Understanding leadership and organizational psychology in higher education institutions

Edited by
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Understanding leadership and organizational psychology in higher education institutions

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The Hexaco Personality Traits of Higher Achievers at the University Level

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This study attempted to explore the personality traits of higher achievers at the university level. The core objective of this investigation was to illustrate the nature of personality traits of the higher achievers' students. To study this phenomenon, a quantitative research approach was used. The students were chosen by using a purposive sampling technique and included 758 high achievers enrolled in various programs at the Chinese universities. Based on the Hexaco model of personality, a questionnaire was used to gather information from respondents as a research tool to examine the personality traits of position holders after an extensive review of the relevant literature. Tool validity was determined by following the face, content, construct (convergent and discriminant validity) validation process. This investigation concluded that honesty, emotionality, and openness to experience were very high among the higher achievers' students. Only honesty in female higher achievers' students was significantly high than male, remaining factors "extraversion, agreeableness, conscientiousness, and openness to experience" were significantly high among male higher achievers' students. Moreover, the higher achievers of science group students were more extraversion, agreeableness, and conscientiousness than arts group students. However, higher achievers in hostels were more emotional and agreeableness than the day scholars. Overall step-wise regression analysis, indicated that agreeableness and extraversion factor has significant influence on higher achievers.

Keywords: personality traits, Hexaco model of personality, emotionality, honesty, openness to experience, extraversion, agreeableness, conscientiousness

INTRODUCTION

All human beings are born different. They have their own preferences to live a life and choose to carry out their work. Despite their diversity, people share some common traits and behaviors, such as modesty, sincerity, fairness, social boldness, forgiveness, liveliness, gentleness, Conscientiousness and inquisitiveness, when they join the world. Likewise, they have their own capacities to understand the world, people, and happenings. As a result, the beauty of this planet is that every single person has their own distinct behavior and persona (Geramian et al., 2012). Due to their individuality and personality, they show their interests, likes, dislikes, feelings, and give diverse

opinions. Thus, all human beings, although being equal but carry their personalities so differently (Goldberg, 1992).

Globalization, technology, and informational developments have posed difficulties to the universities throughout the world in the 21st century. As a result, universities must equip their students with new skills, information, and competencies in order to cope with new challenging tasks that are in accordance with national or international educational aims and standards in order to remain competitive and relevant. Students, on the other hand, have individual perspectives and diverse qualities that cause them to interpret world views differently and act differently in different educational milieus.

Eulaica (2020) mentioned that "Innate cognitive ability is a key predictor to academic success." The idea of inborn cognitive talent is acceptable in several fields of the educational settings. Furthermore, a recent study has demonstrated that non-cognitive traits are equally important for attaining high-academic performance (Ciorbea and Pasarica, 2013). Personality is one among the key factors of academic performance which has non-cognitive characteristics for learning (Eulaica, 2020). Non-cognitive factors such as personality characteristics have been identified in the literature as predictors of learning performance.

Therefore, exploration of those factors which affect academic achievements is one of the focal points in the research field of psychology because of its noteworthy implications for both learning and its pedagogy (Zeb et al., 2021). Generally, it is observed that at a higher education level learning is task-oriented as students are perceived more self-directing and self-regulating, as these qualities of adult learners' demand self-diagnosing needs so it is necessary for the instructor to consider diverse personality traits while planning learning tasks (Baiocco et al., 2017). As a result, instructors can benefit from taking these disparities into consideration when assessing the unique distinctions among their adult pupils (Stroh et al., 2005; Nordin et al., 2020). Personality is a broad term that generally incorporates all of these changes. In general, the key contributory variables for the formation of a student's personality are family, peer group, media, educational institution learning environment, etc. (Alberts, 2010; Hansen, 2011). Hence, personality has a great influence on what an individual thinks, their opinions, verdicts, capabilities, and necessities. A person's judgment about other individuals is based upon their personality (Ahmed, 2017). Furthermore, in view of Sulaiman (2019), during teaching and learning processes, it is necessary to deal with socially and psychologically disturbed children in the classroom. If pupils are unable to perform adequately, effective teaching has not occurred.

LITERATURE REVIEW

Concept of Personality and Personality Traits

Philosophers, psychologists defined, explained, and explored personality and personality traits in their own thoughts and judgments. Most of the theories go beyond the basic definition of personality and they cannot effectively give the literal meaning of personality. The entomology of the word personality is taken from the two Greek words "Per" and "Sonare." Later on, this word was changed to "Persona." The word persona is a noun and a name of the mask which actors wear on the theater to show their personalities in different characters. It was used in ancient Greek to entertain the audience by the mask in order to perform well and to portray the real picture of the performed character to the audience. This word reflects the personality of the person in two senses that the person performs in the life which character he or she has been given and the second the person could behave which he or she is not in actual sense (Shian et al., 2022). American Psychology Association highlighted with reference to Encyclopedia of psychology that "The study of personality focuses on two broad areas: One is understanding individual differences in particular personality characteristics, such as sociability or irritability. The other is understanding how the various parts of a person come together as a whole" (American Psychological Association, 2020, para 1).

In short, personality assessment is a very challenging task in order to understand its every aspect effectively and logically. The personality can be categorized into two major types one is optimistic and the other one is pessimistic. The individual having an optimistic personality, thinks positive and always hopes well while contrastingly the individual having pessimistic personality traits is always superconscious and afraid of taking challenges. As indicated by Warr (1999), personality is a permanent trait of a person that indicates long-term and persistent individual distinctions in emotive style and has a similar influence on the visceral outburst. Several studies (McAdams and Pals, 2006; Fleeson and Gallagher, 2009) noted that personality characteristics are defined as the distinctions in an individual's frequency and intensity of thinking, behaving, and feeling in certain ways. Whereas McCrae and Costa (1999) and Zillig et al. (2006), defined personality traits are characterized as a person's generally constant patterns of behavior, motivation, emotion, and cognition.

Personality, according to psychologists, refers to one's style of thinking, performing, and experiencing. Consistent and distinctive manners and styles of thinking, feelings, and activities are presented in an appropriate sequence in the case of peculiarities. When we talk about personality, we assume the full picture of something or someone. Regarding this perspective, personality is defined as a person's constant and consistent attitude in all circumstances.

Therefore, diverse facets of human personality play a role in its development. Dominance of one or more than one element gives a distinctive shape to the personality. Features of human personality such as sincerity, modesty, social boldness, forgiveness, and humanity, are some major components of human personality that affect their internal life (Abu-Raiya, 2014). Hence, personality traits are important factors to understand the behavioral aspects of one's personality. These personality traits are basically categorized into two types which are mean-level and individual-level traits. These basic traits are further subdivided into further subcategories which are: honesty–humility, extraversion agreeableness, consciousness, emotional stability, and openness to experiences. As the aforementioned traits, each of the traits has its own individuality and descriptive

value. The major focus of this research work is to understand the personality of higher achievers by these traits.

