After eliminating 39 questionnaires with incomplete information, we obtained 1165 valid questionnaires with a questionnaire efficiency of 96.8%. The inclusion criteria for the participants was an active registration in the China voluntary service information system. The participant pool consisted of 39.6% males (461) and 60.4% females (704), and age from 16 to 68. There were 51.8% college students (603), 3.4% civil servants (40), 20.5% personnel of enterprises and institutions (239), 16.7% freelancers (195), and 7.6% retirees (88). In terms of service duration, 42.0% had been volunteering for less than one year (489), 35.0% between 1 and 3 years (408), 14.8% between 3 and 5 years (172), and 8.2% more than 5 years (96).

### Measures

#### Psychological Capital

This questionnaire was compiled by Chinese scholar Kuo et al. (2010). In accordance with the theory of Luthans et al. (2007), the questionnaire included the four dimensions of psychological capital: self-efficacy, optimism, hope, and resilience. The questionnaire consists of 26 items and uses a 7-point Likert scale. Self-efficacy refers to an individual's self-confidence about his or her ability to face challenges, complete the required tasks, and strive for success. This dimension contains 7 items, such as "I am happy to take on difficult and challenging

work (1 = strongly agree, 7 = strongly disagree)". Optimism refers to a positive attitude and outlook regarding the present and future. This dimension contains 6 items, such as "I always see the good side of things (1 = strongly agree, 7 = strongly disagree)". Hope refers to the state of positive motivation to achieve the intended goal through various channels. This dimension contains 6 items, such as "I pursue my goals with confidence (1 = strongly agree, 7 = strongly disagree)". Resilience refers to the ability to recover quickly from adversity, frustration, and failure. This dimension contains 7 items, such as "I can quickly recover from frustration (1 = strongly agree, 7 = strongly disagree)". We calculated an average score for each item; the higher the score for each dimension, the higher the level of each factor. This scale was reliable in this study (Cronbach's  $\alpha = 0.991$ ).

### Perceived Social Support

We used the perceived social support questionnaire to assess various levels of social support that individuals perceived from friends, family, and others. This questionnaire was developed by Blumenthal et al. (1987) and has been translated into Chinese by Zhong et al. (2006). The questionnaire used a 7-point Likert scale and consisted of 12 items such as, "There is a special person who is around when I am in need (1 = very strongly disagree, 7 = very strongly agree)". We calculated an average score for each item. The higher score for each dimension means that the individual perceives a higher level of social support. This scale was reliable in this study (Cronbach's  $\alpha = 0.897$ ).

### Volunteering

The present study used the volunteering questionnaire developed by Carlo et al. (2005). This questionnaire consisted of 4 items, Volunteers were asked whether they had ever volunteered (no = 0, yes = 1), were currently volunteering (no = 0, yes = 1), planned on volunteering during the next two months (no = 0, yes = 1), and the likelihood that they would volunteer at the campus-based community service program if asked (definitely no = 0, probably no = 1, may be = 2, probably yes = 3, and definitely yes = 4). The total score of this questionnaire ranged from 0 to 7. We calculated an average score for each item by dividing the total score by 4 items. The higher the average score, the more likely individuals are to participate in volunteering. This scale was reliable in this study (Cronbach's  $\alpha = 0.762$ ).

### Organizational Commitment

This scale used a revised version of the organizational commitment scale developed by Meyer et al. (1993), and included three dimensions: affective commitment, normative commitment, and continuance commitment. The questionnaire consisted of 18 items and used a 5-point Likert scale. Affective commitment refers to the emotional attachment and identification with the organization. This dimension contains 6 items, such as "I have a strong sense of belonging to the organization (1 = strongly agree, 5 = strongly disagree)". Normative commitment refers to the individual's personal commitment to stay in the organization. This dimension contains 6 items, such as "I am willing to do my best to cooperate with various institutional measures in the organization (1 = strongly

agree, 5 = strongly disagree)". Continuance commitment refers to the willingness to remain in the organization based on utilitarian considerations. This dimension contains 6 items, such as "I will continue and stay in the organization for a long time (1 = strongly agree, 5 = strongly disagree)". We calculated an average score for each item; the higher the average score, the higher the level of organizational commitment. This scale was reliable in this study (Cronbach's  $\alpha = 0.917$ ).

### Role Identification

This scale revised the item statement of the job role identification scale compiled by Saleh and Hosek (1976), for example, replacing the phrase "the job" with "the voluntary service job." The scale consisted of 4 items, such as, "I'm very dedicated to my current volunteer role". All items were rated on a 5-point scale, ranging from 1 (strongly agree) to 5 (strongly disagree). We calculated an average score for each item; the higher the average score, the stronger individuals self-identified with their role within a voluntary service. The scale was reliable in this study (Cronbach's  $\alpha = 0.745$ ).

### Data Analysis

The study used SPSS 24.0 to carry out descriptive statistical and correlation analyses on the 1165 questionnaires and adopted the Bootstrap inspection of the PROCESS procedure for SPSS 24.0 (Hayes, 2013). This software was used to investigate the mediating effect of organizational commitment, the moderating effect of role identification, and perceived social support in relation to volunteers' psychological capital and organizational commitment.

## RESULTS

### Common Method Deviation Analysis

The study adopted Haman single factor analysis to carry out the common method deviation analysis on all the valid data. As a result, the present study found that there were 17 factors featuring root values greater than one and that the variance of the first one was 27.322%, smaller than the critical value of 40%. The present study also carried out the confirmatory analysis of the single factor model, and results showed that the model was a poor fit ( $\chi^2/df = 21.13$ , CFI = 0.46, TLI = 0.45, RMSEA = 0.13), which meant that the common deviation method of the study was not remarkable.

**TABLE 1 |** Correlation coefficients, means, and standard deviations of variables.

|                              | M     | SD    | 1       | 2       | 3       | 4       |
|------------------------------|-------|-------|---------|---------|---------|---------|
| 1. Psychological Capital     | 5.080 | 0.749 | —       |         |         |         |
| 2. Volunteering              | 1.378 | 0.412 | 0.400** | —       |         |         |
| 3. Organizational Commitment | 4.034 | 0.557 | 0.521** | 0.375** | —       |         |
| 4. Role Identification       | 4.045 | 0.619 | 0.465** | 0.346** | 0.652** | —       |
| 5. Perceived Social Support  | 5.586 | 0.925 | 0.495** | 0.281** | 0.522** | 0.451** |

\*Represents  $p < 0.05$ ; \*\*represents  $p < 0.01$ .

**TABLE 2 |** Joint moderated mediation effect analysis.

| Regression equation       |  | Overall fit index |                |          | Significance in regression coefficient |        |        |          |
|---------------------------|--|-------------------|----------------|----------|--|--------|--------|----------|
| Result Variable           | Predictive variables   | R                 | R <sup>2</sup> | F        | B                                      | LLCI   | ULCI   | t        |
| Volunteering              | Gender   | 0.40              | 0.16           | 111.54** | 0.030                                  | −0.019 | 0.070  | 1.130    |
|                           | Psychological Capital  |                   |                |          | 0.403                                  | 0.192  | 0.250  | 14.936** |
| Organizational Commitment | Gender   | 0.73              | 0.53           | 162.07** | 0.045                                  | 0.001  | 0.091  | 1.958    |
|                           | Psychological Capital  |                   |                |          | −1.132                                 | −2.001 | −0.265 | −2.562*  |
|                           | Role Identification  |                   |                |          | −1.520                                 | −2.524 | −0.516 | −2.967** |
|                           | Psychological Capital × Role Identification                            |                   |                |          | 0.363                                  | 0.146  | 0.580  | 3.282**  |
|                           | Perceived Social Support   |                   |                |          | −1.384                                 | −2.144 | −0.625 | −3.579** |
|                           | Psychological Capital × Perceived Social Support                       |                   |                |          | 0.280                                  | 0.120  | 0.440  | 3.441**  |
|                           | Role Identification × Perceived Social Support                         |                   |                |          | 0.411                                  | 0.223  | 0.600  | 4.274**  |
|                           | Psychological Capital × Role Identification × Perceived Social Support |                   |                |          | −0.077                                 | −0.116 | −0.037 | −3.843** |
| Volunteering              | Gender   | 0.45              | 0.20           | 95.66**  | 0.009                                  | −0.035 | 0.053  | 0.394    |
|                           | Organizational Commitment  |                   |                |          | 0.168                                  | 0.123  | 0.213  | 7.334**  |
|                           | Psychological Capital  |                   |                |          | 0.155                                  | 0.122  | 0.189  | 9.107**  |

\*represents  $p < 0.05$ ; \*\*represents  $p < 0.01$ .

## Preliminary Analysis

The results of descriptive statistics and correlation analysis are shown in **Table 1**. Results revealed that volunteers' psychological capital had a positive correlation with factors such as volunteering, organizational commitment, and role identification. The correlation coefficient was 0.281–0.652 ( $p < 0.01$ ), which showed that it was necessary to further reveal the internal relationship between the elements.

## Hypothesis Testing

Studies at home and abroad showed that gender is an important factor impacting voluntary service behavior (Haski-Leventhal et al., 2008); it is widely believed that women are more likely to participate in volunteering than men (Moore et al., 2014). Therefore, the present study viewed gender as the control variable when analyzing the mediating model of joint regulation in the relationship between volunteers' psychological capital and volunteering activity. Besides, the study carried out centralized treatment on the variable data to avoid the multicollinearity between the variables. On this basis, the present study adopted the model 11 of the PROCESS procedure (this model assumed that the aggregate variable regulated the first half path of the mediation model, in accordance with the theoretical model of this study) to carry out the Bootstrap inspection of the moderated mediating model, setting the self-sampling number to 5000.

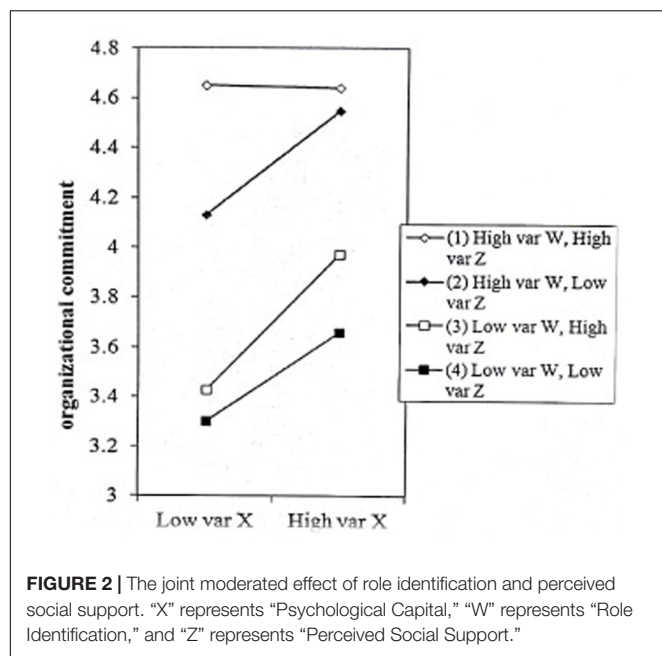
The result of joint moderated mediation effect showed that the volunteers' psychological capital had a significant total effect on the prediction of volunteering ( $\beta = 0.26$ ,  $p < 0.01$ ). Therefore, Hypothesis 1 was true: Volunteers' psychological capital had a positive predictive effect on both volunteering and organizational commitment after putting all the study factors into the regression equation (see **Table 2**). The significance

of the mediating effect also indicated a mediating effect of organizational commitment. The Bootstrap 95% confidence intervals did not include 0, which meant that the volunteers' psychological capital had a positive effect on volunteering through the mediating effect of organizational commitment. Therefore, Hypothesis 2 was also true.

In addition, the product of the volunteers' psychological capital and role identification ( $\beta = 0.363$ ,  $p < 0.05$ ), volunteers' psychological capital and perceived social support ( $\beta = 0.411$ ,  $p < 0.01$ ), and volunteers' role identification and perceived social support ( $\beta = 0.411$ ,  $p < 0.01$ ) all had remarkable positive predictive power of organizational commitment. At the same time, the product of the volunteers' psychological capital, role identification, and perceived social support can have significantly negative predictive power on organizational commitment ( $\beta = 0.077$ ,  $p < 0.01$ ). These results showed that role identification and perceived social support could not only individually adjust the relation between volunteers' psychological capital and organizational commitment, but also have a joint mediating effect on it. Therefore, both Hypothesis 3 and Hypothesis 4 were true as well.

The present study calculated a simple slope and plotted a regulation effect diagram to better reveal the joint moderating trend of role identification and perceived social support in the relationship between the volunteers' psychological capital and organizational commitment. As a result, compared with high role identification and high perceived social support [simple slopes (both high) = 0.033,  $t = 0.579$ ,  $p > 0.05$ ], it was more likely for volunteers' psychological capital to induce organizational commitment under low role identification and low perceived social support [simple slopes (both low) = 0.279,  $t = 5.101$ ,  $p < 0.01$ ], high role identification and low perceived social support [simple slopes (high-low) = 0.238,  $t = 3.573$ ,  $p < 0.01$ ] and





low role identification and high perceived social support [simple slopes (low-high) = 0.351,  $t = 3.893$ ,  $p < 0.01$ ]. To be specific, volunteers with low role identification and low perceived social support, high role identification and low perceived social support and low role identification and high perceived social support had a stronger relationship on organizational commitment when they were high in psychological capital; while volunteers with high role identification and high perceived social support had a faster impact on organizational commitment when they were low in psychological capital (see **Figure 2** and **Table 3**).

## DISCUSSION

Correlation analyses showed that volunteers' psychological capital had a significant positive correlation with role identification, volunteering and organizational commitment, consistent with former studies on the relationships between psychological capital and role identification (Min and Ming-Jie, 2017), organizational commitment (Green and Chalip, 2004; Edwards, 2005; Bogler and Somech, 2019), and volunteering (Myers, 2012; Min and Ming-Jie, 2017). This meant that the positive psychological quality and positive mind state of volunteers could not only stimulate the degree of individual commitment to the organization in voluntary service, but also enable the individuals to have a greater acceptance of the role played by themselves thus leading them to attain more social support which would then prompt the behavior associated with continuing in the role (Grube and Piliavin, 2000). Moreover, as a positive psychological resource, psychological capital had the effect of replenishing energy and stimulating motivation (Wu et al., 2013; Datu et al., 2016). Individuals with higher psychological capital had better emotional regulation and cognitive strategies. They could better mobilize their positive

**TABLE 3 |** The significance test of slope difference.

| Simple slop | B        | SE    |
|-------------|----------|-------|
| (1) VS (2)  | -0.205** | 0.076 |
| (1) VS (3)  | -0.318*  | 0.126 |
| (1) VS (4)  | -0.246** | 0.089 |
| (2) VS (3)  | -0.113   | 0.135 |
| (2) VS (4)  | -0.041   | 0.092 |
| (3) VS (4)  | 0.072    | 0.097 |

\*represents  $p < 0.05$ ; \*\*represents  $p < 0.01$ .

psychological potential and were more likely to help others (Luthans et al., 2007; Myers, 2012).