The Big Five-Factor model, which refers to "extroversion, openness to experience, agreeableness, conscientiousness, and neuroticism," is one of the most extensively used assessment techniques for assessing personality traits (Weisberg et al., 2011; Mata et al., 2021). This study employed the Hexaco personality model, which is an extension of the Big Five Factor Model. The traits of the Hexaco model have similarities with other dimensions of personality models. Although, this model is quite different due to the addition of the H factor, i.e., honesty–humility. Six factors of personality of the Hexaco model were identified and calculated with the help of questions. These questions were designed to measure the individual's personality. Ashton and Lee designed a self-based and observation-based inventor to analyze personality traits. This model was used to describe with detail of six major components of human personality. The Hexaco model of personality (six factors) with their adjective's justifications specified later (Ashton and Lee, 2007, 2010; Abbasi et al., 2020).

Honesty–Humility

Individuals who scored high on the honesty and humility scale are expected to be honest in their interactions. These individuals never take advantage of others for their personal gain. They adhere to the laws and are uninterested in a lavish lifestyle. They do not expect any pretentious or social status from anyone. Contrastingly, persons who are less responsive to honesty and humility, they are more dishonest in public dealings. They feel at ease taking advantage of others for their personal gain. They have the ability to effortlessly breach the law for their personal gain. They are capitalistic in their outlook. These types of people are entirely concerned with themselves at all times throughout their lives (Ashton and Lee, 2009; Camps et al., 2016).

Emotionality

According to Ashton and Lee (2009), emotionality is characterized by fearfulness/worriedness, mushiness, nervousness, and helplessness. An emotional person is expected to be emotional by nature and he or she place a high value on emotions in any relationship, they are quite sensitive in their daily activities and need sympathy from others (Othman et al., 2020). Moreover, they express anxiousness when they encounter some negative experience. Individuals with low emotionality are less sensitive, they do not require emotional attachment from others, and have a more relaxed attitude while under stress (Camps et al., 2016; Zeb et al., 2021).

Extraversion

Extraversion is considered the positive nature of persons which falls in the category of social self-esteem, self-confidence, social-audaciousness, seeking of excitement, positive emotions, sociability, and liveliness (McCrae and John, 1992). Individual differences in social interactions, assertiveness, and energy level are referred to as extraversion personality traits. A person who is extraverted, enjoys social gathering and enjoys confidently every event of their life (Ashton and Lee, 2009). These people are

energetic and can face every challenge of life bravely, and they experience positive emotions such as enthusiasm and excitement. Introverts, on the other hand, are socially and emotionally repressed and conservative (Hakimi et al., 2011). People who do not pose any characteristics in this factor of personality they remained unsocial. They cannot feel relaxed in a social jamboree or gatherings. Hence, such kinds of people are pessimistic by nature and love to live in their own world because they do not want to become the center of attraction (Ashton and Lee, 2009).

Agreeableness (vs. Anger)

Agreeableness is characterized by forgiveness, gentleness, low self-confidence, flexibility morality, high levels of trust in others, and patience. Such types of individuals have the ability to forgive others for their errors. Their nature is characterized by flexibility. They judge others with sympathy and are willing to work with others because of their adaptable nature. In short, individuals who are agreeable have empathetic care for the well-being of others, treat everyone fairly and with respect, they usually have good views about others (Ashton and Lee, 2009). Disagreeable people have low regard for others. Because such kind of pupils show a fiery temperament when confronted with serious wrongdoing by others. They pass judgment on others and do not allow for flexibility. They have a short temper, therefore, if somebody misbehaves, they will react aggressively.

Conscientiousness

Competence, continuous effort, self-discipline, organization, goal orientation, and striving for accomplishment are all traits of conscientiousness (McCrae and Costa, 1990), with a high degree of deliberation allowing conscientious persons to evaluate the pros and cons of a particular circumstance (Johnson, 1997). Othman et al. (2020) denoted that in conscientiousness "an individual is reliable, cautious, competent, accountable, prepared, hardworking, and productive." It also refers to tenacity, determination, and performance in the profession as well as in the area of teaching and learning (McCrae and Costa, 1999). These pupils are more self-disciplined. As they are extremely conscientious in the pursuit of their goals, therefore, they prefer to complete their tasks on time and follow established guidelines. Moreover, they are perfectionists and never make hasty decisions likewise; they are proficient in comprehending any new situation and make valuable decisions about the situation. Students with poor conscientiousness are unable to tackle any problem with confidence. They won't be able to attain their objectives because they have low self-esteem to deal with every new situation as it arises. They feel satisfaction even with a work of less importance (Ashton and Lee, 2009, 2010).

Openness to Experience

Hakimi et al. (2011) concluded that openness to experience "reflects an individual's broad-mindedness, depth of attitude, and penetrable awareness." Openness to experience is reflected in a person who is creative, imaginative, and curious as opposed to concrete-minded and narrow thinking (McCrae and John, 1992). A person of aesthetic nature is someone who can respond honestly to any event. He is more sensitive to the beauty of nature

than other members of society. He is a man who is always on the lookout for new information in all the areas of life. These people have a creative mind full of imagination and are always thinking about new things. The less flexible people, openness to experiences is less artistic by nature. They are less interested in innovative activities and want to live a quiet and simple lifestyle. These people's perspectives are devoid of creativity and novelty.

The development of positive traits is the highway to an individual's aims, whatever they may be. A tiny modification in personality may make a tremendous impact on the goal-setting and organization of one's life. In short, an individual's success is determined by his personal qualities. Therefore, the purpose of this study was to look into the personality qualities of universities' position holders, which will assist teachers to understand what sorts of personality traits higher achievers have so that they may better educate students and address the difficulties of the higher achievers.

Numerous studies on high achievers have been published on various variables. Research on study habits and academic achievement was presented by Kapoor (1987), Yip (2007), and Haider et al. (2021). A study on academic achievement and self-concept was conducted by Singh (1983) and Adsul (2011). Study on socio-economic status and academic achievement were explored in the several studies (Nair, 1987; Trivedi, 1988; Ganguly, 1989; Singh, 1989; Davanesan, 1990; Mohanty, 1992). Creative thinking abilities and academic achievement (Mishra, 1978; Anwar et al., 2012).

MATERIALS AND METHODS

Objectives of the Study
The prime objectives of this current investigation are as follows:

1. To depict the nature of personality traits of higher achievers' students at the university level.
2. To compare the higher achievers' personality traits of male and female students.
3. To compare the higher achievers' personality traits of science and arts group students.
4. To compare the higher achievers' personality traits of hostilities and day scholars.
5. To investigate the effect of the Hexaco model of personality traits on higher achievers'.

Significance of Investigation
Exploring differential dimensions of the Hexaco model of personality traits on higher achievers will not only be a significant addition to current knowledge but will also give a theoretical background to educationists, psychologists, and educational psychologists. This research will be helpful for teachers to see what types of personality traits position holders have so that they should teach students in a better way and solve their educational problems accordingly and assist the low-grade student how they flourish and groom their personality.

University graduates are vital in forming the future of the country. Usually, students at elementary, secondary, and higher secondary levels are in the phase of personality grooming and they did not have permanent personality traits as during this stage of personality development many changes possibly occur so according to this perspective, the researcher approached the respondents at the university level because at this stage of education majority of students' personality has been shaped and students are about to start their professional life. As mentioned by Umar et al. (2010), the reflective thinking process starts at late adolescence and early adulthood so at this stage they have several opportunities to interact with diverse peers, relatives, and even sometimes with their teachers. Minds are broadened and personalities are groomed up at this age to take personal or professional grits, willpowers, and decisions. The efforts of higher education graduates are next to be put in the field/practical life therefore university students were the prime focus of this study. Furthermore, the research investigation was intended to observe personal traits in diverse cultures so, the Chinese universities were selected as the population of the study. Further, in this regard, the results of the study would more practical and reliable.

Methodology
This research is conducted at the university level, and it was designed to measure the Hexaco model of personality traits of the higher achievers' students enrolled at different universities in different programs. This research was descriptive in its nature as the research deals with an existing situation. A survey method was adopted to collect data. Cohen et al. (2007) stated that descriptive research is an appropriate approach to study an existing situation. The researcher conducted this investigation in a quantitative form since the data are best presented in terms of mean scores, SD, the independent t-test and step-wise regression analysis The calculated data interpreted as findings in the light of the study objectives.

Population and Sample Size and Technique
The population was the entirety of the observation made on all the objects having some common talents, abilities, and a set of qualities, which were the specific interest to research. "Targeted population" of the study was consisted of all male and female higher achievers' students enrolled in different programs in the public and private universities of all over China. The purposive sampling technique was used to select the students and was consisted of 758 high achievers.

Development of Research Tool and Its Validation Process
For this study, relevant literature was reviewed and a questionnaire was developed based on the Hexaco model of personality traits. It was kept in view that each statement must express a definite idea. The questionnaire was on five-point Likert scale containing 49 items out of which 38 were selected. The questionnaire was comprised of two sections: the first section was comprised of demographic variables such as institution, program, semester, department, CGPA, and position in class. Furthermore, the second section included 38 items (six factors)

about personality traits. The validity and estimated reliability of the questionnaire is listed later.

Convergent Validity

Convergent validity (CV), as defined by Urbach and Ahlemann (2010), is the degree to which indicators that indicate a concept converge in respect to items measuring other constructs. This CV is assessed by two measures, the first is known as average variance extracted (AVE), and the second one is known as item inter reliability or FL values. This was proposed by Fornell and Larcker (1981). If the values of the AVE construct are greater than 0.5, then the construct has an adequate convergent validity, and if the FL values are greater than 0.6, the construct has also adequate convergent validity. The FL and AVE values are shown in **Table 1**.

The aforementioned table displays that all factors of the Hexaco model of personality traits remain greater than the 0.6 value that exemplifies an acceptable range. The factor loading values of the honesty–humility (0.67–0.90), emotionality (0.75–0.79), extrovert (0.69–0.77), agreeableness (0.74–0.96), conscientiousness (0.69–0.85), and openness to experience (0.69–0.91). In **Table 1**, the second column reveals that the AVE values range from 0.522 to 0.793, these values of AVE for the constructs are greater than the minimum allowed value of 0.50, which shows acceptable convergent validity. The highest value of AVE is found in emotionality (0.649) and the lowest value is found in openness to experience (0.522). Internal consistency reliability (ICR) is normally determined by the Cronbach's Alpha and through composite reliability (CR) analysis. Nunnally and Bernstein (1994) reported that for exploratory research, the adequate values for Cronbach's alpha and CR must be above than 0.7 and values above 0.8 are desirable for the confirmatory research. However, values less than 0.6, point out a lack of internal consistency. As depicted in **Table 1**, third and fourth columns present the values regarding Cronbach's alpha and CR, respectively. In all dimensions, Cronbach's alpha and CR values are substantially above the suggested level of 0.70.

Discriminant Validity

Urbach and Ahlemann (2010) mentioned that discriminant validity assesses how much the signs of latent variables (LVs) are likewise unique in relation to one another. Discriminant validity determines whether or not a construct indicator is simultaneously measuring another construct. The Fornell-Larcker (FL) criteria and cross-loadings (CLs) criteria are used in the PLS–SEM technique to assess discriminant validity (Fornell and Larcker, 1981). By comparing the FL and CL of all the signs to their corresponding LVs, the discriminant validity of the measurement model can be evaluated. To attain CLs, each construct's score is connected with all other indicators (Chin, 1998). When an indicator's loading values are greater in contrast to its own measured construct than against any other construct, and each construct has the highest values with its assigned indicator, discriminant validity may be confirmed and inferred. **Table 2** clarifies the Fornell–Larcker criterion used in this study's model. The values in the table are higher than the values in their respective column and row, as shown in **Table 2**. This demonstrates that discriminant validity is adequate.

TABLE 1 | Measurement model.

Factor loading		Average variance extracted values (AVE)	Cronbach's alpha	Composite reliability
Honesty-Humility		0.639	0.771	0.778
H-1	0.73			
H-2	0.67			
H-3	0.69			
H-4	0.90			
H-5	0.76			
H-6	0.71			
H-7	0.81			
Emotionality		0.649	0.756	0.844
E-1	0.76			
E-2	0.75			
E-3	0.78			
E-4	0.77			
E-5	0.75			
E-6	0.79			
Extraversion		0.575	0.732	0.851
E-1	0.69			
E-2	0.74			
E-3	0.76			
E-4	0.73			
E-5	0.77			
E-6	0.67			
E-7	0.70			
Agreeableness		0.793	0.763	0.884
A-1	0.74			
A-2	0.96			
A-3	0.76			
A-4	0.80			
A-5	0.81			
A-6	0.87			
Conscientiousness		0.603	0.807	0.862
C-1	0.79			
C-2	0.69			
C-3	0.72			
C-4	0.75			
C-5	0.77			
C-6	0.85			
Openness to experience		0.522	0.771	0.845
O-1	0.86			
O-2	0.69			
O-3	0.70			
O-4	0.91			
O-5	0.88			
O-6	0.75			

Data Collection and Data Analysis Procedure

This study examined the personality traits of higher achievers' students. The survey was carried out personally during the months of December 2020. After collecting the data, it was scrutinized to observe the personality traits of position holders

TABLE 2 | Fornell–Larcker criterion.

Factors	1	2	3	4	5	6
1. Honesty-Humility	0.734					
2. Emotionality	0.233	0.741				
3. Extraversion	0.277	0.511	0.758			
4. Agreeableness	0.142	0.256	0.186	0.89		
5. Conscientiousness	0.137	0.211	0.311	0.547	0.714	
6. Openness to experience	0.339	0.511	0.477	0.214	0.208	0.723

TABLE 3 | Demographics of study respondents.

Demographics	Frequency	Percentage
Gender		
Male	402	53
Female	356	47
Residential		
Day-scholar	519	68.5
Hostelites	239	31.5
Group		
Science	446	59
Arts	312	41

TABLE 4 | Personality traits of higher achievers' students at the university level.