The mediating effect analysis found that volunteers' psychological capital could not only directly predict volunteering, but that psychological capital also had an indirect impact on volunteering through the mediating effect of organizational commitment. The result of the present study, that volunteers' psychological capital had a direct positive prediction on volunteering, was basically consistent with previous results (Min and Ming-Jie, 2017; Cheng et al., 2018). In addition, psychological capital emphasized that individuals should give full play to their positive initiative and inherent potential advantages (Larson and Luthans, 2006). Volunteers with higher levels of psychological capital could not only better complete their jobs, but also were likely to help other volunteers, protect the volunteer organization and social resources, and effectively carry out their volunteering tasks and relative missions (Kragh et al., 2016).

Voluntary organizational commitment refers to a kind of psychological relationship that exists between volunteers and the volunteer organization, and which may promote a sustainable and healthy development of the organization (Francesco and Chen, 2004). In other words, it is the psychological attachment of volunteers to their organizations and the gratis contributions of volunteers to volunteer organizations and other volunteers. A study also considers that volunteers place a very high value on the work they do for the organization, and that their organizational commitment is regard as a combination of affective and continuance commitment (Edwards, 2007). The present study found that the product of volunteers' psychological capital, role identification, and perceived social support can significantly negatively predict organizational commitment. To be specific, volunteers with low role identification and low perceived social support, high role identification and low perceived social support, and low role identification and high perceived social support had a greater impact on the organizational commitment when they had a high level of psychological capital; whereas, volunteers with high role identification and high perceived social support had a lower impact on organizational commitment when they have a high level of psychological capital. Resource conservation theory considers that it is easy to disperse resources in the process of psychological resources superposition (Wilson et al., 2010). Moreover, according to social exchange theory (Roch et al., 2019), although a high level of perceived social support contributes to stimulating a high level of role identification, volunteers are

likely to generate overflow effects and negative effects under the high level of volunteers' perceived social support and role identification. These overflow and negative effects increase the reward pressure on volunteers. Thus, volunteers will proactively reduce the level of organizational commitment to quell or balance these psychological states.

According to the resource conservation theory, the volunteers with high role identification and low perceived social support, and low role identification and high perceived social support were not using up resources too much because they had overlapping psychological resources (Wilson et al., 2010). Meanwhile, according to role theory (Broderick, 1998; Polzer, 2015) and social support theory (Lakey and Cohen, 2000), role identification and perceived social support are effective predictors of multiple behaviors. Therefore, even individuals with low perceived social support or low role identification may still be strongly committed to their organizations, which leads to more volunteering in turn. For the volunteers with low role identification and low perceived social support, their resources were neither depleted nor dispersed due to the high return required or the changing environment. Therefore, volunteers with low role identification and low perceived social support had a greater impact than high role identification and high perceived social support on organizational commitment when they had a high level of psychological capital.

As it turns out, the study also shows that volunteers' perceived social support and role identification have a marginal effect on regulating psychological capital's influence on organizational commitment. It reminds us to promote volunteers' self-efficacy, resilience, optimism, and hope, to continuously strengthen the psychological relationship between volunteers and volunteer organizations. These factors can promote the sustainable and healthy development of volunteer organizations and increase the likelihood that volunteers will return after they first enter a volunteer organization, and that they will return when their role identification is not yet high and social support systems are not yet established. At the same time, in the comparatively mature volunteer organizations with higher levels of volunteers' role identification and social support (Kramer, 1994; Griffin et al., 2000; Larson, 2017), more attention needs to be given to the balance between the psychological pressure and voluntary targets of volunteers, guiding volunteers to profoundly understand their advantages and disadvantages, and having a reasonable and effective evaluations of their targets. In the meantime, more matching voluntary services should be assigned to volunteers in accordance with their advantages and disadvantages, and supervisors should promote psychological balance and increase volunteering by adding more successful experiences to reduce psychological pressure.

## Theoretical Implications

There are at least three reasons why the present study is theoretically important. Firstly, the present study reveals how psychological capital influences volunteering. Previous research on volunteering has mostly focused on cultural capital, social capital, and human capital at home and abroad, yet research on psychological capital with respect to volunteering has not been done until now. Therefore, our study expands the perspective

of research on the mechanism of sustainable development of volunteering.

Secondly, the present study enriches the research of psychological capital. Previous researches on psychological capital mainly focused on college students, teachers, employees, and researchers. Meanwhile, our study focused on volunteers, which helped to fill a gap in psychological capital research.

Thirdly, the present study has explored the "black box" of volunteers' psychological capital on volunteering and its mechanism through integrated research. In addition, our study integrated the resource conservation theory and the main effect model of organizational commitment to reveal how and when volunteers' psychological capital affects volunteering. These findings have not been reported in previous studies, and significantly enrich the research on volunteering (Benson et al., 2014).

## Practical Implications

From a practical perspective, our study takes volunteers served for the community as the research object to explore the impact of psychological capital on volunteering. Previous studies have designed training programs for volunteers from specific organizations including volunteers for the museum and the Olympic Games so that they can have the sustainability of volunteering (Green and Chalip, 2004; Edwards, 2005; Fornyth, 2010; Dickson et al., 2013, 2015; Darcy et al., 2014). Our research can provide some directions for the sustainable development of volunteering of those volunteers served for the community. For example, increasing the psychological capital of volunteers. Volunteer organizations can intervene psychological capital that help their volunteers learn mental regulation and be able to balance the psychological pressures and voluntary targets. For the volunteers who have joined voluntary organizations for a short time, they can be advised to constantly improve their psychological capital and strengthen their organizational commitment so as to promote their volunteering.

Furthermore, previous researches have shown that volunteer organizational commitment has a positive impact on voluntary behavior (Edwards, 2007; Matsuba et al., 2007). Our study also has shown that perceived social support and role identification has a joint mediation effect on the impact of psychological capital on organizational commitment. Therefore, voluntary organizations need to consider the role of volunteers in perceived social support and role identification when intervene their psychology to increase organizational commitment. For instance, the intervention is effective only when it is taken account of increasing perceived social support and reducing role identification or reducing perceived social support and increasing role identification, or simultaneously reducing perceived social support and role identification.

## Limitations and Future Research

The present study is not without limitations. Firstly, this study was cross-sectional, and although the time-lagged data reduces common method bias (Podsakoff et al., 2003), this research may restrict causal inferences. Thus, we encourage the use of experimental longitudinal designs to draw causal inferences in the future.

Secondly, volunteers aged 16–68 were included in this survey while those aged over 68 were not. Moreover, we looked at the volunteers as a whole and didn't take account of the differences between young and old volunteers (such as differences in life experience, years of service, and perceptions and attitudes toward volunteer service) (Windsor et al., 2008). Therefore, it is necessary to strengthen the comparative study between young and old volunteers in future research.

Thirdly, more detailed measures were not involved because of the complexity of the model in this study. For example, we researched the mechanism of the composite psychological capital on volunteering but didn't include how each individual dimension of psychological capital affected volunteering. Therefore, we encourage researchers to strengthen the study of the relationship between psychological capital and volunteering and reveal the role of organizational commitment, role identity, and social support.

Last but not least, there have been few studies on the psychological capital of volunteers at home and abroad, which may lead to a lack of in-depth analysis of the hypothesis and discussion in this study. The knowledge system of positive psychology and the study of positive organizational behavior have been enriched constantly. Many special advantages and virtues of individuals or groups have been put forward, and many factors have been found to meet the POB standard (Luthans et al., 2007). As a special group, the connotation and structure of the psychological capital of volunteers may have new characteristics. Therefore, we expect more researchers to pay attention to the psychological capital of volunteers and research it in the future.

## CONCLUSION

The present study suggest that volunteers' psychological capital not only has a direct effect on volunteering, but that it also affects volunteering through the mediating role of organizational

commitment. Besides, volunteers with low role identification and low perceived social support, high role identification and low perceived social support, and low role identification and high perceived social support commit to their organizations faster when they have a high level of psychological capital; whereas, volunteers with high role identification and high perceived social support commit to their organizations faster when they have a low level of psychological capital.

## DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

## ETHICS STATEMENT

This study was carried out in accordance with academic ethics guidelines, and the recommendations of the Committee of Zhuhai Campus of Zunyi Medical University, which also approved the study protocol. All subjects provided written informed consent in accordance with the Declaration of Helsinki.

## AUTHOR CONTRIBUTIONS

LX designed, performed, and analyzed the research, and wrote the manuscript. YW revised the section of measures in manuscript and wrote responses to reviewer ZG. YW and JY searched literature. JZ analyzed and verified the data of this article.

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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# Psychological Capital and Entrepreneurship Sustainability

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Successful formation of a new venture is not the most critical indicator of the real success of an entrepreneurial venture. Instead, the sustainability of an entrepreneurial venture (i.e., entrepreneurial sustainability) is the most critical but the most difficulty goal. Entrepreneurial sustainability relies largely on positive collective psychology. This article offers systematic and detailed discussion of the effects of psychological capital on the critical elements of entrepreneurship sustainability – not just that on a successful formation of a new venture. The goal is to shed light on potential practical designs and theoretical improvement in the future.

**Keywords:** psychological capital, entrepreneurship sustainability, future research, perspective, review

## BACKGROUND

The psychological capitals are generally found to have immense contribution toward providing competitive advantage of a firm since it is difficult to imitate by the competitors. The Psychological Capital (commonly referred as PsyCap) are generally found to influence behavior and attitude of employees which, in turn, has a direct impact over improving organizational performance (Newman et al., 2014). This is because PsyCap determines the emotional intelligence of an employee and enables them to be motivated by staying unaffected due to negative consequences. Hence, it enables an individual to foster innovation and creativity that will be able to boost organizational performance. A clear understanding about Psychological Capital will enable in improving individual as well as organizational performance. Moreover, the positive Psychological Capital helps to inculcate a motivating and supportive work culture thereby enabling the firm to stay ahead of its competition. This will help to design work as individuals with higher motivation are expected to efficiently achieve organizational goals.

According to Avey et al. (2010), the four core constructs of PsyCap are efficacy, hope, optimism and resilience, which are directly related to attitudes and emotions of employees that then might affect their behavior or behavioral intentions. It is believed that a healthy work environment creates a good feeling among employees and motivates them to achieve higher degree of success. Moreover, Psychological Capital is directly linked with well-being of individuals which, in turn, will be reflected in terms of their performance. In other words, Psychological Capital is concerned with bringing improvement within an individual both personally and professionally. The occupational health has been found to be directly associated with physical well-being of individuals. Thus, individuals prefer to work with organizations having positive work environment which, in turn, enables a firm to retain a pool of competent employees.

The positive psychological state of an employee provides the confidence to take certain degree of risks generally referred to as self-efficacy. It also enables a person to reconstruct paths for achieving its goals and encourages to sustain in a challenging situation. These factors depict that psychological capital is positively related with the improvement of performance at a particular job

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role. Peterson et al. (2011) state that psychological capital is manifested through motivation levels, enhancement of cognitive capabilities and capability to pursue goals. All the above stated attributes enable an individual to achieve a higher degree of success by bringing constant improvement in business performances.

In such vein, this commentary article sets to discuss the potential links between PsyCap and a sustainable entrepreneurship journey of entrepreneurs and his/her entrepreneurial team(s). This topic at the intersection of the two important research fields is important but has been under-researched. Through this reflective piece of work, hopefully more future studies suitably fall into the intersection of PsyCap and entrepreneurship, especially in a more sustainable, dynamic time frame, could be stimulated to offer theoretical and practical implications (Luthans et al., 2007; Matzler and Renzl, 2007; Hofstede, 2011; Owoyemi et al., 2011; Ahmad et al., 2014; Anitha, 2014; Paterson et al., 2014; Saxena, 2014; Youssef-Morgan and Luthans, 2015; Petrides et al., 2016; Walker et al., 2016).

## PSYCHOLOGICAL CAPITAL AND SUSTAINABLE ENTREPRENEURSHIP

According to Fakhri et al. (2012), motivational and cognitive excellence is the key force which stimulates entrepreneurial capabilities within an individual. The success of an entrepreneurial journey lies in the ability to identify opportunities and take necessary actions for overcoming all challenges faced in the entire process, which requires both cognitive and motivational strengthen of an entrepreneur. The psychological construct within an individual are generally developed during the infant stage and are mostly influenced by the environment in which a person is brought up. It can be clearly stated that entrepreneurs who are positively influenced personally tend to achieve a greater degree of success. In other words, personal traits mostly influence the entrepreneurial capabilities of an individual.

Thus, the presence of a positive psychological capital has been found to facilitate entrepreneurial development of an individual. The basic qualities which define an entrepreneur include the ability to take risks, capability to facilitate innovation, capability to lead a particular team and many more (Langkamp Bolton and Lane, 2012). These attributes enable a firm to participate in the innovative culture and benefit the organization as a whole.

Overall, the discussions below could be depicted into the conceptual framework to improve comprehensiveness.

First, the sustainability of entrepreneurial activities is an indication of stronger entrepreneurial intentions which also depicts their exploratory capabilities. Therefore, the relation between personal characteristics and creative process enables a researcher to understand how psychological capital can stimulate continuous creativity generation, which is a foundation of entrepreneurship, within an individual. According to Sweetman et al. (2011), creativity is the capability of an individual to introduce new ideas that will bring modification in terms of products, services and processes such that it improves

the overall performance of the organization. Hence, creativity can be considered to be a key for achieving organizational competitiveness and survive in the competitive environment. The psychological capital of an employee motivates to enhance cognitive bases which, in turn, will facilitate creative thinking. The willingness to take risks associated with an innovative process enables an individual to formulate strategies and explore various alternatives. Hope is one among the four attributes associated with psychological capital which enables an individual to stay optimistic. This enables an individual to take risks and succeed in an innovative process. It is imperative that the ability to think positively depends on personal attributes which helps to keep a control over negative situations. Thus, positive psychological capital has been found to facilitate creativity generation and re-generation of an individual and associate a greater degree of sustainable success.

Second, leadership is critical in sustaining entrepreneurial development. A sustainable entrepreneur with higher leading capability could ensure better economic stability for a new venture to successfully navigate complex situations without being defeated by internal conflict, inefficient coordination, and heterogeneous interests and motivation of all partners. The organizations are generally found to promote sustainable entrepreneurship by motivating experienced personnel by leadership to identify the opportunities available in external business environment and benefit the firm as a whole. Further, the culture of an organization is enforced by leaders as the capability of leading and directing a particular group of people depends on the efficiency of leadership. Hence, a sustainable entrepreneur will be able to motivate subordinates for following sustainable practices that will ensure successful achievement of organizational goals.

Third, sustainable entrepreneurs are generally found to maintain a balance between economic, social and environmental factors which in turn helps to safeguard interests of every stakeholder (Kuckertz and Wagner, 2010). This will enable the firm to sustain in the competitive environment by choosing the course of actions which will be beneficial in the long term. A sustainable entrepreneur has the capability of driving business processes in a socially responsible manner such that the practices undertaken by the firm does not leave a negative impact over the environment (DiVito and Bohnsack, 2017). Those entrepreneurs intend to generate profits by considering various environmental factors. All of these imperatives require entrepreneurs' good orchestrating of their stakeholders in the surrounding environment. The sustainable entrepreneurship is an important topic in an organizational context since it enables a firm to sustain in the competitive environment. Shepherd and Patzelt (2011), states that sustainable entrepreneurship is concerned with preserving both the environment and society in which it operates such that it continues to provide opportunities in future times. Hence, it is imperative that sustainable entrepreneurs tend to select the paths that will be aligned with the stakeholder objectives and ensure long term stability for the firm.

Psychological capital of the entrepreneurs and his/her entrepreneurial team could help communication and coordination with the stakeholders. Those traits of optimism,

hope and resilience help entrepreneurs to retain communication and coordination even when there are obstacles and disagreements. Moreover, the trait of self-efficacy, whether at individual- or group-levels, could enable entrepreneurs to communicate and coordinate in a mode confident and “charming” way.

Fourth, PsyCap facilitates entrepreneurs’ capability of facing dramatic changes, which might lead to extremely positive or negative outcomes. An entrepreneurial environment constantly undergoes innumerable changes in terms of social, political, economic and technological factors. Under such circumstances, human talent such as an entrepreneur plays an important role in making business firms adaptable to the changing environment. This will enable the firm to continue its operations for a long period of time by ensuring socio-economic development of the entire society from which the firm procures resources. With PsyCap the employees have the capability of increasing efficiency and making a particular organization effective, it is the responsibility of management (i.e., the entrepreneurs here) to ensure a proper utilization of such human resource (i.e., the employees in new ventures). A proper human resource management practice will enable a firm to attract and retain competent employees and make them behave in a socially responsible manner (Araque et al., 2018), for which PsyCap could do a great help.

The growth and development of business firms are directly related with social welfare. This is because firms are responsible for creating jobs for the community, and therefore, ensure its economic development through equal income distribution. This depicts that business firms depend on the society for necessary resources including human and psychological capitals. The business firms, in return, has certain responsibilities toward the society that provides necessary resources for continuing its operations. The firms will have to construct the operations in a sustainable manner such that it does not leave any detrimental impact over the environment. It is imperative that entrepreneurship and sustainability can be combined together for developing a new approach in ensuring social welfare.

Last but not least, PsyCap facilitates entrepreneurial innovation that leads to more sustainable entrepreneurship. Innovation enables an individual to make optimal utilization of resources and thus plays a crucial role in ensuring sustainable development. This is achieved since it establishes appropriate price-cost structure which, in turn, enables a firm to manage processes in a cost-efficient manner. The benefits offered by sustainable practices are generally found to be beneficial in safeguarding environment and thus, are preferred by most of the consumers in recent times. In this competitive business environment, firms adopting innovative sustainable practices are found to achieve a distinguished position in the market. The strategic thinking and decision making capabilities of an entrepreneur have been found to effective in designing processes that will prove to be productive for the firm as a whole (Welsh and Krueger, 2012). The entrepreneurial abilities enable to identify opportunities and convert them into a valuable resource with the application of appropriate techniques. This is because entrepreneurs possess the capability of viewing a particular

aspect from multiple perspective and integrate innovation for developing a method profitable for the firm as a whole.

Psychological capital enables an individual to develop creative ideas and thus is responsible for fostering innovation within a particular firm. Positive psychological capital can, therefore, be considered to be a manifestation of personality traits since it is concerned with delivering value to an organization through the set of skills possessed by an individual. It is the ability of an individual to effectively utilize knowledge and manage them by forming social networks. The four major constructs of psychological capital can be explained to depict how it facilitates in the entrepreneurial journey. Self-efficacy can be referred to as the confidence toward achievement of a particular goal. It, therefore, enables an individual to continue with a particular course of action by overcoming all possible challenges. Hope, on the other hand, signifies the positive energy that motivates an individual to explore all possible opportunities and achieve a distinguished position among competitors. Optimism, however, enables an individual to expect positive outcome for the processes undertaken and bring greater degree of success for the firm. Resilience enables a person to have a control over emotional stability which will help to overcome challenges in difficult situations (Ziyae et al., 2015). The attributes associated with psychological capital, therefore, facilitate entrepreneurial sustainability within an organization.

The business firm in this competitive environment strives to find innovative ways that will enable them to achieve a distinguished position among others. This has made them depend on the innovative ideas possessed by human resources that will enable the firm to sustain for a long period of time. In other words, organizations in order to survive in the competitive environment need to recruit innovation led persons such that it facilitates in implementing a progressive work culture. It is equally important for the management to ensure that employees do not feel stressed as it hinders innovative capabilities. To ensure entrepreneurship sustainability, the management therefore need to concentrate on factors that will provide satisfaction toward the employees (Abbas and Raja, 2015). On the other hand, individuals having higher psychological capital tend to have less stress related to job. This, in turn, depicts that personal attributes are directly related with stress and anxiety experienced by a person. It has also been found that employees having higher degree of psychological capital exhibit more innovative nature such that it proves to be productive for the organization. It can be stated that people with higher degree of psychological capital can contribute toward sustainable development of the organization through its entrepreneurial skills.

## COMMENTARY

The above section has illustrated the findings of peer-reviewed journals related to psychological capital and entrepreneurial sustainability. The discussion is concerned with emphasizing that psychological capital improves entrepreneurial sustainability from an organizational perspective. The analysis presented



above reveals that psychological capital has direct impact over organizational performance. psychological capital is characterized by four major attributes namely self-efficacy, hope, optimism and resilience. Self-efficacy refers to the confidence within an individual for achieving a common objective and thus, provides the confidence of overcoming all possible challenges. Hope represents the energy with which an individual feels motivated to explore all possible opportunities. Optimism, implies the positive attitude of an individual which enables to perceive about positive outcome of a particular happening. Resilience enables a person to hold a control over the emotional quotient and manage complex situations effectively. The above stated attributes are completely in accordance with the qualities to be possessed by an entrepreneur. This provides definition for an entrepreneur which refers to the individual capable of introducing new ideas that will eventually enable the firm to achieve a distinguished position among competitors. This implies that the individual needs to be confident enough for overcoming all challenges in order to succeed in the course of action.

An entrepreneur needs to be positive regarding the outcomes of a particular situation that will enable it to effectively manage complex situations. Under such circumstances, it is essential for the individual to hold stability in terms of emotional state that will facilitate in the decision making process. The psychological capital refers to the emotional intelligence which motivates an individual to stay motivated toward achievement of a particular objective. The positive psychological capital within employees, therefore, benefits in creating a participative work culture. This creates motivation within the firm and enhances performance as a whole. The discussion has also stated that psychological capital is related with the well-being of employees. Thus, psychological capital promotes innovation which is a major attribute of an entrepreneur.

It has been found in the above analysis that psychological capital is related to personal traits of an individual and is influenced by the surrounding environment in which the individual is brought up. Thus, individuals who are personally motivated toward achieving a particular goal tend to achieve greater degree of success. The individuals having a positive attitude toward work can prove to be beneficial for an organization thereby depicting the presence of entrepreneurial skills. Sustainable entrepreneurship refers to the strong intentions present within an individual for exploring all possible opportunities. Such practices provide greater degree of success to an organization by keeping a proper balance between external and internal business environment. It is also evident that management needs to concentrate on effectively coordinating human resources such that psychological capital proves to be beneficial for the firm. The utilization of psychological capital is appropriate when it creates a positive environment resulting in personal development and enforcement of capabilities for dealing with challenging situations, and prepares a person to be determinant about a desired outcome and ability to proceed further by overcoming all possible challenges (Cavus and Gokcen,

2015). This reflects that psychological capital has an immense contribution toward developing sustainable growth within an organization.

Psychological capital can be measured and effectively controlled by the application of proper resources such that it increases performance as a whole. The success of an organization, thus, depends on the psychological capital available within an organization and also on the participation from every employee. It sets the right attitude toward work and also influences others which enables a firm to achieve long term success. In other words, psychological capital implies mostly the positive aspect of an individual behavior. Hence, it signifies hope, creativity, wisdom, responsibility and other aspects of human nature which are necessary for becoming an entrepreneur. These positive aspects of a human nature are generally found to overshadow the negative aspects such as stress and mental exhaustion. It, therefore, concentrates on bringing a positive transformation within an individual by realizing future state from its present condition.

It can be clearly stated from the above analysis that psychological capital is related with cognitive capability of an individual and thus, has been found to be correlated with innovative capability of an individual. Sustainability in entrepreneurship are generally found to create a balance between economic, social and environmental factors that will prove to be beneficial for a long period of time. Thus, it depends on the innovative capability of an individual which enables to identify opportunities and select the correct course of action. Moreover, the cognitive capabilities enable an individual to associate the proper resources such that it facilitates in the introduction of new improved processes. The above discussion suggests that a sustainable entrepreneur has the capability of constructing processes in a socially responsible manner which can only be possible due the presence of positive psychological capital.

The four constructs of psychological capital reveal that it is directly related with entrepreneurial skills and are directly related with personal trait of an individual. Conversely, presence of positive psychological capital is generally found to enhance health and well-being of individuals. In addition to that, sustainable entrepreneurship is generally found to resolve some of the vital social as well as environmental concerns. Thus, sustainability in entrepreneurship are expected to be a growing concern among consumers and organizations following sustainable practices are more preferred over others. It is clear from the analysis that in recent times, firms are found to adopt sustainable practices for gaining competitive advantage and gain higher degree of profitability. This is the major reason that most of the firms show preference toward adopting sustainable practices and consider psychological capital as a means of integrating it into business processes.

The management, in recent times, have been found to concentrate on recruiting individuals on the basis of positive psychological capital. Along with selecting appropriate human capital, it is equally important for the

management to nourish those talents by providing them with a supportive environment. This signifies the importance of psychological capital in developing a positive culture within an organization and also proves its influence on improving its performance. A good work environment creates a positive attitude within employees and motivates them to perform better. The individuals thereby working under a supportive environment are likely to be less stressed. This again proves that psychological capital is directly related with well-being of employees. Furthermore, psychological capital has been proved to be dependent on personal traits. The individuals who have been brought up in a positive environment are likely to possess positive psychological capital. The individuals are likely to be beneficial for the firm due to their innovative nature.

The above discussion has also explained the qualities of a sustainable entrepreneur as such practices are generally found to ensure better economic stability for an organization. The positive psychological capital is generally found to enable entrepreneurs to undertake sustainable practices by exploring all possible opportunities. The ability of an individual to positively evaluate the outcome which is an important construct of psychological capital and facilitate entrepreneurship. Sustainable entrepreneurship has evolved since it has enabled the firms to adopt cost-efficient processes that will also be able to preserve environment. The socio-economic benefits provided by the sustainable entrepreneurship has made firms to promote these practices as it ensures better stability in the long term. These practices result in the development of the society in which an organization operates and relies heavily for procuring useful resources.

The above discussion is intended to depict contribution of psychological capital in positively influencing sustainable entrepreneurship. It can be clearly stated from the above discussion that psychological capital promotes health and well-being of individuals. Apart from this, it leaves a positive impact over organizational culture and motivates others for actively participating in various processes. This, in turn, highlights that positive psychological capital promotes innovation which is an important skill possessed by entrepreneurs. A positive relation has been noticed between psychological capital and sustainable entrepreneurship as individuals having higher degree of PsyCap are generally found to be considerably affected by work-related stress. Hence, those individuals are expected to be of good well-being which in turn is reflected through their performance. It is evident that psychological capital has a significant contribution toward improving organizational performance.

The positive psychological construct of an individual enables to take risks and sustain in a challenging situation through emotional stability. The basic constructs of psychological capital therefore, highlight its interrelation with entrepreneurship. The positive psychological capital enables an entrepreneur to think strategically and introduce new ideas within an organization. The sustainable entrepreneurs are generally found to concentrate on integrating processes that will be economical as well as

prove to be beneficial for the environment. The practices have been found to result in socio-economic development of the society and ensure long term performance of the firm. The business firms procure resources from the society which in turn compel to carry on certain responsibilities toward it. The sustainable practices in recent times have been found to gain attention of majority of population. This has encouraged business firms to adopt such practices and emphasize on developing innovative ideas that will prove to be beneficial for the firm in the long term.

It can be clearly stated from the above analysis that sustainability in entrepreneurship has been found to be benefit the firm in long term and incur better financial results. The business firms, in order to achieve competitive advantage and gain a distinguished position in the market, tend to adopt sustainable practices for ensuring long term stability of a firm. This has encouraged them to rely mostly on psychological capital that will enable to continuously bring innovation in its processes. The positive psychological capital enables an entrepreneur to be self-motivated to continue with innovative practices. Moreover, an individual having higher psychological capital tend to be more productive for the firm and depict to possess better health condition. This enables them to improve productivity as such individuals has less absenteeism, motivated toward their job and many more. Hence, all these attributes facilitate creativity stemmed from positive psychological construct and benefit the organization as a whole.

The above discussion explained on the basis of extracts derived from peer-reviewed journals has narrated that sustainable entrepreneurship is positively related to psychological capital and also varies on the basis of personal characteristics. Employees working within an organization belong from diverse background and their motivation level tend to vary. Thus, it is the responsibility of management to enforce a positive culture within the organization that will improve overall productivity. The management also needs to concentrate on recruiting individuals having positive psychological capital that will facilitate in developing a motivating culture. This practice has been found to be conducive for an entrepreneur as attitude of every employee will be positively influenced. It will be convenient for entrepreneurs to design training programs on the basis of psychological capital that will in turn enhance knowledge base and improve productivity of the organization as a whole (Smith and Woodworth, 2012). The interaction of entrepreneurs with its subordinates have been found to have significant impact over psychological capital and attitude of employees.

It can be inferred from the above analysis that degree of psychological capital affects performance of firms. Moreover, the environment in which employees work are generally found to affect its psychological capital. This highlights the importance for an entrepreneur to understand various organizational situations and focus on managing a cordial relation with subordinates. This will encourage employees to share their opinions and facilitate the innovative process. The attitude of employees depicts the degree of association of an individual with job and consequently

provides a brief idea regarding individual performance. It can be concluded that in recent times, firms have been found to concentrate on sustainable entrepreneurship which is positively related with psychological capital of an individual for achieving long terms stability.

## CONCLUSION

According to Kyrö (2015), entrepreneurs refer to those individuals having the capability of introducing new ideas through individual efforts such that it results in economic development for the organization and society at large. The entrepreneurs need to rely on the raw ingredients abundantly available in the nature. This necessitates them to undertake the right course of action that will enable to preserve those resources for a long period of time. To achieve the goal, entrepreneurs need to effectively design sustainable practices for preserving natural resources by the proper application of various capital, including the PsyCap discussed in this article.

Furthermore, it has been found that firms are reliant on sustainable entrepreneurship for ensuring their long term success by exploring new opportunities available in the market. Terziev (2016) states that strategies resulting in economic, social and environmental development can be facilitated through entrepreneurship. The integration of innovative practices results

in increase of productivity for the particular firm and also improves the quality of products or services delivered. The application of psychological capital enables proper construction of infrastructure which eventually enhance competitiveness of a firm. This is because entrepreneurs, by adopting a new approach toward planning of the production process, enable a firm to improve productivity in a socially responsible manner. Sustainable entrepreneurship has been found to improve health standards of individuals which also includes safeguarding biological cycles. Thus sustainable entrepreneurship is considered to be a panacea for a range of emerging social and environmental concerns.