Factors	Mean	Std. deviation
Honesty-Humility	4.02	0.603
Emotionality	4.04	0.608
Extraversion	3.80	1.03
Agreeableness	3.78	0.905
Conscientiousness	3.79	0.601
Openness to experience	4.38	0.563

and the results were analyzed by using SPSS "Statistical Package for the Social Sciences" software version 22. To attain the results of objective 1 descriptive analysis was applied in order to see the nature of personality traits of the higher achievers' students based on the Hexaco model of personality. Objectives 2, 3, and 4 were assessed through the analysis of an independent t-test. Objective 5, was assessed through stepwise regression analysis.

Demographics of Study Respondents

Table 3 revealed the demographic information of the study participants. The sample data reveals that the total number of respondents was 758 out of which 402 (53%) were male and 356 (47%) were female. There were 519 (68.5%) respondents, who belonged to day scholars, while (239) 31% were hostelites. Furthermore, sample data depict those 446 (59%) respondents were studying science subjects, and 312 (41%) were from Arts subjects.

Research Objective 1: To Depict the Nature of Personality Traits of Higher Achievers' Students at the University Level

In **Table 4**, the result of this study depicts the nature of higher achievers' students' personality traits at the university

level. The mean scores were classified in descending way from 4.28 to 3.74, indicating that these scores were between high to low. This investigation evident that the position holders felt that, they were more inclined to display high personality traits of openness to experience. The mean score of openness to experience was remained ($m = 4.38$, SD $= 0.563$), emotionality ($m = 4.04$, SD $= 0.608$), and honesty ($m = 4.02$, SD $= 0.603$). The study result also showed that these position holders students also displayed moderate personality of extraversion ($m = 3.80$, SD $= 1.03$), conscientiousness ($m = 3.79$, SD $= 0.601$), agreeableness ($m = 3.78$, SD $= 0.905$). Captivatingly, the results of extraversion, conscientiousness, and agreeableness were also in the acceptable range.

Research Objective 2: To Compare the Personality Traits of Male and Female Students

Table 5 depicts the difference between personality traits of male and female students. Mean value shows that the honesty in female students was significantly high than male ($m = 4.08$, $t = -3.295$, $P = 0.001$). Emotionality mean value indicates that female ($m = 4.11$, $t = -1.629$, $P = 0.103$) students were more emotional than male students but this difference remained insignificant. Extraversion ($m = 3.90$, $t = 5.342$, $P = 0.000$), agreeableness ($m = 3.80$, $t = 3.089$, $P = 0.002$), conscientiousness ($m = 3.80$, $t = 3.190$, $P = 0.001$), and openness to experience ($m = 4.35$, $t = 4.23$, $P = 0.000$) were significantly different and high among male students. The t-value indicates that extraversion in male students was high than other factors.

Research Objective 3: To Compare the Personality Traits of Science and Arts Students

Table 6 shows the difference between personality traits of science and arts group students. Mean values show that honesty ($m = 4.11$, $t = -3.216$, $P = 0.001$), extraversion ($m = 3.84$, $t = 3.99$, $P = 0.000$), agreeableness ($m = 3.84$, $t = 8.750$, $P = 0.000$), and conscientiousness ($m = 3.82$, $t = 2.131$, $P = 0.033$), were significantly different in science and arts group students. Moreover, the negative t-value indicates that arts student were more honest than science students while positive

TABLE 5 | Comparison between male and female higher achievers' students' personality traits.

Factors	Gender	Mean	Std. deviation	t-value	P
Honesty-Humility	Male	4.00	0.633	−3.295	0.001
	Female	4.08	0.609		
Emotionality	Male	4.07	0.631	−1.629	0.103
	Female	4.11	0.626		
Extraversion	Male	3.90	0.955	5.342	0.000
	Female	3.68	0.977		
Agreeableness	Male	3.80	0.876	3.089	0.002
	Female	3.69	0.953		
Conscientiousness	Male	3.80	0.750	3.190	0.001
	Female	3.70	0.799		
Openness to experience	Male	4.35	0.767	4.234	0.000
	Female	4.20	0.919		

TABLE 6 | Comparison between science and arts higher achievers' students' personality traits.

Factors	Group	Mean	Std. deviation	t-value	P
Honesty-Humility	Science group	4.01	0.60	−3.216	0.001
	Arts group	4.11	0.68		
Emotionality	Science group	4.09	0.62	0.821	0.411
	Arts group	4.07	0.64		
Extraversion	Science group	3.84	1.02	3.995	0.000
	Arts group	3.65	1.12		
Agreeableness	Science group	3.84	1.02	8.750	0.000
	Arts group	3.65	1.12		
Conscientiousness	Science group	3.82	0.84	2.131	0.033
	Arts group	3.46	1.09		
Openness to experience	Science group	3.77	0.75	1.216	0.224
	Arts group	3.69	0.83		

TABLE 7 | Comparison between hostelites and day's scholar higher achievers' students' personality traits.

Factors		Mean	Std. deviation	t-value	P
Honesty-Humility	Day scholars	4.04	0.63	0.565	0.572
	Hostelites	4.03	0.60		
Emotionality	Day scholars	4.07	0.63	−2.012	0.044
	Hostelites	4.12	0.61		
Extraversion	Day scholars	3.78	1.05	−0.957	0.339
	Hostelites	3.82	1.05		
Agreeableness	Day scholars	3.72	0.95	−2.315	0.021
	Hostelites	3.80	0.81		
Conscientiousness	Day scholars	3.75	0.77	0.090	0.928
	Hostelites	3.75	0.76		
Openness to experience	Day scholars	4.29	0.91	1.133	0.257
	Hostelites	4.25	0.90		

t-values indicated that science student were more extraversion, agreeableness, and conscientiousness than arts students.

Research Objective 4: To Compare the Personality Traits of Hostelites and Day's Scholar

Table 7 illustrates the difference between personality traits of hostelites and day scholars. Mean values spectacle that only emotionality ($m = 4.12$, $t = -2.012$, $P = 0.044$), and agreeableness ($m = 3.80$, $t = -2.315$, $P = 0.021$), were significantly different in hostelites and day scholars. Moreover, the negative t-value indicates that hostelites student were more emotional and agreeableness.

Research Objective 5: To Investigate the Effect of the Hexaco Model of Personality Traits on Higher Achievers'

Table 8 elaborates stepwise multiple regression. In step one, the study analysis discloses that agreeableness separately, has a significantly negative influence ($R^2 = 0.003$, $b = -0.052$) on higher achievers, however, adding of agreeableness and extraversion in step 2 among higher achievers. This investigates that in step two agreeableness has significantly negative influence ($R^2 = 0.006$, $b = -0.071$) but extraversion has significantly positive influence ($b = 0.062$) on higher achievers. This study findings display that all out of six factors of the Hexaco model of personality traits, only two factors are significant.

DISCUSSION AND CONCLUSION

The current investigation attempted to explore the personality traits of higher achievers at the university level, taking into account gender, residential status (Day scholars and Hostelites), and groups (Science and Arts) exposure differences. The results of this study depict the nature of the higher achievers' students' personality traits in the universities of China. This investigation evident that, the higher achievers' students display high-personality traits of openness to experience, emotionality, and honesty while they display a moderate level of personality in terms of extraversion, conscientiousness, and agreeableness. The difference between personality traits of male and female students was also found. The honesty in female higher achievers' students was significantly high than male students, while four factors regarding the Hexaco model of personality traits (extraversion, agreeableness, conscientiousness, and openness to experience) were significantly high among the male higher achievers' students.