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# Social Entrepreneur's Psychological Capital, Political Skills, Social Networks and New Venture Performance

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Scholars have begun to realize the importance of entrepreneurial political skills to new ventures. Namely, social entrepreneurship is a context, in which entrepreneurs expend great efforts in networking politically to integrate diverse resources and share interests (e.g., ecology wellness) for sustainability. In this paper, we integrate the social exchange theory and the resource-based view to discuss how social entrepreneurs' political skills enhance new ventures' performance through their social network (size/diversity and structural holes), and discuss how psychological capital in entrepreneurial contexts can influence new venture performance by political skills' functionality. By connecting significant entrepreneurship research constructs at different levels, this article not only enriches our knowledge about the ways in which social entrepreneurs' political skills and psychological capital affect the performance of ventures, but also offers new ventures some guidance on how to use political skill to improve their social networking and performance. Implications for social entrepreneurial sustainability are discussed.

**Keywords:** social entrepreneur, political skill, psychological capital, social network, new venture performance

## INTRODUCTION

New ventures contribute to the socioeconomic development. Therefore, understanding the key influencing factors of new ventures' performance has very important theoretical and practical value (Baumol and Strom, 2007). Entrepreneurship researchers have repeatedly emphasized the importance of entrepreneurial social networks to the survival and development of new ventures (Shane and Cable, 2002; Hoang and Antoncic, 2003; Ruef et al., 2003; Li and Zhang, 2007; Chen et al., 2017), having found that entrepreneurs often cultivate and build extensive social networks to get the various resources they need (Eisenhardt and Schoonhoven, 1996; Stuart and Sorenson, 2007; Stam and Elfring, 2008; De Carolis et al., 2009).

Although existing literatures have found significant positive effects of social networks on venture performance, one fundamental question remains unanswered: why do some entrepreneurs construct and develop social networks to enhance new ventures' performance better than others? From the behavioral perspective, studies have argued that an entrepreneur's skills can impact the construction and usage of social networks. Although many studies have examined the direct effects of social networks on venture performance, few studies have analyzed the indirect effects

of social networks. For example, social networks act as a mediation variable that might transform entrepreneurial skill's effect into venture performance.

In the context of social entrepreneurship, efforts to answer such questions are still wanting. Social entrepreneurship is a special type of entrepreneurship, not only for pursuing economic return but also for pursuing the goal of solving social/public problems with alignment between diverse interests. In such contexts, political skills are important for entrepreneurs. Ferris et al. (2012) claim that individuals with higher political skills are more likely to build good relationships with others and to occupy central positions in the workplace (Treadway et al., 2013). Omrane (2015) argues that individuals can use appropriate skills to build good social networks that will help them access important social resources. Fang et al. (2015) have proposed that entrepreneurs with high political skills can build more stable and more adaptive social networks than those with low ones.

All of these pioneering studies have commonly pointed out a shared research direction – we need to know more about how entrepreneurs' political skill influences their social network and in turn, venture performance. Moreover, little is known regarding whether, and how, the four major dimensions of political skill differentially affect the functionality of social networks to improve new venture performance. Although scholarly works have extensively examined the influences of psychological capital on organizational results, it is suggested that the studies focusing on the psychological capital's consequent influences on entrepreneurial performance, through a series of mediating factors, are very limited. Studies examining the relationship between psychological capital, political skill and social networks in the entrepreneurship literature are also very limited. Considering that political skill is related to power relations in the organization, which demands a strong psychological base, it comes to mind that this set of skills may be related to psychological capital.

Further, the success of social entrepreneurship is inseparable from extensive social support and help. Because pursuing both social and economic goals often leads to a shortage of resources for social ventures, social entrepreneurs need to propagate their social mission and stimulate the prosocial behavior of external resource owners. When social entrepreneurs persuade resource owners to provide support and help, they must be able to positively influence the psychological state of others in order to gain others' empathy and social identity. Thus, entrepreneurial psychological capital may play an important role in this process, and we believe that entrepreneurs with a positive mental state may be better able to leverage their political skills and social networks. In the process of interpersonal interaction, individual emotional states usually affect each other, thus entrepreneurs' self-confidence, optimism, hope and resilience may affect others' emotional state, help them earn the trust of others, and finally, may increase the probability of success in social entrepreneurship.

In sum, to discuss the above questions, we conceptually elaborate the potential influences of psychological capital on political skills. Following this, we go into an in-depth discussion of the effects of political skills on an entrepreneur's social network

size, diversity, structural holes, and on their new venture's financial performance. We discuss the different effects of the four dimensions of political skills. Furthermore, the mediation roles of the above-mentioned social network dimensions are explored. Moreover, the special context of social entrepreneurship is suitable for a good illustration of the issues proposed here. Our study will contribute to network-based entrepreneurship research literatures and firm-level political skill research literatures, especially in the context of social entrepreneurship. Before we start the discussions of the interrelationships, we sketch the conceptual scheme in **Figure 1**.

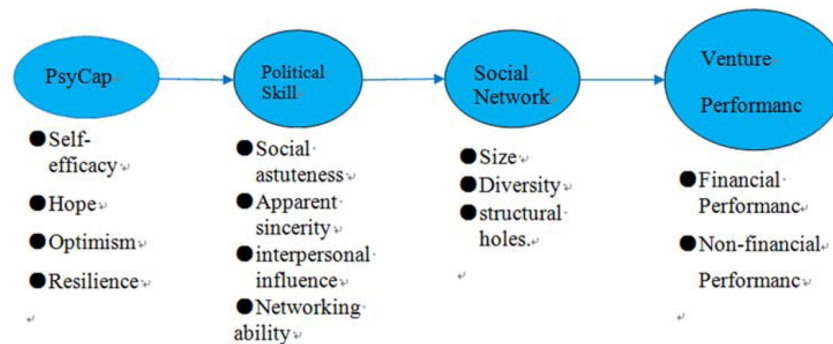
## THEORETICAL BACKGROUND AND PROPOSITION DEVELOPMENT

### Psychological Capital and Political Skills

The concept of positive organizational behavior, which can be described as the reflection of positive psychology in organizational life, contributed to the conceptualization of psychological capital (Avey et al., 2008, 2009; Luthans et al., 2008). Psychological capital could be perceived as a holistic and positive mental state that a collective of individuals share in an organization.

There are various definitions of psychological capital, related to the positive psychological state of an individual's and/or a collective's development. In one of these definitions, psychological capital is considered as the state of having the confidence, or in other words, self-efficacy to provide the necessary effort to succeed in difficult tasks. According to another definition, psychological capital is a positive expectation about the possibility of success in the present and future, or in other words, the state of being optimistic. In addition, psychological capital is defined as the ability to be determined to reach, and to move toward new ways to achieve success, or in other words, to carry hope. Finally, it can be said that psychological capital is conceptualized as one's ability to recover when faced with problems or possible troubles and to show an insistent attitude during such times, i.e., to be persistent or to be durable Luthans et al. (2006a,b).

Based on these different, but highly interrelated conceptualizations, scholars have agreed that psychological capital has four basic dimensions: self-efficacy, optimism, hope and resilience Luthans et al. (2007). Self-efficacy is a faithful belief a person owns, to control the events and solve the problems one faces in organizational life, with the positive motivation and cognitive resources benefiting future prospects Stajkovic and Luthans (1998). It is also defined as the individual's positive belief toward the abilities he has while doing and working Stajkovic and Luthans (1998). Optimism can be defined as good expectations for the future (Carver and Scheier, 2002a,b). At the core of such definition, individuals relate positive events as a result of internal, permanent and common causes Seligman and Csikszentmihalyi, 2000. Hope, the third dimension of psychological capital, interacts with goal-oriented energy that arises from a plan to meet specific goals with a sense of accomplishment Snyder (2000). Finally, resilience is seen as the person's ability to cope



**FIGURE 1 |** Conceptual scheme.

with many negative situations (such as obstacles or uncertainty) to re-bounce or to eventually lead to success (Luthans et al., 2006b). It is a state in which positive change and development are displayed in the face of adverse situations such as difficulty, uncertainty, conflict, failure, etc. Masten (2001), Luthans (2002) act. Erkus and Findikli (2013).

The relationship between psychological capital and organizational outcomes has been widely investigated from various angles in the literature. It has been stated that it provides organizations with a competitive advantage. It has further been suggested that psychological health might be associated with political skills both positively and negatively (Bedi and Skowronski, 2014). However, the detailed cause-effect relationships have been under-discussed. That said, although knowledge about how an individual's political skills might affect another person's psychological state has been accumulated, few have explored the ways in which a person's positive psychological state could influence his/her own political skills' functionality, especially in an entrepreneurial context Luthans et al. (2004).

During a new venture, an entrepreneur's, as well as other employees' psychological capital may have a positive impact on their performance. However, their way of influence may be different. For example, the psychological capital of an entrepreneur may directly and positively affect the functionality of his/her political skills, enabling him/her to better motivate internal employees and build better social networks, thereby positively affecting new venture performance. Nevertheless, other employees' psychological capital may make them identify with the new venture and be willing to contribute more to it, which may have a positive impact on new venture performance. Intuitively, people's emotions can interact and influence each other, thus, the psychological capital between entrepreneurs and other employees may actually affect the interactions people have with one another, and other employees' psychological capital may indirectly affect the functionality of the entrepreneur's political skills. To avoid confusion, this study only discusses the impact of entrepreneurial psychological capital on the functionality of political skills and new venture performance.

Reasonably based on the discussion above, the political skills used to achieve people's organizational goals are likely to be influenced by psychological capital, which refers to the qualities

of individuals to reveal their strengths. Therefore, in this study, the relationship between psychological capital and political skill is proposed.

**P0:** *Psychological capital in entrepreneurial contexts could influence new venture performance through functional factors (e.g., the political skills and social networks in this article).*

**P1:** *Psychological capital of an entrepreneur or an entrepreneurial team could positively influence the functionality of political skills.*

## Political Skill and Social Network

Existing research suggests that people's personality and ability characteristics affect the construction of their social networks (Douglas and Ammeter, 2004; Wei et al., 2012; Ferris et al., 2017; Burt et al., 2018). Though many political skill scholars in organization behavior have repeatedly mentioned the important role of individual political skill in the process of interpersonal action in the organizational context (Ferris et al., 2005, 2007), we still do not conclusively know why different political skill levels could lead to different network structure/attributes.

The existence of strong and mutually beneficial exchange ties can promote the mobilization of social network resources (Fombrun, 1982; Nahapiet and Ghoshal, 1998). The social exchange theory suggests that human relations are based on rational choice (Thibaut and Kelley, 1959; Homans, 1961) and constitute a resource-exchange relationship – an exchange of goods, both material and non-material, such as the symbols of approval or prestige. The theory also assumes that actors achieve their goals by exchanging resources with others, and these goals are often beyond their reach (Lawler and Thye, 1999). Here, resource exchange can be regarded as social exchange. The main aspect of social exchange is that it takes place between individuals who have the characteristics of self-interest and mutual need – two or more actors have what the other needs, and they can independently decide whether, and how much, to exchange (Aldrich and Zimmer, 1986). Persons who give much to others try to get equally as much from them (reciprocity), and persons who get much from others are under pressure to give equally as much back. This process of

influence tends to work out at equilibrium in the exchanges (Homans, 1961). Appraisal of whether or not a new relationship is attractive and valuable takes place through a comparison of the ratio of the rewards and costs (which is calculated by their self-standards) of the connection (Thibaut and Kelley, 1959). Following one person's initial contact with another person, the formation and maintenance of the relationship depends on the rewards/costs ratio/level they have experienced or expected. Individuals' behavior in the social interaction process is often highly selective – they seek to produce the most satisfactory results, and once they discover that they cannot reach their goals, they will choose to give up the relationship (Thibaut and Kelley, 1959). The core idea of social exchange theory is that two actors voluntarily exchange their own resources. However, there are also involuntary exchange relationships, for example, ones lacking a good trading partner, taking place when the actors are not satisfied with the partner but have to maintain the existing exchange relationship. Drawing on the above social exchange theory, logic dictates that the traits and definitions of political skill determine that self-interested actors, with a variety of private goals, will usually prefer to be in contact or exchange resources with politically skilled individuals for three reasons: the first is that politically skilled individuals are more likely to discover and identify others' needs and interests due to their social astuteness and savviness, so politically skilled individuals can make an impression to others suggesting that they own some resources needed by others, by sending appropriate signals in social situations. This may effectively attract others' attention and interest. The second reason is that politically skilled individuals are more likely to gain others' trust as they are, or appear to be, sincere, genuine and honest. These traits signal to others that being in contact, or exchanging resources with such individuals is safe and beneficial. The third reason is that politically skilled individuals are more likely to make favorable impressions to others, suggesting that they can provide the needed resources or help to others due to their interpersonal influence ability. To interpret the above logic in detail, we discuss the ways in which the four dimensions of political skill influence social networks size, diversity, and structural holes, as follows:

### Social Astuteness and Social Network

Social astuteness means that people with high political skill can better understand the actions and motivations of others in social interactions (Ferris et al., 2007). This competence helps politically skilled individuals to discover others' potential interest points and needs in social settings, and to know how to behave or speak/talk to others, which can attract others' attention and let them believe that building a personal relation with the individual is beneficial to their needs. It is difficult for low social astuteness individuals to attract other people's attention and interest or to construct a connection as they cannot understand others' behavioral motivation and significance well and do not have sufficient knowledge of others' hidden interests and needs. Based on these arguments, we propose that:

***P2a: Social astuteness has a positive relation with the size of entrepreneurial networks for both strong and weak ties.***

High social astuteness individuals, as astute observers of others, can more effectively search for and discover valuable information in a variety of social settings, know their existing ties, which can provide the necessary types of resources, and know the types of resources which are lacking, as well as the types which are redundant. This results in a greater likelihood of establishing a connection with the persons than low social astuteness individuals, as previously argued. Thus, we assume that:

***P2b: Social astuteness has a positive relation with the diversity of entrepreneurial networks for both strong ties and weak ties.***

In comparison to the other three dimensions of political skill, social astuteness can endow entrepreneurs the ability to discover and identify valuable information/resources from other individuals or organizations and help them know who they can build ties with and how. Although apparent sincerity, interpersonal influence, and networking ability can also be helpful for building ties, the ties or resource-exchanging cannot occur if individuals cannot discover or identify which relationships are worth building. Social astuteness helps entrepreneurs to find more potential relationship objects, and as such, we expect that:

***P2c: The relationship between the social astuteness and entrepreneurial networks' size/diversity will be stronger than the relationships between the other three dimensions of political skill and entrepreneurial networks' size/diversity.***

### Apparent Sincerity and Social Network

Apparent sincerity means that people with high political skills can make themselves appear genuine (Ferris et al., 2007). A person who pursues a connection with another person often has the basic confidence that the specific relationship will result in some material or spiritual benefits for him/her (resource exchange and reciprocity), while the other person will not harm his/her interests by leveraging his/her flaws and limitations (non-opportunistic behavior). High apparent sincerity individuals can make a good impression to others, suggesting to them that they are trusted, sincere, genuine, and that they will not leverage others' limitations for self-interest and bring risk or harm to others. Therefore, most people prefer to establish friendships and collaborative ties with high apparent sincerity individuals and dislike to be in contact with deceitful and selfish people, interaction with whom results in more costs and fewer rewards. At the possibility of a better alternative, people will select to construct ties with more apparent sincerity individuals, thus we argue that:

***P3a: Apparent sincerity has a positive relation with the size and diversity of entrepreneurial networks for both strong ties and weak ties.***

In a weak and inefficient institutional system environment, there is a general lack of trust among people, and this environment is conducive to social entrepreneurs to build good



social networks. Such social networks, with many structural holes, can complement the shortcomings of formal institutions to a certain extent (Batjargal et al., 2013), and can help social entrepreneurs to obtain resources and support that are not available within the formal institutional framework (Burt, 1992; Batjargal, 2007). For example, entrepreneurial networks with structural holes help ventures get new information, knowledge, loans, venture capital, and emotional support (Granovetter, 1973; Burt, 1992). In this institutional context, entrepreneurs have a stronger motivation to establish networks rich in structural holes. Entrepreneurs who are, or appear to be, honest and forthright can more easily win others' trust, act as a broker, or bridge ties between persons who lack a sufficient trust or lack a direct connection than low apparent sincerity entrepreneurs. This reasoning suggests that:

***P3b: Apparent sincerity has a positive relation with entrepreneurial networks' structural holes.***

### Interpersonal Influence and Social Network

Interpersonal influence refers to the idea that politically skilled individuals have an unassuming and convincing personal style that exerts a powerful influence on others around them and allows people to adapt and calibrate their behavior to different situations to elicit the desired responses from others (Ferris et al., 2007). Individuals with high interpersonal influence can adjust their behaviors according to different situations to influence others to produce favorable behaviors (Ferris et al., 2005). Because of the new venture's liability of newness (Fombrun, 1982), lack of necessary resources and legitimacy, new entrepreneurs have a strong motivation to build network ties. Social astuteness may help entrepreneurs find who possesses the necessary resources for new ventures, while apparent sincerity may help them acquire the owned-resource persons' trust and leave a good impression. However, whether the owned-resource persons agree to build and maintain an exchanging-resources relationship with entrepreneurs depends on others' perception of the type of resources the entrepreneur has, as well as their willingness to exchange. Generally, strong ties are more conducive to the exchange and utilization of network resources (Fombrun, 1982; Nahapiet and Ghoshal, 1998). Individuals with high interpersonal influence are more likely to influence and control the choices of others (Ferris et al., 2005, 2007). The main principle of social exchange theory is that interdependence and mutual obligations determine the form of their relationship (Cropanzano et al., 2014). High interpersonal influence entrepreneurs know how to delegate the appropriate help or resources to the resource-owned persons according to their different personalities and needs, leading to the desired response (the owned-resource persons give the needed or necessary help/resources toward the new venture). As such, high interpersonal influence entrepreneurs can more easily establish and maintain exchanging-resources relationships with the owned-resource persons or organizations than

low interpersonal influence entrepreneurs. Based on these arguments, we assume that:

***P4: Interpersonal influence has a positive relation with the size and diversity of entrepreneurial networks for both strong ties and weak ties.***

### Networking Ability and Social Network

Networking ability means that individuals with high political skills are able to identify and establish various connections, such as friendships or alliances with others (Ferris et al., 2007). In a transition context, where the formal institutional system is weak, a resource-rich and interdependent network can bring sustained competitive advantage to a new venture. Ventures with many alliances are more powerful than lone-ventures, or ones with little alliance, in super-competitive environments. As social exchange theory outlines, resource-exchanging and interdependence are at the basis of a relationship. High networking ability entrepreneurs can effectively search, scan, discover and identify the resource-owned persons or organizations, find the common interest points and resource-exchanging possibilities, and then develop diverse contacts with these individuals or organizations in further building strong, beneficial alliances. Based on this discussion, we propose that:

***P5a: Networking ability has a positive relation with the size and diversity of entrepreneurial networks for both strong ties and weak ties.***

As argued above, entrepreneurs who have a network rich in structural holes can act as a broker and bridge ties. The brokers generate returns each time they broker an exchange (Renzulli et al., 2000). In this way, entrepreneurs can act as intermediaries between suppliers and customers and benefit from them (Burt, 1992). Further, bridging ties can promote entrepreneurs in having greater access to resources (Stam and Elfring, 2008; Batjargal, 2010). Having a wide range of resource channels can help entrepreneurs get resources at any given time (Batjargal et al., 2013), thus, entrepreneurs have a strong motivation to construct social networks rich in structural holes, because highly networked entrepreneurs are more likely to build friendships and interest alliances (Ferris et al., 2007). High networking ability entrepreneurs can also search and discover more disconnected network clusters and can establish bigger and more diverse networks rich in structural holes than low networking ability entrepreneurs. Thus, we propose that:

***P5b: Networking ability has a positive relation with entrepreneurial networks' structural holes.***

### Social Network and New Venture Performance

Many researchers agree that social entrepreneurship is embedded in social networks (Aldrich and Zimmer, 1986) (pp. 3–23). The literature clearly indicates that entrepreneurs often obtain resources through their personal social relationships (Adler and Kwon, 2002). Entrepreneurs' social networks can help them identify business opportunities (Batjargal, 2010), activate resources (Batjargal and Liu, 2004), and gain legitimacy

(Elfring and Hulsink, 2003). From the resource-based view, entrepreneurs' personal networks can be conceived as new ventures' special resources that can bring competitive advantage to ventures. Network size or sum of connections with other persons and organizations with resources needed for ventures can influence or determine whether new ventures can acquire sufficient resource from external networks with the ventures development. A larger network may provide more valuable and rare resources than a smaller one, and may better meet the new ventures' resource demand. Therefore, a different network size may lead to a different venture performance. Due to this reasoning, we suggest that:

***P6a: Entrepreneurial networks' size will be positively related to both new ventures' financial and non-financial performance.***

Entrepreneurs' social networks usually include different types and characteristics of network members, and different types of members often have different types of resources. Therefore, the diversity of entrepreneurs' networks will affect the scope of their access to resources (He et al., 2013). New ventures usually have higher uncertainty and entrepreneurs often cannot know the types and channels of resources needed in the future. Therefore, they need networks with higher diversity (Elfring and Hulsink, 2007). Because networks with higher diversity can reduce this uncertainty, new ventures can obtain various resources and help through different types of network members (Renzulli et al., 2000). In addition, a higher social network diversity can reduce the cost of searching for resources (McEvily and Zaheer, 1999). If the diversity of the entrepreneur's social network is low, the entrepreneur needs to spend more time searching for resources from other networks (He et al., 2013). Thus, the more diverse the entrepreneur's social network, the more it can expand their horizons and increase the reputation of the venture among the network members (Podolny, 2001). The whole impact of network diversity on a new venture will have a positive effect on its performance. Based on the above analysis, we make the following proposition:

***P6b: Entrepreneurial networks' diversity will be positively related to both new ventures' financial and non-financial performance.***

In a social network with few structural holes, information and resources are usually shared by most members (Granovetter, 1995). In contrast, in a social network with more structural holes, information and resources are often not fully shared, and entrepreneurs have an advantage in obtaining those informal resources and information (Burt, 1992; Batjargal, 2007). For example, entrepreneurs can get early access to information about new products, new markets and new channels (Batjargal et al., 2013) as they can play the role of long-distance network bridge connections (Stam and Elfring, 2008; Batjargal, 2010; Ferris et al., 2012). In the entrepreneur's social network, mutual trust among members may also generate customer recommendations (Granovetter, 2000). In social networks with more structural holes, entrepreneurs can also play an intermediary role, such as connecting suppliers and

buyers (Burt, 1992), which also gives them access to more diverse resources (Stam and Elfring, 2008; Batjargal, 2010). If entrepreneurs can obtain more raw materials, funds and technology, then they can choose more ambitious strategies, continue to develop new products and expand market space, all of which will increase long-term returns for new ventures (Batjargal and Liu, 2004). The extensive existence of structural holes gives entrepreneurs more choice and freedom. Entrepreneurs can obtain resources through separated network clusters and they do not need to compromise with powerful members in order to obtain resources (Burt, 1992). The existence of structural holes results in isolated network members in the entrepreneur's social network, which will encourage entrepreneurs to obtain different emotional support (Batjargal et al., 2013). For example, relatives, classmates, friends, and partners of entrepreneurs are usually isolated from each other. They can provide different social and emotional support to satisfy entrepreneurs' needs (Churchill et al., 1987). These types of emotional support increase entrepreneurs' confidence and help them focus on improving new venture performance (Krueger and Dickson, 1994). If entrepreneurs can integrate network clusters that are far apart, this can lead to some positive results, such as promoting the integration of different knowledge and resources, establishing alliances, and obtaining venture capital (Granovetter, 1973; Batjargal, 2007). These integrations are likely to bring rapid revenue growth to ventures (Batjargal et al., 2013). Summarizing these arguments, we propose that:

***P6c: Entrepreneurial networks' structural holes will be positively related to both new ventures' financial and non-financial performance.***

## **Psychological Capital, Political Skill, Social Networks, and New Venture Performance**

As previously mentioned by some scholars – business is a political arena (Gray and Ariss, 1985; Mintzberg and Waters, 1985; Jackall, 1988). The conception of political skills is derived from this idea and it is defined as the ability to understand and influence the behavior of others (Ahearn et al., 2004; Ferris et al., 2005, 2007). Because of the new venture's liability of newness (Stinchcombe and March, 1965), lack of necessary resources and legitimacy, entrepreneurs need to be able to persuade resource holders to provide the support they need (Aldrich and Martinez, 2001; Choi and Shepherd, 2005; Rutherford and Buller, 2007). For example, entrepreneurs need to be able to motivate employees to work hard, attract customers to buy their own services or products, and persuade financiers to provide loans (Tocher et al., 2012). Thus, it is not just the entrepreneur's social network that is important, but the ability of entrepreneurs to use and manage the network is also important for ventures to acquire resources (Batjargal, 2006; Jack et al., 2008). The entrepreneur's political skill can be conceived as an important resource for its key role in convincing other individuals or organizations to provide valuable and necessary resources for ventures. For example, Ahearn et al. (2004),

Breland et al. (2007), and Semadar et al. (2006) have found that individuals with higher political skills are better able to extract resources from social networks than those with lower ones. Batjargal's (Barney, 1991) research results show that entrepreneurs with higher network capabilities can get their new ventures better recognized by the public. Fang et al. (2015) case study found that entrepreneurs with higher political skills can better build their own social networks, make better use of network relationships to obtain resources, and improve new venture performance. Barney (1991) proposes that rare, irreplaceable and heterogeneous resources and abilities can bring sustainable competitive advantage. This includes various tangible and intangible assets, such as organizational practices and processes, knowledge and information, management capabilities and company culture (Barney, 1991; Barney et al., 2001). RBV has emphasized the importance of the skills of top managers (Castanias and Helfat, 1991; Maritan, 2001). If entrepreneurs who own high political skills can be viewed as a specific, rare and valuable resource, we expect that politically skilled entrepreneurs will bring better performance for their new ventures than politically unskilled entrepreneurs. Further, we define an entrepreneur as a new ventures' founder and an actual operator and controller. Entrepreneurs also substantially take on the role of CEO; in fact, there is significant empirical support for CEO effect on firm performance. For example, some studies have found that CEO personality differences can lead to significant differences in company performance. Quigley and Hambrick (2014) found that the CEO effect on company performance (ROS) had increased from 8.6 percent (1950–1969) to 20.3 percent (1970–1989) to 26.4 percent (1990–2009). More recently, Tocher et al. (2012) have found that political skills have a significant and positive influence on new venture performance (Tocher et al., 2012). Existing research finds that political skills primarily affect non-financial performance (Tocher et al., 2012). However, it remains unclear whether political skills also affect financial performance. Because there are many indicators for measuring company performance (Stam et al., 2014), different measurement indicators may bring different results. Therefore, we need to further study the impact of political skills on new venture financial performance. As we all know, in transition economy and social environments, there exist resource-flow barriers due to weak and inefficient institutions. Entrepreneurial resources are often constrained and have low liquidity, and entrepreneurs' ability to obtain resources from external environments becomes an important source of competitive advantage. Most researchers accept that entrepreneur political skill is an important competence contributing to the acquisition of the necessary resources to enhance new venture performance in a weak institution context. This argument may have both theoretical and practical legitimacy.

Overall, based on the logic of Fang et al. (2015) and Tocher et al. (2012), we believe that the political skills of entrepreneurs will help entrepreneurs to establish good relationships with resource owners and promote mutually beneficial resource exchanges. Thus, politically skilled entrepreneurs will establish and develop better social networks, which are

richer in resources, and then use these networks to achieve a better performance. Drawing on the above arguments, we propose that:

*P7: Influenced by psychological capital, entrepreneur political skill is positively related to both new ventures' financial and non-financial performance, through the functional effects of social networks (size/density).*

## IMPLICATIONS AND FUTURE RESEARCH DIRECTIONS

### Implications for Social Entrepreneurship Sustainability

New venture performance is a critical condition for the sustainability of entrepreneurship. This does not only mean that entrepreneurs and their newly founded ventures would survive over time, but it also means that the entrepreneurial efforts could be constantly committed into their business. Our Perspective paper argues that, through active efforts in exercising political skills to be effective, new venture performance could be achieved on and on, by continuously expanding (i.e., the size) and broadening (i.e., the diversity) social networks with resource embeddedness. This paper also implies that merely having political skills may not be fully effective, unless such skills really function on the development of social networks. Therefore, we further incorporated psychological capital into the traditional research framework and proposed that psychological capital may affect the functionality of the entrepreneur's political skills, social networks, and new venture performance.

On the other hand, this study also has important theoretical and practical implications for social entrepreneurship and social innovation. Unlike the benefits exchange in the business context, in the context of social entrepreneurship, entrepreneurs are more likely to obtain resources through charitable donations or volunteer services from others. For resource providers who have not received the corresponding benefits, whether they are willing to help social ventures depends on whether they accept the social goals of social ventures, or whether they have sufficient confidence in the success of social entrepreneurship. Therefore, in the context of social entrepreneurship, the psychological capital of entrepreneurs may play a more important role in helping social ventures obtain resources. This is due to the fact that the psychological capital of entrepreneurs may not only affect the functionality of their political skills but also the psychological and emotional states of resource providers or members of social networks, which will in turn affect the resource acquisition of social ventures. In today's world, there are more and more social problems, such as unemployment, poverty, environmental pollution, prevention and treatment of infectious diseases, and aging of the population etc. These social problems have threatened sustainable development and cannot be solved by relying only on traditional government and market mechanisms. Thus, continuous social innovation is required. Like social entrepreneurship, the success of social innovation also requires reaching broad social consensus and building public confidence.