On the other hands, study results also illustrate that honesty, extraversion, agreeableness, and conscientiousness were

TABLE 8 | Stepwise multiple regression to find out the effects of personality traits on higher achievers' students.

Model	Unstandardized coefficients beta (Std. error)	Standardized coefficients beta	t	Sig.	F	R	R^2
1					7.453	0.052	0.003
(Constant) Agreeableness	8.109 (0.307)		26.419	0.000			
	−0.217 (0.080)	−0.052	−2.730	0.006			
2					8.671	0.079	0.006
(Constant) Agreeableness extraversion	7.540 (0.356)		21.184	0.000			
	−296 (0.083)	−0.071	−3.551	0.000			
	0.227 (0.072)	0.062	3.141	0.000			

[a]Predictors: (Constant), Agreeableness; [b]Predictors: (Constant), Agreeableness, Extraversion.

significantly different in the science and arts group students. Science higher achievers' students were more extrovert, flexible, and perfectionist than arts higher achievers' students. The results of emotionality and agreeableness factors were significantly different in hostelites and day scholars' students. The results indicate that hostelites students were more emotional and gentler. Step-wise regression analysis explained that agreeableness and extraversion factor has a significant influence on higher achievers. Likewise, extraversion has a positive influence on higher achievers whereas, agreeableness remained negative. The existing research is one of the first studies which examine and explore the personality traits of higher achievers at the university level based on the Hexaco model of personality. To the best of our knowledge, we could not find any research paper regarding this investigation but various research was found on various aspects such as personality traits relationship, effect, impact, and influence on the academic achievements or learning outcomes and these researchers were merely in a descriptive manner. Our study offered a more comprehensive view of the phenomenon by investigating different types of traits in a more extensive sample. Moreover, it is also worth to note that Day's scholar and hostelites, science and arts higher achievers' orientation differences in personality have never been investigated in the literature.

Theoretical and Practical Implication

The research study adds in the existing body of knowledge on factors related to the students' high achievement scores in academics. This study highlights the personality attributes of high achievers which enable the effective work with students having such qualities and characteristics. By promoting such instructional activities which are related to certain personality attributes of their students in the light of this study's findings. Hence, it gives a new direction to the future researchers too by exploring new dimensions of existing theory not only on higher achievers but also on low achievers. In practical settings, the research will facilitate the university teachers to produce more high achievers and also assist students to groom their personality traits to become high achievers (Baiocco et al., 2017). The study will empower the low achievers by giving them a direction to overcome their negative and toxic personality traits. Thus, the study will help the university students of our country to be more productive to improve their overall performance. Furthermore, social experiences and behaviors are uncontrollable and unpredictable for institutions, the universities must conduct observational assessments of undergraduates at each semester's completion and employ counselors to minimize their negative personality behaviors. Hence, state, teachers, and parents would be able to conduct activities accordingly to shape and nourish good personality traits. The management of the university should

give awareness to the teachers on how they can play their role by developing strategies for the grooming of students' personalities.

Limitation and Future Research

The findings of this study should be seen in the light of a number of caveats. First, this study was conducted in a sample of university students, and it was conducted in a Chinese cultural setting, exclusively with the Chinese students, and at a unique time (during the pandemic), limiting the feasibility of generalizing the conclusions to some extent. The study data were gathered from postgraduate students from two different disciplinary areas (science and arts). However, the students from other disciplines were not included in the sample, and future researchers should focus on them. Moreover, a longitudinal study ought to be carried out through primary to elementary and secondary school levels, so that long-term results of prior processes can also be reported. Furthermore, future study efforts may focus on this topic through observation or interviews. Moreover, there is no study found on the perspired population on the personality traits of higher achievers, so there is a lack of relevant literature to confirm the findings of the current research study. As this research only investigates the personality traits of higher achievers, new researchers can also observe the personality traits of low achievers. Further comparative researches can also be conducted to compare the personality traits of higher achievers with low achievers. Researchers can also examine the impact of general and cultural aspects of multi-ethnic societies on the personality traits of students. As this study was a survey based on a quantitative approach which was based on the determinants that were research-based only. However, to explore further prospects of personality qualitative studies are recommended.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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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Responsible Leadership Effect on Career Success: The Role of Work Engagement and Self-Enhancement Motives in the Education Sector

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Using social information processing theory, our study investigates the effect of responsible leadership on employee career success via work engagement. The model also examines whether self-enhancement motives moderate the aforementioned mediating linkages. In three waves, data were collected from employees in the education sector. Macro PROCESS was used to assess the hypotheses. According to the findings, responsible leadership boosts employee work engagement, which leads to career success. The results also suggest that responsible leadership has a stronger positive effect on work engagement among individuals high on self-enhancement motives. There is no evidence in the educational literature about the underlying process through which a responsible leadership impacts employee success. Our research addresses this gap by suggesting work engagement as a mediator of the effect of responsible leadership on individuals' career success at various degrees of self-enhancement motives.

Keywords: responsible leadership, self-enhancement motives, work engagement, career success, education sector

INTRODUCTION

In today's competitive environment, organizations develop internationally and confront several challenges to achieve their goals. Leadership is the most researched area in management since it is directly important in every aspect of the industry (Akhtar et al., 2021b). Educational leaders are required to play a variety of tasks, ranging from educational visionaries to legal overseers (Bartoletti and Connelly, 2013), highlighting the complexity of leadership in the education sector. Previous research has demonstrated the significance of workplace leadership (Syed et al., 2021). Employees suffered when leadership failed since it played an essential part in the performance of the employees and organizations (Akhtar et al., 2020a). As a result, leaders/leadership play an important role in achieving these goals and encouraging employee performance by rewarding them with their jobs. Similarly, educational institutes in Pakistan face a variety of challenges in terms of infrastructure and resources, teaching, recruitment, and retention, as well as other pressures resulting from rapid technological advancements, increasing demand, a growing need for quality, knowledge diffusion, competitiveness, and globalization (Akhtar et al., 2022).

Responsible leadership (RL) has evolved as a significant topic in organizational studies as a result of the present global financial crisis and CEO wrongdoing (Haque et al., 2019). Maak (2007) defined

RL as "*the art and ability involved in building, cultivating and sustaining trustful relationships to different stakeholders, both inside and outside the organization, and in co-ordinating responsible action to achieve a meaningful, commonly shared business vision*" (p. 334). Also, it is important because of protection, acquisition, connection, and understanding (Lawrence and Pirson, 2015). Several studies have recently been published in the leadership literature to explain and comprehend the practice of RL and to investigate its impact on employee outcomes in various sectors (Inam et al., 2021; Javed et al., 2021; Zhang et al., 2021), but very scant in the education sector.