Therefore, the psychological capital of social innovators is also very important, because their positive psychological states may positively affect the emotions of various social groups and win their support and help.

## Limitations and Future Research Directions

Limited by research resources and time, this paper only provides a conceptual framework and a series of theoretical propositions, and these theoretical assumptions have not been empirically tested. Future research may empirically examine the proposed and related hypotheses with multiple and combined methodologies. For example, to examine the conceptual framework in this article, studies need to adopt both multivariate statistics, social network analysis, and financial modeling methods. A high demand of the data collection and testing skills is obvious. In addition, because the research concept of this study involves multiple levels of individuals, teams or groups and organizations, in future empirical research, it may be necessary to further select a suitable cross-level theoretical foundation and build a suitable theoretical model. In data analysis, cross-level modeling and data analysis methods may be required, such as HLM, Mplus, etc.

In this paper, we mainly discuss the impact of entrepreneurs' own psychological capital on the functionality of political skills, as other people's psychological capital may have different effects on the functionality of entrepreneurial political skill. Future research can further analyze the impact of psychological capital of internal colleagues and external social network members on the functionality of entrepreneurial political skill.

Further, social entrepreneurship generally has a higher risk of failure. When social entrepreneurs encounter entrepreneurial failures, it is vital for them to be able to recover from the spiritual shock they experience. They need to be encouraged and comforted, and the cause of failure needs to be clearly analyzed. Therefore, future research can explore and develop

some new research frameworks. For example, we can study the relationships between psychological capital, resilience capacity, resource portfolio, and learning from failure. Some interesting questions include whether and how the psychological capital of emotional network members affects the entrepreneur's resilience capacity. Are there significant differences in the impact of psychological capital of different social network members on entrepreneurs' resilience capacity? How does the entrepreneur's resilience capacity affect their resource portfolio and learning from failure, etc.?

## AUTHOR CONTRIBUTIONS

LG was responsible for writing the initial draft of the manuscript and putting forward the main propositions. C-FL was responsible for the further modification and improvement of the manuscript. Y-SY was responsible for reviewing and editing the manuscript.

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# Social and Psychological Capital for the Start-Up of Social Enterprises With a Migratory Background

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The highest number of forcibly displaced people has been currently recorded due to war, poverty, and climate change. Recently, a process that recognizes refugees as reliable interlocutors for the improvement of reception policies has started. Refugees are therefore encouraged to start up social enterprises aimed at fostering newcomers' social integration to participate to such a phenomenon. Positive Psychology, with its focus on human strengths, allows to identify the resources that pushed refugees to turn the difficulties they faced during the journey and the resettlement process into resources for themselves and for the resettlement community. The following paper explores in particular the interplay between social and psychological capital that is at the base of a similar social entrepreneurship project through a case study. A qualitative research has been carried out within a social enterprise with a migratory background to analyze the internal and relational resources that brought founders to start up the venture. Results show that while social and psychological capital were independently activated to start from scratch in the resettlement community, they occurred in interrelation in a subsequent phase when participants transformed their direct experiences related to migration into the human capital of their enterprise.

**Keywords:** psychological capital, social capital, entrepreneurship, social integration, refugee

## INTRODUCTION

According to the United Nations High Commissioner for Refugees (UNHCR), there are 70.8 million forcibly displaced people worldwide: 41.3 million of them are internally displaced, 25.9 million are refugees, and 3.5 million are asylum-seekers. In 2016, in Europe, there were 2,268,993 refugees and 1,148,856 asylum seekers.

Even though such a population is commonly considered as beneficiary of public initiatives that address their social integration in the reception countries, nowadays, a process of recognition of refugees as reliable interlocutors for the improvement of the reception policies has started. Evidence of such a process are the constitution of the Global Refugee Forum within the Global Compact on Refugees lead by UNHCR<sup>1</sup> and the release of calls addressed to refugee-led associations with the aim to foster newcomers' social integration. These initiatives push refugees to start up social enterprises

<sup>1</sup><https://www.unhcr.org/global-refugee-forum.html>

that, differently from nonrefugee-led organizations, take advantage of a direct experience about the effectiveness of the current social integration systems.

Refugees are therefore called to turn their first-hand experiences related to their social integration path into professional competences with the aim to foster newcomers' social integration. The experiential knowledge developed through their own inclusion process in the resettlement community is therefore transformed into a personal resource, as it drives a professional development, as well as into a collective resource. When integrated within the resettlement community, migrants participate indeed to its social, cultural, and economic development.

The research is therefore based on a problem framing that considers today's migration issues not in terms of barriers or negative effects, but rather highlighting their function in fostering the cultural and social development of the reception countries. Studying the internal and relational resources that brought people with migratory background at starting up social enterprises for newcomers' social integration allows to better address international top-down strategies, community interventions, and bottom-up ventures that address such a relevant issue.

## THEORETICAL FRAMEWORK

By means of a Positive Psychology framework, this paper explores which personal and social resources allowed entrepreneurs with a migratory background to turn their personal experiences related to the integration within the resettlement community into a social entrepreneurship. A case study on the start-up of a social enterprise with migratory background (SEMB) will be presented.

### Positive Psychology and Social Integration

In 2000, Martin Seligman and Csikszentmihalyi (2000) published "Positive Psychology an Introduction," which proposed a new theoretical approach in psychology interested at exploring the development of human inner strengths. According to the authors, after the Second World War, psychology had developed strictly around pathology, improving knowledge and competences in treating mental illness. At the same time, it also produced a victimization of human beings who became represented as passive spectators of external events. With the aim to "catalyse a change in psychology from a preoccupation only with repairing the worst things in life to also building the best qualities in life" (Seligman, 2002, p. 3), Seligman proposed a new perspective that investigates human strengths and virtues at a subjective, individual, and community level. Such a branch of studies is in continuous evolution producing not only theoretical but also practical advances. Positive Psychology has indeed guided several researches on the design of technologies to improve life conditions of vulnerable population (Talamo et al., 2011, 2017; Giorgi et al., 2013; Recupero et al., 2018).

As Cobb et al. (2019) have highlighted, the majority of psychological studies within the migrant field adopt a pathological model that investigates the negative effects of

the adversities migrants face before, during, and after their resettlement. Life threats faced in the country of origin and during the journey represent significant stressors. This comes in addition to unstable life conditions in the hosting country that comprehend also job insecurity once the resettlement process has been fulfilled (Chirumbolo et al., 2017). Nevertheless, there is relevant literature focused on the inner resources that forcibly displaced people develop after the experience of adverse events and life conditions, as the constructs of resilience (Southwick et al., 2014), posttraumatic growth (Tedeschi and Calhoun, 2004), and the adversity-activated development (Papadopoulos, 2007) testify.

Along the same line, Cobb et al. (2019) sustain the need for a Positive Psychology of Immigrants that goes beyond the experience of traumatic events and should instead be focused on migrants' internal and external resources that sustain their sociocultural adaption in the resettlement community. According to the authors, factors such as "national conditions of pre- and postmigration societies, acculturation processes, community contexts, family contexts, cultural values, and character strengths" (Cobb et al., 2019, p. 621) allow migrants to face the challenges brought by the migration and integration process. As the authors suggest, the resources that ease migrants' social integration are therefore in the interaction among contextual, relational, and their personal characteristics.

Within this framework, the foundation of SEMBs raises a particular interest. Mair and Noboa (2003) underlined that the exposition to social issue is the trigger condition that brings people to start up social enterprises. In the case of SEMBs that deal with newcomers' social integration, founders make a capital out of the internal and relational resources that have fostered their own social integration, in order to ease the same path that people arrived after them will inevitably cross.

In this paper, we particularly address the social and psychological resources that allowed founders of SEMBs to get integrated within the reception country and to start up their organization.

### Social and Psychological Capital

Literature commonly addresses resourceful social relationships as social capital. Although it developed more than a century before Positive Psychology, social capital is kindred to Seligman's approach as it investigates resources that human beings produce when engaged in valuable relationships.

Pierre Bourdieu (1985), who is considered the father of this construct, defined such form of capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition—or in other words, to membership in a group—which provides each of its members with the backing of the collectivity-owned capital, a "credential" which entitles them to credit, in the various senses of the word" (p. 51). As the definition specifies, social capital is developed through the participation to a network.

Differently from Bourdieu who considered resourceful just the in-group connections, Putnam (1993) sustained that also the ties between people who belong to different social groups



can produce resources. For this reason, the author proposed a differentiation between bonding social capital that is referred “to trusting and co-operative relations between members of a network who see themselves as being similar in terms of their shared social identity” and bridging social capital that “refers to relations of respect and mutuality between people who know that they are not alike in some socio-demographic (or social identity) sense (differing by age, ethnic group, class, etc.)” (Szreter and Woolcock, 2004, pp. 654–655). Linking social capital has been further added to address respectful relationships that connect people with asymmetrical power positions (Woolcock, 2001).

Nevertheless, as Portes (1998) highlighted, the mere embeddedness in a social network is not sufficient in order to exploit the capital it potentially creates. Internal resources are also required in order turn social resources from potential into effective. In this regard, the construct of psychological capital is useful to better understand how such a switch is made.

Within the Positive Organization Behavioral Framework, psychological capital has been proposed in 2004 by Luthans and Youssef in order to identify and improve those “human resource strengths and psychological capacities that can be measured, developed and managed for performance improvement” (p. 15). The authors emphasized that differently from personality traits, specifically addressed by the mainstream of the human resources management approaches, those capacities are state-like. Therefore, they can be developed through organizational interventions in order to improve managers’ and employees’ performance.

Moreover, the constituents of psychological capital are measurable so that its variation can be traced in order to inform about the effectiveness of the workplace interventions implemented. In the attempt to identify psychological capacities that could be at the same time state-like and measurable, Luthans and Youssef (2004) identified four basic elements of psychological capital:

- Confidence, developed from Bandura’s construct of self-efficacy, is defined as the persuasion on ones’ own ability to take advantage of personal skills to achieve goals in a given context (Stajkovic and Luthans, 1998 in Luthans et al., 2004);
- Hope is described by Snyder et al. (1991) as a positive motivational state resulting from an awareness about one’s own effective agency and ability to plan pathways to achieve goals (Snyder et al., 1991 in Luthans et al., 2004);
- Optimism is defined from Seligman’s conceptualization as “a positive explanatory style that attributes positive events to internal, permanent, and pervasive causes, and negative events to external, temporary, and situation-specific ones” (Luthans and Youssef, 2004, p. 17);
- Resilience is considered as the capacity to bounce back from negative events, uncertainty, or even overwhelming positive challenges.

The construct of psychological capital is close to the one of self-capital developed by Di Fabio (2014) and defined as “The positive self-evaluation of the self-concept characterized

by one’s own ability to be committed, to identify significant objectives, to feel in control over life-events, to creatively solve problems, to change constraints into resources, to develop one’s own skills to apply decision-making skills to every aspect of life and to make decision carefully, vigilantly and adaptively” (Di Fabio and Duradoni, 2019, p. 2). While psychological capital is a repertoire of resources available in the present time and projected into the future, self-capital values the continuity of the individual’s experience from the past to the present.

Taken together, psychological and self-capital might explain how migrants turn their personal experiences in social integration and participation to social relationships into the human and social capital required to start up their SEMB.

## Starting Up a Social Enterprise With Migratory Background: The Role of Social and Psychological Capital

We define a SEMB as an enterprise started by migrants with different migratory backgrounds (asylum seekers, holders of work and study permit, second generation migrants) aimed at participating to the social and cultural development of the resettlement community. According to Mair and Noboa (2003), a social enterprise “is a set of interlocking opportunity-based activities by competent and purposeful individuals who—through their actions—can make a difference in society and are bounded by context” (p. 3). In this specific case, the SEMBs taken into consideration are the ones that pursue the social integration of newcomers.

As Berry (2003) proposed, the inclusion of migrants in a hosting community produces “acculturation” or rather an intercultural contact that is at the base of psychological and cultural changes both in migrants and in the resettlement community. According to Berry, acculturation is made of two processes: “cultural maintenance (to what extent are cultural identity and characteristics considered to be important, and their maintenance strived for); and contact and participation (to what extent should they become involved in other cultural groups, or remain primarily among themselves)” (p. 9). The author has defined four acculturation strategies that can be adopted by minority groups in dealing with the contact between their culture of origin and the one of the resettlement country (Berry, 1997): assimilation, separation, integration, and marginalization.

- Assimilation describes the behavior of people who do not wish to retain their heritage culture and seek daily contact with members of the dominant group.
- Separation defines instead the opposite process whereby people engage in interaction with people belonging to the same culture of origin and do not wish to keep in contact with other cultures.
- Marginalization describes the process whereby people do not engage with both culture of origin and others.
- Finally, integration is described as the desire to engage both with members belonging to the culture of origin and with those belonging to other cultures.

Such a model clarifies that integration is just one of the strategies migrants can adopt to adapt to the resettlement community; what differentiates it from the other strategies is the fact that migrants who pursue the integration strategy become experts of both their culture of origin and the one of resettlement. Such an expertise makes them cultural brokers (Jezewski, 1990) with respect to newcomers. In addition, this process produces also a first-hand knowledge about how to navigate between two different cultures beside an awareness about the needs and strengths of the current social integration policies of which they were the first beneficiaries.

Such a wealth of experience represents the human capital of SEMBs aimed at fostering newcomers' social integration. Nevertheless, since the start-up of an organization is a challenging process, beside their human capital, entrepreneurs must rely also on a sturdy network of trustful and reciprocal relationship and on a solid psychological capital.

With regard to the first, in line with Granovetter's (1973) theory on weak ties, Casson and Della Giusta (2007) suggested that an eclectic social network provides entrepreneurs with a broader range of information and, moreover, with information that they could not acknowledge from their same community of belonging. Trust, which is a specific feature of bonding relationships, is instead fundamental in a moment of resource acquisition such as economic capital and employees (Casson and Della Giusta, 2007). A strong and reliable network of resourceful relationships is particularly necessary for the foundation of social enterprises. Just because these kinds of entrepreneurship are aimed at solving social issues, they need to be embedded in the institutional and civic fabric whereby they operate (Evers, 2001). Because SEMBs are rooted in their entrepreneurs' direct experience in social integration, the social networks that have fostered their integration path represents a potential capital for the enterprise, too, both to start up the venture and to achieve its mission. As Evers (2001) underlies, social enterprises indeed reproduce, maintain, and extend their social capital. Within the migration field, bonding and bridging social capitals are differentiated on the basis of the ethnic identity (Beirens et al., 2007), defined by Phinney et al. (2001) as "an individual's sense of self in terms of membership in a particular ethnic group" (p. 496). For this reason, while bonding relationships address connections within people who belong to the same ethnicity or community of origin, bridging networks are instead referred to the relationships among people who belong to different ethnicities or communities of origin. Eventually, linking networks outline migrants' linkages with institutions.

These different kinds of social relationships have been explored according to their role in promoting migrants' social integration. Studies have highlighted that not-exclusive bonding relationships are a source of emotional, social support, and employment opportunities that in turn foster migrants' bridging networks with the hosting community (Beirens et al., 2007; Calhoun, 2010; Eriksson et al., 2019). Bridging networks ease instead migrants' access to services and information and an improved sense of security. Lastly, according to Eriksson et al. (2019), linking networks are particularly resourceful for refugees

as they get included in the reception system as soon as they ask for asylum. For this very reason, this kind of relationships provide the specific target of migrant population with housing, sanitary, educational, and professional support.

Just a few studies have explored the social capital that allowed migrants' entrepreneurs to set up a venture in the resettlement community. Luthans et al. (2007) reported studies that testified the function of bonding networks not only in providing social and financial support but also in fostering the development of essential competences related to the start-up and management of a new venture. Similarly to Casson and Della Giusta, the authors specified also that bridging networks not only contribute to the start-up of the venture allowing migrant entrepreneurs to access new information, but they also contribute to its success by easing the acquisition of new customers (Luthans et al., 2007).

Literature suggests also that the creation of social capital to set up a new venture is linked to the founders' ethnic identity. In a study carried out within migrant entrepreneurs resettled in Canada, Robertson and Grant (2016) found out a strong correlation between the exploitation of bonding coethnic social capital and the strength of the heritage cultural identity for the starting up of new ventures. On the contrary, the correlation between the creation of bridging social capital and Canadian identity was not significant even though a significant correlation emerged between the participation to the Canadian society and the construction of bridging social capital.

With regard to migrant entrepreneurs' psychological and self-capital, Luthans et al. (2007) affirmed that just because they have already experienced the uncertainty linked to the migratory journey and to the establishment in a new community, migrants likely rely on a robust psychological capital to face the uncertainty that the start of a new venture requires (Luthans et al., 2007). Researches have indeed demonstrated that the start-up of a new business is associated with high level of self-efficacy and optimism in entrepreneurs. In particular, self-efficacy supports the identification and evaluation of opportunities and resources available (Boyd and Vozikis, 1994; Barbosa et al., 2007; Sequeira et al., 2007; Tsai et al., 2014) and reduces the risk perception and the probability of failure (Krueger and Dickson, 1994; Goel and Karri, 2006). Studies attested that optimistic people more likely start up new ventures (Dushnitsky, 2010) even with a reduced capital or in the need to find external funding (De Meza and Clive, 1996). Specifically regarding the start-up of social enterprises, so far, just a few studies explore the internal resources that drive the constitution of such a particular kind of entrepreneurship activity. According to Mair and Noboa (2003), self-efficacy is the internal resource that, together with empathy and moral judgments, drives the social entrepreneurs' commitment toward the resolution of social issues. Later studies have confirmed the centrality of self-efficacy (Konaklı, 2015; Aydoğmuş, 2019) and specified that a risk-taking attitude and perseverance are among self-efficacy constituents that motivate the foundation of a social enterprise (Chipeta and Surujlal, 2017).

Because psychological capital developed within the organizational psychology, just a few studies have explored

**TABLE 1 |** Participants.

| Age                            | M = 33.3, SD = 5.6   |
|--------------------------------|--|
| Gender                         | 5M 4F  |
| Nationality                    | 3 Somali<br>1 Afghan<br>1 Pakistani<br>1 Italian-Peruvian<br>1 Romanian<br>1 Kashmiri<br>1 Italian |
| Migratory background           | 4 Refugees<br>2 Second generation<br>2 Subsidiary protection<br>1 None                             |
| Years in Italy                 | M = 15, SD = 10.08   |
| Holders of Italian citizenship | 4 members: 1 refugee, 2 second generation migrants, 1 Italian born                                 |

such a construct in the migration field. According to Luthans et al. (2007), the motivations behind the migratory journey and the success of it are themselves clue of a high level of psychological capital in all its components. In addition, Cobb et al. (2019) suggest that resilience is a character strength that migrants can make use of in order to successfully go through the migration and resettlement process.

## CASE STUDY

The case study presented hereafter explores the relationship between social and psychological capital experienced by migrant founders of social enterprises aimed at fostering newcomers' social integration.

According to Mair and Noboa (2003), self-efficacy and social support together enable the start-up of social enterprises. Nevertheless, the relation between psychological and social capital is poorly investigated in the literature.

In their review, Newman et al. (2014) proposed that psychological capital moderates the engagement in social networks that are a source of emotional support, advice, knowledge, and information access. Fredrickson (2001) highlighted that people with high psychological capital tend to tie relationships within each other, increasing the chance to create alliances. At the same time, reliable social networks have the function to enhance those emotional competences related to psychological capital (Fredrickson and Levenson, 1998). Recently, Wang et al. (2019) found out a bidirectional relation among psychological capital and what they address as relational capital. In a qualitative research they carried out about the "effect of human, relational, psychological capital on new venture performance," the authors found out not only that some components of psychological capital fostered the establishment of resourceful networks but also that some horizontal and vertical relationships nurtured entrepreneurs' psychological capital.

Further investigation of such dimensions is needed to advance the knowledge about strategies and practice for migrants' integration based on psychological and social capital.

To this end, the research has been carried out involving a social enterprise with migratory background established in Turin, in the North of Italy. The enterprise is made of four founding members and six associated members with different migratory backgrounds: refugees, holders of subsidiary protection, and second-generation migrants (Table 1). An Italian man is also one of the founding members. The funding members met through previous collaborations in projects of active citizenship and promotion of civil rights.

The enterprise has been started up in 2018 and participated to a UNHCR call aimed at sustaining migrant enterprises with a social impact acting at a community level in order to foster social cohesion and the integration and empowerment of refugees. Its mission is to promote and spread a culture of peaceful coexistence, dialogue and intercultural exchange and respectful of diversity, giving centrality to the role played by young refugees and new Italian citizens. In order to fulfill its mission, the enterprise implements several actions centered to the goal of creating bridges between refugees and migrants in general and members of the resettlement community. For this reason, projects aimed at fostering newcomers' knowledge about the Italian history and culture have been implemented as well as sportive events such as football tournaments and a festival aimed at spreading the European solidarity values. In addition, training sessions about the Italian and European reception policies are implemented.

Beneficiaries of the enterprise are therefore not just refugees or migrants themselves but also members of the resettlement community who are interested in creating a cohesive society.

## Research Objectives and Methodology

Since it is a qualitative research, it is guided by two open-ended research questions that lay the groundwork of the data collection and analysis. The research questions (RQs) are the following:

- RQ1: How do founders' social and psychological capital sustained the creation of the SEMB?
- RQ2: Do psychological capital and social capital interact fostering the start-up of the social enterprise?

The research has been carried out through an ethnographic investigation to analyze a context-specific case and derive rich description about the resources that entrepreneurs and associated members of the venture exploited in order to start the social enterprise and achieve its mission.

## Data Collection

Data have been collected from January to May 2019 by a Ph.D. student in social psychology supervised by two associate professors at the Department of Social and Developmental Psychology and at the Department of Dynamic and Clinical Psychology of Sapienza University of Rome. The Ethic

Committee of the Department of Social and Developmental Psychology has released an ethical approval statement.

The aim of ethnography is to “represent otherness in such a way that “we” who are outside a relevant situation, can imagine what it is like to be in it” (Shweder, 1997, p. 18). Because the ethnographic approach is made of a multiplicity of investigation tools, data have been collected in the form of field notes, pictures, and narrative interviews.

Narrative interviews were employed as they allow to capture interviewees’ point of view and the meaning systems they refer to in order to interpret specific events (Atkinson, 1998). For this reason, it has been set up an interview framework made of open-ended questions in order to allow participants to describe their experience about the predefined topics.

The thematic areas explored through the interviews were (a) the motivations that pushed migration, (b) the social integration process, (c) the constitution of the enterprise, and (d) its goals, activities, and beneficiaries.

Nine members of the SEMB agreed to participate to the research and were interviewed. A total of 10 interviews were collected since the president of the enterprise was interviewed twice: beside the standard interview that has been submitted to all the members, he participated to a more detailed interview about the enterprise characteristics.

Participants were involved on a voluntarily basis without any payment or reward. They signed the informed consent that describes the research objectives and procedures and the collection and elaboration of data procedures in compliance with ethics and privacy regulations.

Interviews were performed face to face; they lasted for ~40 min, and they were audiotaped. The audio records were coded with alphanumeric codes (ex., GP001) to preserve interviewees’ anonymity and then transcribed in Italian. In a second phase, they were translated into English.

## Data Analysis

Data analysis was performed through a “theoretical” thematic analysis (Braun and Clarke, 2006). Applying a sematic approach, data were initially organized according to the semantic content and then interpreted according to existing literature on social and psychological capital. A first analysis of the interview was conducted wherein the definitions of social capital and psychological capital were applied to extrapolate from the interviews the excerpts that better address these two constructs.

Three analytical categories emerged from this very analysis: social capital, psychological capital, and the interplay between social and psychological capital.

Then, a second analysis was done to differentiate between the three forms of social capital (bonding, bridging, and linking) and the four constituents of psychological capital (confidence, resilience, hope, and optimism). This was applied in order to differentiate among the components that constitute the two forms of capital. The different subcategories of social and psychological capital constitute the first level of subthemes in the thematical map.

The interviews were independently analyzed by two members of the research team and compared in a joint session to agree

upon a shared interpretation in order to ensure validity and reduce as much as possible researcher bias.

## RESULTS

Data show that both social and psychological capital played a significant role in participants’ social integration as well as in the foundation of the enterprise.

Within the narrations of participants’ resettlement path, the two analytical categories emerged as independent from each other. However, they emerged interrelated within the narration of the SEMB foundation. Such an interrelation created the third analytical category labeled “the interplay between social and psychological capital.”

### Social Capital

The type of social relationships resourceful in the resettlement phase seems to be linked to the stay permit received: participants who were not placed in reception centers at their arrival, mainly holders of subsidiary protection, relied mostly on Bonding networks, while holders of the refugee status who were instead placed in reception centers benefited mostly from linking networks.

The following excerpt is from a Somali men holder of the subsidiary protection. He arrived in Italy in 2003 by the age of 20. At first, he tried to cross the Italy–France border in order to continue his journey to the North of Europe, but because of the Dublin Regulation that imposes migrants to ask asylum in the Country of arrival, he was stopped and forced to remain in Italy.

Interview2-GP002

105. GP001: *“So, I realized I had to start a new life in Italy and I started in Forlì in Emilia Romagna because there were some friends of my relatives’ who live in Sweden and they asked them to help me. So, I went to Forlì and then they brought me to the Caritas of Forlì that offered a bed to sleep.”*

Such a result is of particular interests if connected to the functioning of the reception system. Going further in the interview, GP002 argued that when he arrived, the Italian reception system was not as prepared as it was by the time of the interview and for this reason, differently from the ones who obtained the refugee status, he could not be hosted in a reception center. Thus, he felt he had to build on his own his integration path in Italy. Therefore, in order to start this process, he first relied on people who belonged to his same community of origin, as they were the only acquaintances he had in the resettlement Country.

With regard to housing, being placed in reception centers as soon as they arrived, refugee interviewees reported that housing was not an issue they had to deal with at least at the beginning. Thus, they used the amount of time available before leaving the centers to become self-sufficient.

In this perspective, job represented the keystone. The following excerpt is from the interview of a Somali refugee



woman of 32 years who arrived in Italy in 2013 by the age of 25. The role of linking networks in fostering job opportunities is highlighted.

#### Interview4-GP004

65. GP004: *I created such a relationship with the educators that were there ((in the reception center)) so we created such a reciprocal trust and then we I learnt the language they tried to help me with job.*

In the above excerpt, the participant tells about the beginning of her professional occupation as a cultural mediator. The presence of a trustful relationship with the educators of the reception center emerged as the trigger point for her job.

Differently from refugee participants, second-generation interviewees didn't have to deal with housing. Because they arrived in Italy in the early infancy with their parents or reunited with them in the same life period, they used their school path in order to lay the basis for their participation to the Italian community. Since they were included in a context with Italian peers as soon as they arrived, the two second-generation migrant participants were the only one who could tie bridging networks from the very beginning of their integration path.

With regard to the rest of the group of participants, our results point out that they established bridging relationships in a second phase of their integration path, specifically once they had set the personal goals to achieve in the resettlement community. Therefore, bridging networks emerged resourceful precisely because they were oriented by specific objectives. For this very reason, the construction of bridging social capital emerged to be linked to psychological capital.

## Psychological Capital

Psychological capital is the second analytical category. Our results support the evidence whereby psychological capital plays an important role in the migration and social integration process as well.

With the exception of the beginning of the migratory journey that is clearly marked with hope, along the journey and the social integration path, the four psychological resources emerged as interrelated from our data. In particular, resilience emerge as a meta resource closely associated with the others. Evidence are reported hereafter.

The following excerpt reports the role of hope in pushing the President of the organization, a 32 years old former refugee man from Somalia in leaving his home country.

#### Interview8-GP001

4. GP001: *If there's anything that I am sure about, it's that if I overcame the difficulties it's because being young and having the right to have a better future, I understood that this was not possible in Somalia, it was not possible. So I start from the assumption that where there is war it is not possible to have a good life, to have perspectives, at least in that period. However, I left apart my personal growth because when I left Somalia I was nineteen so*

*I had to sacrifice myself mostly for my brothers than for me because they represented (.) let say a responsibility that I undertook. So I did this even for them. The specific goal that was really clear in my mind was to have a job, not matter what job but to have one in order to give them the chance to study and I have to say that now I am really happy to have given them at least a chance. Yes, this makes me really happy more than my personal path.*

Here, the interviewee argument that, at the base of his flight, there was the need to have a job in order to accomplish the duty he assumed to guarantee a better future to his younger brothers, a duty that he could not accomplish in Somalia because of the war. Such a duty he felt became therefore the goal that drove his journey to Europe, where he expected to have the better future he deserved because of his young age. Consistent with the definition of hope (Snyder et al., 1991) that includes a sense of agency and a planification process, the resettlement at first and the job at second represented the path the interviewee designed to achieve his own goals.

Nevertheless, such a path brings along with it the difficulties related to the journey and resettlement venture. Hereafter, the role of optimism in giving to such a harsh period a transitional connotation is presented.

#### Interview8-GP001

47. GP001: *There is an adage that says "If you lacked anything it was because it was not destined to you, you cannot lack what you should have had, know that victory comes with patience" this is a prophet's saying that I've always used.*

48. I: **Is it a Muslim saying?**

49. GP001: *A prophet's saying that explains that life comes with patience so even difficulties come with solutions I mean if you have any difficulty it is not meant to be forever, so it is that moment that you don't have to lose faith.*

50. I: **faith**

51. GP001: *Yes, you have to have the patience to overcome that moment it is not easy but to me it has been a great teaching that has been useful during the journey but also here (in Italy).*

In the above excerpt, the President of the enterprise reports a life philosophy he directly relies on during adverse periods. Such a philosophy that comes from Islam, participant's religious faith, encourages believers at considering difficulties temporary and holders of solution. In such a way, optimism here emerges as an attitude that fosters resilience as it allowed participant not to surrender but to face adversities.

Results attest that resilience is combined with confidence, too. In the following excerpt, their interplay is showed.