Leaders are great assets to businesses (Coleman, 2007). Responsible executives play an influential job as role models (Akhtar et al., 2020a) for motivating employees (e.g., work engagement). Due to RL, employees are highly motivated and perform beyond their ability (Haque et al., 2019), which results in career success. Therefore, educational institutes need highly responsible leaders to meet the challenges (Miska and Mendenhall, 2018). For instance, RL is concerned with the obligation of inspiring employees for long-term employment in addition to their well-being. Lin et al. (2020) claim that RL encourages employees to take part in decision-making and gives them a feeling of psychological ownership, which supports their intrinsic needs and motivates them to attain greater performance (Lin et al., 2020). Scholars have argued for RL as a means of increasing employee motivation, which can affect trust in leaders (Akhtar et al., 2020a), person–organization fit (Akhtar et al., 2020a), relational social capital (Javed et al., 2021), knowledge sharing (Lin et al., 2020), and employee commitment (Haque et al., 2021).

Drawing upon social information processing (SIP) theory (Salancik and Pfeffer, 1978), we propose and test a model that explains how RL encourages people to engage in career success through job engagement. If an employee believes he or she is a part of the company and has got responsible signals from their leader, they are more prone to perform well. Following SIP theory (Salancik and Pfeffer, 1978), we propose that RL boosts employees career-related success via work engagement (WE).

Salancik and Pfeffer (1978) stated that beyond the influence of individual disposition and characteristics, information cues from the social environment shape human perceptions, attitudes, and behaviors (Salancik and Pfeffer, 1978). Leaders are the best source for the information cues, therefore employees working in the education sector adapt their behaviors according to the informational cues relayed from their organizational leader. Employees in the education sector also adjust their attitudes and behaviors through their interpretation of social situations based on their cognitive processing. As per SIP framework, individuals are particularly attuned to cues from salient sources at the organization, such as RL (Salancik and Pfeffer, 1978). Therefore, if individuals who are working in the education sector experience RL at their workplace then they are more engaged with work, which leads to their career success.

In the present study, we specifically focused on the moderating role of self-enhancement motive (SEM) in the relationship between RL and WE. SEM reflects "*an individual employee's sensitivity to other people's perception of him/her and his/her level of motivation to adapt his/her behavior in order to project a good self-image to others*" (Yun et al., 2007). Individuals with a high SEM have a strong desire to improve their image in the eyes of others (Yun et al., 2007); hence they are likely to find it interesting to engage at work that promotes their positive image at work. Hence, the present study examines the moderated mediation model by investigating the effect of RL on employee career success via WE at different levels of SEM (see **Figure 1**).

LITERATURE REVIEW

Responsible Leadership and Career Success

Based on the SIP theory, we proposed that RL boosts career success at work in the education sector. Career success is defined as the "accomplishment of desirable work-related outcomes at any point in a person's work experiences over time" (Arthur et al., 2005). For example, a person who receives many promotions, a rank highest in the hierarchy, and greater pay, but does not feel fulfilled would likely see themselves as unsuccessful (Judge and Bretz, 1994). Therefore, nowadays employees focus on subjective career success, which comprises his/her evaluation related to their career accomplishments with respect to their personal achievement criteria (Gattiker and Larwood, 1988). More directly, "subjective career success may be defined as the individual's internal apprehension and evaluation of his or her career across any dimensions that are important to that individual" (Van Maanen and Schein, 1977). Leaders have the authority to instruct and assess subordinates' work performance, which can have a direct impact on the subordinates' career growth (Astakhova, 2016).

Responsible leadership is an ethical and social-relational phenomenon that extends beyond the dyadic leader–subordinate relationship (Maak and Pless, 2006) and strives for achieving performance objectives (Miska and Mendenhall, 2018). According to SIP theory (Salancik and Pfeffer, 1978), leaders' responsibility will rub off on their subordinates and subsequently inspire them to take more responsibility. The literature reveals that RL has three main elements (a) effectiveness, employees' performance has improved as a result of RL (Lin et al., 2020), (b) ethics, RL behaved ethically and lead by example for their followers to act in the right way (Akhtar et al., 2020a), and (c) sustainability, due to focusing more on social, environmental, and economic performance RL leads to sustainability (Javed et al., 2020). RL encourages followers to develop their potential through various methods such as instruction, empowerment, support, participation, equality, communication, and rewards (Maak and Pless, 2006). As a result of these tactics, followers experience more job autonomy and a better feeling at work, which increases internal satisfaction and consequently subjective career success (Pousa and Mathieu, 2015). According to Maak (2007), responsible leaders focus on organizational key characteristics and create a culture that encourages people to achieve common goals. RL prioritizes employee well-being and earns their trust, and workers reciprocate by achieving career success. As a result, we postulated that

FIGURE 1 | Research model.
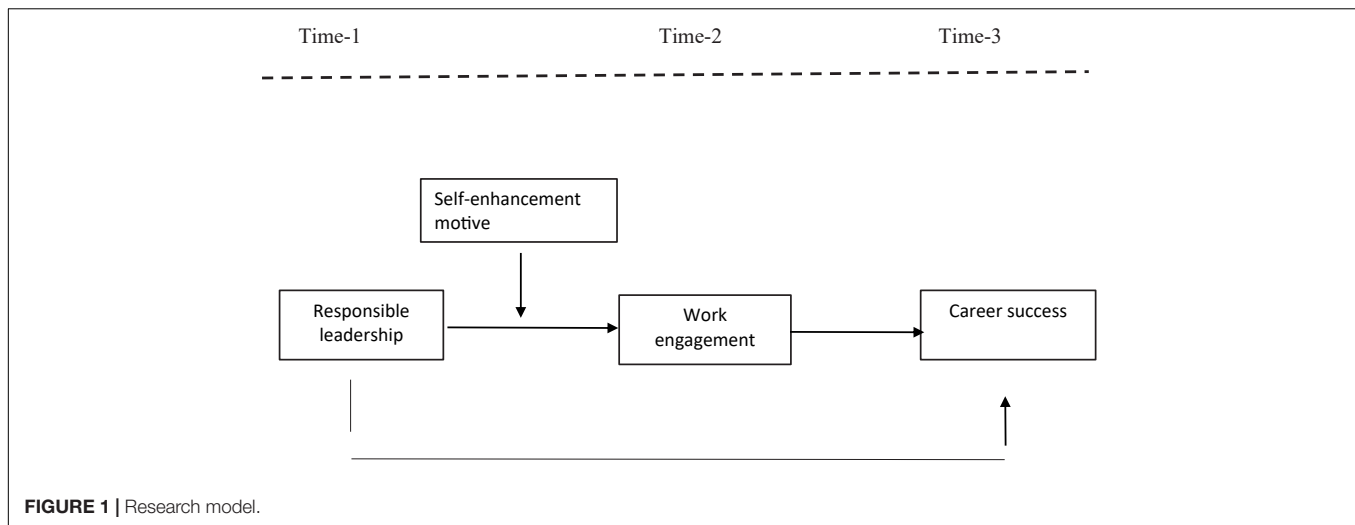
H1: RL is positively related to career success.

Work Engagement as a Mediator

Work engagement is a positive motivating work-related condition in which an employee displays enthusiasm, devotion, and absorption (Schaufeli, 2012). As a result, WE is a situation in which people are completely immersed in their job. Employees who are engaged have a lot of energy, are excited about their jobs, and are frequently so immersed in their work that time seems to fly by Chaudhary and Akhouri (2018), van Dorssen-Boog et al. (2020). Job qualities (e.g., feedback, social support), leadership (e.g., that promotes good effects), and dispositional factors (e.g., conscientiousness) have been identified as common antecedents of WE (Christian et al., 2011).