#### Interview4-GP004

38. GP004: *At the beginning it was not easy because, you know, when you don't know the language you can't communicate and you can't say what you want to say and it is really hard and then no one helps you and you are alone. And then in that moment I fought and I told myself "You will do it, you will do it" and eventually I found a job.*

In the above excerpt the role of the participant's confidence in supporting her motivation to the process of language acquisition in moments of discouragement because of the difficulties she met is recognizable. In particular, her sense of agency is identifiable. As aforementioned, such an excerpt highlights also that, under the disadvantageous conditions that migrants frequently go through, especially at the beginning of their integration path, confidence is strongly related to resilience. Such a resource can be indeed traced in her attempt to rely on her self-efficacy to navigate the difficulties she encountered.

Moreover, data show that a complementary relation exists between resilience and confidence, too. Evidence are in the following excerpt.

#### Interview6-GP006

52. GP006: *Before I wasn't like this, my life changed a lot when I lived for three-four months outside in a park. Before life to me meant buying clothes and branded shoes, spending money for useless stuff. When I passed this extremely hard period of my life, I found out that that wasn't the real meaning of life. The meaning of life is completely different because in that moment I had nothing to eat, I had no place to sleep safely I couldn't even have a shower safely, I bathed in the fountains. In that moment the idea the goal of my life changed completely. To me the sake of society is reached by helping poor people poor people in the territory. (...) What I was thinking is that there is still lot of work to do I am still doing nothing because I'm not well set, well organized to help many others. I do just a very little just the thing that I can do but I am not doing much.*

The participant, a Pakistani man who arrived in Italy in 2015 by the age of 22, describes the harsh conditions he went through while waiting for the approval of his asylum request. Nevertheless, as he explains, these experiences represented a turning point in his life. Not only he coped with them, but he also used them as a wealth of experience to elaborate a new view of life. A shift in terms of commitment to the community is also traceable as a result of such a process. The interviewee highlights the individualistic approach to the community he had before the events he tells about. The harsh experience he went through fostered instead a collectivistic commitment to the resettlement community guided by the goal of helping poor people. Confidence, here intended as an awareness about one's own skills in accordance with reality limits, is therefore identifiable, too. The man explains indeed that he would like to do

more for poor people, but he is still not able to do it because he, in first person first, has to first get well settled within the community.

While resilience allowed participants to bounce back from the adversities they faced during the settlement phase, confidence emerge as the resource that allowed founders to turn these adversities into the wealth of knowledge that constitute the enterprise human capital.

## The Interplay Between Social and Psychological for the Start-Up of the SEMB

The "interplay between social and psychological capital" emerged as a third analytical category. It is made of contents whereby social and psychological capital are interrelated. Interestingly, their combination emerges specifically in relation to the start-up of the enterprise.

As aforementioned, resilience and confidence emerged as the essential ingredients for the creation of human capital out of participants' direct experiences in resettlement. Through resilience, our participants managed to successfully navigate the adverse conditions they went through during the migratory and social integration process. Confidence was instead necessary to turn these experiences into skills and knowledge that could drive their personal and professional goals.

Evidence of this process are provided in the following excerpt whereby the establishment of resourceful relationships emerges as driven by psychological capital.

#### Interview1-GP001

18. GP001: *People who arrive after us are going to meet our same difficulties, but some of them can already be overcome. It is not possible that the same difficulties I met ten years ago must be met by another person. Things that can also be trivial, very simple to solve. [...] I said "I have to give some answers" but not on my own, rather creating alliances among Italians, guys from new and old generations. Together we can carry out concrete actions capable of creating bridges among different cultures.*

In this excerpt, resilience is identifiable in the mentioned challenging situations that the interviewee dealt with during his resettlement. Confidence is instead traceable in his awareness about having the answers to some of the needs that newcomers may encounter during the resettlement, answers that come from his direct experience.

This example is paradigmatic because of the association between social and psychological capital. As the president of the enterprise well explains, an eclectic bridging network is needed in order to carry out some of the solutions to ease newcomers' social integration.

Direct experiences as addressees of reception policies are not the only components of the founders' human capital. Before starting up the enterprise, three out of four founders worked as delivers of social integration services provided by nongovernment organizations (NGOs). Those experiences

provided the soil to create reliable relationships and professional competences that are at the base of the creation of the SEMB.

Hereafter, the production of social capital as a results of previous working collaborations is described.

#### Interview1-GP001

120. GP001: *GP008 particularly and also GP007 we know each other since a long time, since two thousand and fourteen more or less, yes two thousand and twelve with GP008 through the campaign “I am Italy too”. GP008 was an activist but we got acquainted later. She gave me the first instruments on activism too because she worked in an Italian NGO (...) and organized exchange projects and then we went also to Greece and she involved me in lots of initiatives in school projects even in the last years. I found out that we have lots of things in common, lots of points of view.*

In this way, the President describes the establishment of a reliable bridging network with another founder. The opportunity to work together allowed them to discover their commonalities and a common approach to address newcomers' social integration, as he explained later in the interview. Such a shared vision represents an important ingredient for the start-up of the enterprise. Moreover, the relationship with the other founder provided him with professional skills that—together with a progressively acquired acknowledgment of the contextual framework whereby social integration facilities are run—complement the human capital coming from founders' direct experiences in social integration.

The decisional process that brought founders to exploit such a wealth is described in the following excerpt whereby social capital emerges this time as the source of a collective psychological capital.

#### Interview7-GP007

61. GP007: *The enterprise was born from such a strong and trustful relationship and somehow from the willingness, I mean, we really felt the fatigue of being someone else's armed wing, I mean ((we were)) the good guys who were carrying forward the others' enterprise while we, in our minds, in our convictions, in our exchanges, we knew we had some potential when we gave life ((to the enterprise)). I mean we knew we were already heard, we knew we had some chances, so we said “Why don't we value everything we have done so far?” Even just because ((we were)) so active, so present. Personally, I have never back out even though I worked so many hours a day I have never been scared of making new commitments. This is a serious commitment to which I'm fully engaged because I know I am surrounded by people I trust with whom I am on the same wavelength I mean we have the same perspective, we are not scared*

*about future and we are really investing to go toward future.*

In the above excerpt that reports founders' transition from the status of employee to the one of founders of a SEMB, the interplay between human, social, and psychological capital is clearly defined. Founders *valued* the common experiences collected during the course of time when three out four of them worked for someone else's profit, to constitute the enterprise human capital. The valorization of the capital collected is explicitly mentioned by the interviewee. Nevertheless, according to the man's words such a venture was possible because of *strong and trustful relationships* that tie the founders and constitute the enterprise bridging social capital. In the last line, he emphasizes again such a concept by saying that, because of trustful relationships characterized by the presence of common objectives and perspectives, the group of founders could *invest to go toward the future*.

These last words suggest that such a strong and reliable relationship is the source of a group confidence that developed through the course of time during chances of comparison and discussions where they realized they had some potentialities.

The social capital founders created over the course of time was essential not just to start up the enterprise but also to achieve its own mission which is to emphasize migrants' role in the creation of inclusive communities. For this very reason, beneficiaries' empowerment is a specific goal of the enterprise.

In the following excerpt social capital emerges again as a mean to develop confidence, in particular beneficiaries' confidence.

#### Interview8-GP001-interviewerC

156. GP001: *((a beneficiary)) is here ((in Italy)) since five years now. I met him in the reception center where I worked. He is an exploited person, exploited, there are no other words. They had to be in a porter's lodge, in a kitchen they had to be warehouse workers, they slept there and after five years they didn't know anybody. This is not the point if you lose that job because you don't accept anymore to work under that conditions.*

#### 157. I: **You have no chances**

158. GP001: *Where do you go?*

#### 160. I: **Alternatives**

161. GP001: *Where do you go? Who knows you? Who do you know? So what? You start crying? No you don't, you go outside and I'll keep you in touch with some other people that I think can be an opportunity.*

In the above excerpt, the President describes the process whereby reliable relationships with the founders of the enterprise are used to develop beneficiaries' confidence. In particular, social relationships are here presented as the means to get out from a condition of labor exploitation that puts the beneficiary into a powerless position in terms of job access. The reliable relationship with the President is a means to empower the beneficiaries precisely because he can include them in other resourceful relationships. In such a way, the beneficiaries not only gain access

to the social capital provided by the enterprise, but they are also supposed to develop psychological capital.

## DISCUSSION

Literature on social entrepreneurship highlights the continuity between founders' direct experience of a social issue and the foundation of such a specific kind of enterprise (Mair and Noboa, 2003). The resources that founders personally developed for the improvement of their own condition are indeed capitalized to start up an organization aimed at solving the same issue but at a social level.

The case study presented exemplifies such a process. The social enterprise under consideration has been indeed founded in order to use the wealth of experience and resources collected by its founders during their own social integration path, first to set up the venture and second to ease the same path of its beneficiaries. Interestingly, the foundation of the enterprise itself emerge as a mature stage of its founders' social integration path, as it represents a concrete commitment toward the social development of the resettlement country.

The thematic analysis has shed light over an interesting dynamic about the development and use of the social and psychological resources that fostered founders' integration. With regard to the narration of the very first stage of their integration path whereby participants had to face the necessity to get settled in the new country, social and psychological capital emerged as independent within each other.

With regard to social capital, consistent with the literature (Beirens et al., 2007; Calhoun, 2010; Eriksson et al., 2019), our data suggest that linking and bonding networks were fundamental in order to lay the groundwork, to provide the base to set up a new life in the resettlement community. In particular, those who were recognized as holders of the refugee status could benefit mostly from the linking capital. Similar to the results of Eriksson et al. (2019), our findings attest indeed that trustful relationships with the educators of the reception center eased participants' job achievement. Those who could not benefit of the refugee status relied instead to the bonding relationships in order to start their new life in Italy. Consistent with the literature (Cheung and Phillimore, 2014), these kinds of network emerged as particularly useful for housing.

According to the literature, bridging networks are the hardest to be established because easily characterized by mutual distrust (Raghallaigh, 2013; Eriksson et al., 2019). Nevertheless, our results suggest that such a kind of relationships were tied at a later stage of our participants' social integration, specifically when they started to plan their professional development. Bridging networks were indeed mentioned in association to objectives, and therefore, they appeared related to a sense of long-term perspective and agency. Because related to a self-achievement dynamic, bridging social capital emerged in interrelation with psychological capital.

Consistent with the limited existing literature on migrants' psychological capital (Luthans et al., 2007; Cobb et al., 2019), our results suggest that participants developed and used their

psychological capital to go through the migratory journey and social integration process. While hope and self-efficacy lead to planification processes, resilience and optimism sustained participants under difficulties. In particular, as pointed out by psychological literature in the migration field (Southwick et al., 2014; Cobb et al., 2019), resilience turned out to be the most prominent resource. Indeed, such a component of psychological capital turned out to be fostered by hope and optimism, while it is in a circular relationship with confidence. Resilience and confidence combined emerged as the internal resources that allowed founders to turn adversities into the human capital of their social enterprise. Consistent with previous studies (Boyd and Vozikis, 1994; Barbosa et al., 2007; Sequeira et al., 2007; Dimov, 2010; Tsai et al., 2014), confidence allowed participants to recognize their direct experience in social integration as acquired skills and knowledge that could be applied to drive the social development of the resettlement community.

Such a process is the keystone of the SEMB and combined with social capital occurred specifically in founders' narratives about the creation of the enterprise. Consistent with the findings of Wang et al. (2019), our results attest indeed a bidirectional relationship between social and psychological capital in such a phase.

Interestingly, despite that the literature addresses bonding networks as the source of capital that provide migrants' enterprise with social resources (Luthans et al., 2007), our results attest instead that bridging networks are the real core of the enterprise. Such a result is justified by the origin of the enterprise that comes from previous professional collaborations among the founders. In other words, founders met and started their collaboration because of common goals and skills that allowed them to progressively build a reliable relationship characterized by mutual trust and commitment. In line with the findings of Newman et al. (2014), in our case study, bridging social capital is the means that allowed founders to give expression to the human capital they developed through the aforementioned interplay between resilience and confidence. Nevertheless, along the same perspective of Fredrickson and Levenson's (1998), social capital emerged also as a source of psychological capital. In particular, the trustful hallmark of the founders' relationship developed a sense of collective confidence that allowed them to set up the enterprise. As previous studies highlighted (Casson and Della Giusta, 2007), social relationships provide indeed a safe context that allows founders to undertake the risk of starting up a venture.

Eventually, the interrelated nature of the relationship between social and psychological capital emerges also within the narration of the SEMB mission. According to the founders, the reliable relationships they tie with their beneficiaries are indeed aimed at fostering their empowerment through the inclusion in broader resourceful networks. Therefore, the enterprise itself is conceived as an incubator of social and psychological capital.

## CONCLUSION

The paper presents a qualitative research about the role of social and psychological capital in the start-up of a social enterprises



with migratory background. To this end, the research investigates the current situation of a SEMB in the light of the process that lead to its development, considering the peculiarities of the founders' personal experience as migrants.

Of course, the investigation of barriers and psychological disorders related to migration is needed to prevent negative consequences and promote the well-being. But with this paper, our attempt is to build on positive aspects of the experience: strengths and capabilities of people who engage themselves in a SEMB; bonding, bridging, and also linking relations that facilitate and support the integration in the resettled community.

Results about social and psychological capital—that allowed participants to get settled within the Italian community before the start-up of the venture—attest that robust relational and internal resources are needed in order to create the capital that will be invested to set up the enterprise.

While the literature on social capital is already consistent, our research enhanced knowledge on psychological capital by deepening the internal resources that sustain migrants' journey and social integration path. Moreover, it also explored its interplay with social capital to sustain not just the start-up of a migrant-led organization but also the achievement of its mission. Our data highlight the process whereby the interaction between social and psychological capital allowed migrant founders of a SEMB to transform the adversities they went through during the migratory journey and the resettlement process into resources not just for their personal development but also for the one of the reception community.

In conclusion, this research contributes to advance the knowledge about the social value of a SEMB and the way it develops through the exploitation of its founders' psychological and social capital. Our results support the emerging concept of migrants as reliable interlocutors for the improvement of the reception policies, and key actors in the development of successful integration initiatives.

The research presented in this paper is not without limitations. First of all, the case study is context specific, meaning that

it represents an example of SEMB with its own mission and peculiarities; further researches shall shed light over the transferability of the study results.

Moreover, the research takes place in the Italian context where national regulations and services inevitably determine the resources available as well as pose barriers and constraints. Comparison case studies with SEMBs placed in other countries might highlight how the context influences the development and exploitation of internal and relational resources for the creation of this specific kind of enterprise.

As a future development of this research, we plan to investigate the psychological and social capital that the SEMB promotes in its beneficiaries for their social integration. This next step is intended to verify the effectiveness of the SEMB activities and the transferability of the internal and relational resources from the group of founders to their beneficiaries.

## DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ethical Committee of the Faculty of Medicine and Psychology of Sapienza University of Rome. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

CM, AT, GN, and AR drafted and reviewed the manuscript. All the authors provided approval for publication of the content.

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**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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