Responsible leadership is ready to provide workers with learning opportunities so that they may learn and grow (Akhtar et al., 2020a; Javed et al., 2020, 2021). In fact, RL persuades workers to strive toward their objectives by including them in decision making (Maak and Pless, 2006), seeking and respecting their opinion (Lin et al., 2020), and supporting them in times of struggle (Zhang et al., 2021). Employees, in turn, begin to consider the RL as their supporters and exhibit more enthusiasm and devotion to their job. Employees get more engaged since they are sure that performing the task would help them progress. As a result, the argument may be summarized as follows: RL increases employee WE by convincing them that they can achieve their objectives through work. Employees who are engaged are more likely to be involved in career success because they effectively achieve their professional goals and believe they are qualified to perform (Christian et al., 2011).

According to research, when organizations give resources, workers feel WE, which is associated with beneficial outcomes such as organizational commitment (Aboramadan et al., 2019). Job resources have the potential to influence positive outcomes, reflected as career success, not just through reciprocation, but also because when employees feel supported at work, they experience positive feelings. According to the SIP theory (Salancik and Pfeffer, 1978), such informational signals cause a

broader range of thinking and acting among employees, such as imagining greater career success.

Work engagement resulting from RL fosters employee career success by broadening employees' thought and action ranges (Aggarwal et al., 2020). As a result, there is a chance that WE will mediate the influence of RL on career success. In support of the above assumption, Akhtar et al. (2020a) found that the relationship between RL and whistleblowing intents was serially mediated by person–organization fit and trust in leaders in a study of Pakistani workers. Ilkhanizadeh and Karatepe (2017) offered similar data, demonstrating the mediating role of WE in the relationship between CSR practices and career satisfaction. As a result, WE appears to be a viable mechanism for explaining the relationship between RL and professional success. Thus, we proposed that

H2: WE mediates the relation between RL and career success.

Moderating the Role of Self-Enhancement Motive

In addition to examining the mediating effect of WE on the relationship between RL and career success, it is also necessary to investigate the moderating effect of personal factors (i.e., self-enhancement motives) that might affect the aforementioned relationship. As per SIP, WE is in response to RL. We propose that the availability of personal resources, such as SEM, can increase the influence of accessible resources, in this instance RL. We think that providing a strong positive image or desiring to make a good impression on others can help RL have a stronger impact on WE (Yun et al., 2007).

Self-enhancement is an individual resource that encourages adaptable work practices (Yun et al., 2007). When an individual has a strong desire to create a favorable impression on others, this is referred to as self-improvement motivation (Yun et al., 2007), and in an experienced favorable work environment (i.e., empowerment, training, compensation) this desire is more salient (Choi et al., 2019). Individuals with a high SEM may be more inclined toward WE under RL because of their motivation

to achieve a positive self-image. Individuals with a high SEM are sensitive to social perception and have a strong desire to be perceived positively (Yun et al., 2007), hence they excel in their tasks. This desire, we propose, becomes much stronger when people are working in conducive and resource-rich environments (Kwang and Swann, 2010; Choi et al., 2019). The desire or observed reality of seeing oneself in the most positive way is known as self-enhancement (Pfeffer and Fong, 2005). Employees with a high SEM are more aware of how others perceive them and are more motivated to change their behaviors to make a positive impression (Yun et al., 2007). Furthermore, when high SEM employees experience RL, they may wish to steer their organization in a better path to eliminate the source of their negative feelings about their organizational membership and feel more engaged at work (Carter and Guittar, 2014). Employees with a high SEM who are exposed to RL will be even more driven to do their jobs well (Yun et al., 2007). On the other hand, those with a low SEM are less susceptible to external influences (Choi et al., 2019). Individuals with a low SEM are less concerned about their public image. As a result, even after witnessing RL, people will not accomplish their assigned responsibilities with engagement. As a result, we suggest the hypothesis below.

> *H3*: SEM moderates the relationship between RL and WE in such a way that the relationship will be stronger in the case of high SEM or vice versa.

Indirect Conditional Effect

The above-mentioned mediation and moderation effects, taken together, imply a moderated mediation effect (Preacher et al., 2007). Specifically, the RL is positively and indirectly associated with career success through WE; the level of SEM influences this indirect linkage. Given the importance of career success in boosting organizational effectiveness, employees who are concerned about how others see them may opt to work with thriving, which encourages proactive behavior. Thus, we propose that the positive effect of RL proactive behavior via WE when an employee has a high SEM depicted in **Figure 1**. Therefore, we predict the following:

> *H4*: SEM moderates the positive and indirect effects of RL on career success through WE such that the indirect effect is stronger when SEM is high.

Method

The present study aims to investigate the effect of RL on CS via WE at different levels of SEM in the education sector. The present study is of pivotal importance to understand better how to create positive vibes among employees which will be echoed by them within and outside the environment. Data were collected from employees of the education sector.

Each participant has the option of marking each questionnaire with identical codes or any other key of his or her choosing, such as their national identity number, employee number, date of birth, and so on. These codes or keys assisted in the identification of the relevant pair of employee and peer questions. Following that, these keys are eliminated to protect the respondents' privacy during data submission. Furthermore, it is straightforward to connect the three-time data with the contact person in each organization. Also, the color of the questionnaire, which was white at T1, blue at T2, and green at T3, assisted the responders or the contact person to distinguish each portion from the other. The researcher has tagged each questionnaire with a key of the serial number to ensure that the paired replies of the respondents are from the same individual.

At time 1, we distributed 550 survey questionnaires based on RL and SEM along with demographic details among respondents, and we received 435 usable responses. After a 1-month-interval, we distributed the survey questionnaire of WE among the aforementioned respondents and received 364 usable responses. After a 1-month-interval of time 2, we distributed the survey questionnaire of career success among the aforementioned respondents, and we received 228 questionnaires.

The sample consisted of 164 (72 percent) male and 64 (28 percent) female respondents. Fifty-eight percent of the respondents were married and the rest were single. A total of 105 (46%) respondents had a Master's degree, 72 (32%) had MPhil/MS degrees, while 51 (22%) had Ph.D. degrees. Fifty-three percent of participants were between the ages of 20 and 30, and 32% were between the ages of 31 and 40. Fifteen percent of participants were above the age of 40. The majority of the participants (57%) had worked for fewer than 5 years. The remainder of the employees were with the company for more than 5 years.

Variable Measurements

For the measurement of study variables, we used adapted measures. In Pakistan, English is the language of instruction for all high school and university students. It is also the formal means of interpersonal communication at work and is commonly understood by employees in the education industry of Pakistan. Earlier researches utilizing questionnaires in English language in Pakistan have reported no major issues pertaining to language (Akhtar et al., 2020b). For all the constructs in the study as per the research model (**Figure 1**), we adopted established item scales as used in erstwhile studies. All the items were anchored on a 5-point Likert scale with a range of 1– 5.

RL: To measure RL, we adopted a five-items scale developed by Voegtlin (2011) with the reliability of 0.93. The sample question included, "*My direct leader/manager tries to achieve a consensus among the affected stakeholders.*"

SEM: We assessed SEM using a 6-items scale developed by Yun et al. (2007). A sample statement was "I am sensitive to the impression that others have about me".

WE: WE was measured using the nine-items (three-dimension) measure developed by Schaufeli et al. (2006). Sample items included "At my work, I feel bursting with energy".

Career success: This construct consisted of five-items taken from Greenhaus et al. (1990). Sample item of the construct included "I am satisfied with the progress I have made toward meeting my goals for the development of new skills."

Preliminary Analysis

Since the current study utilized a self-reported survey approach, we applied Harman's single-factor test to check for the common method bias (CMB). The findings of a single-factor extraction

solution with no rotation explained 40.83% of the variation (less than 50%), indicating that CMB is not a major concern for our data set (Podsakoff and Organ, 1986).

RESULTS

Conformity Factor Analysis and Correlations

Preceding hypotheses testing, we performed a series of CFAs to verify the convergent and discriminant validity of our study variables. **Table 1** reveals that the results of the hypothesized four-factor model (χ^2/df = 2.28; TLI = 0.906, CFI = 0.916, RMSEA = 0.075) fitted the data well, better than the alternative models. The factor-loading ranges are as follows: RL (0.800–0.846), SEM (0.696–0.856), WE (0.510 –0.849), and career success (0.800–0.852). The value of average variance extracted (AVE) of RL (0.68), SEM (0.59), WE (0.58), and career success (0.71) support the variables convergent validity. The discriminant validity that was verified by assessing the $\sqrt{}$ of each AVE was greater than the correlation between the corresponding variables (see **Table 2**; Fornell and Larcker, 1981). The findings in **Table 3** demonstrated that study variables were correlated with each other.

Hypotheses Testing

Referring to **Table 4**, the findings disclose that RL has a significant positive relationship with career success (B = 0.14, $p < 0.001$), after controlling for employees' gender, age, qualification, and organizational tenure, and it supports H1. Referring to **Table 4**, WE mediates the effect of RL on career success (B = 0.25, CI = 0.17, 0.35), as both the confidence intervals limits did not include zero, which supports H2. Further, the Sobel test (z = 5.84; $p < 0.001$) supported again that WE effect was a mediating variable. Thus, H2 was accepted.

As further displayed in **Table 5**, the interaction term of RL x SEM in predicting WE was significant and positive (B = 0.08, $t = 2.21$, $p < 0.05$). The interactive effect in **Figure 2** indicates that RL was more positively linked with WE at high levels of SEM (simple slope = 0.30, $p < 0.01$ 95% CI = [0.16, 0.44]) than when it was low (simple slope = 0.10, $p > 0.05$ 95% CI = [−0.06, 0.26]). Thus, the H3 effect was supported.

We also tested (H4) moderated mediation effect via model 7. Referring to **Table 5**, findings disclose that the indirect effect was strengthened when SEM was high (B = 0.20, 95% CI = [0.08, 0.34]), whereas indirect effect was weaker and insignificant when SEM was low (B = 0.07, 95% CI = [−0.06, 0.21]). Thus, the H4 effect was supported.

DISCUSSION

The current study offers a theoretical framework based on SIP theory (Salancik and Pfeffer, 1978), which explains the consequences of RL in the education sector. Recently, researchers invited future studies to investigate the consequences of RL in the

TABLE 1 | Confirmatory factor analysis: Validity and reliability.

Latent variables Standardized loadings		Average variance extracted Composite reliability	
Responsible leadership		0.68	0.92
RL1	0.800		
RL2	0.828		
RL3	0.846		
RL4	0.821		
RL5	0.839		
Self-enhancement motives		0.59	0.89
SEM1	0.696		
SEM2	0.856		
SEM3	0.705		
SEM4	0.804		
SEM5	0.770		
SEM6	0.752		
Work engagement		0.58	0.92
WET1	0.728		
WET2	0.791		
WET3	0.732		
WET4	0.804		
WET5	0.815		
WET6	0.811		
WET7	0.820		
WET8	0.510		
WET9	0.849		
Career success		0.71	0.92
CS1	0.800		
CS2	0.887		
CS3	0.853		
CS4	0.858		
CS5	0.803		

TABLE 2 | Discriminant validity test results.

Latent constructs	1	2	3	4
1. Responsible leadership	*0.827*			
2. Self-enhancement motives	0.657	*0.766*		
3. Work engagement	0.398	0.462	*0.759*	
4. Career success '	0.357	0.261	0.601	*0.807*

TABLE 3 | Correlations.

Sr #		Mean	SD		2	3	4
1	Responsible leadership (T1)	4.62	1.52	*1*			
2	Self-enhancement motives (T1)	4.89	1.27	0.59**	1		
3	Work engagement (T2)	4.76	1.29	0.44**	0.46**	1	
4	Career success (T3)	4.28	1.53	0.32**	0.23**	0.57**	1

** p < 0.01. SD = standard deviation.

education sector (Akhtar et al., 2020a; Javed et al., 2021) with the help of different mediated-moderation mechanisms.

First, the present study finds that when individuals observe RL at work in the education sector then they engage in career success. RL is the most promising in terms of social clues. As it focuses

TABLE 4 | Mediation results.

	M (work engagement)			Y (career success)			
	Path	B	SE	P	Path	B	SE	p
RL	A	0.37	0.05	0.00	ć[1]	0.14	0.06	0.02
Work engagement	–	–	–	b[1]	0.66	0.07	0.00
Constant	i[1]	3.05	0.25	0.00	i[2]	0.47	0.33	0.15
		$R^2 = 0.19$				$R^2 = 0.40$		

Indirect effect (RL on career success)

Indirect Effect via work engagement	
Bootstrap results for indirect effects	0.25 [0.17, 0.35]
Indirect effect (Sobel Test)	0.25 (z = 5.84)

N = 228.

on employees' personal development by understanding their needs and interest, it cultivates a caring working climate at work which fosters their emotional attachment with the organization (Boiral et al., 2014). Thus, RL provides a positive role model to educate employees, which entices them to engage in positive activities for organizations like career success. These results are consistent with the previous studies which reveal that RL is significantly and positively related to the employee's positive behavior (Akhtar et al., 2020a).

Second, the present study corroborated that RL significantly affects career success's via WE. These findings seem logical because responsible leaders in the education sector create an enabling environment and provide required resources to learn and stay vital. In addition, RL develops trustful relations with the employee that help them to engage. Since employees in the education sector learn the behavior expected, rewarded, and punished by RL, as RL builds a trustful relationship with the follower (Akhtar et al., 2020a), a mutually trusted relationship makes the followers feel safe for trial-and-error and learning from past mistakes. So, engaged individuals at work in the education sector actively participate and discuss the ideas related

to organizational current and future problems. Thus, they are more likely to engage in career success by sharing the positive information about their education organization to inside and outside stakeholders. Thus, we find that WE mediates the relationship between RL and career success in the education sector. The present study results are aligned with past studies, which revealed that WE mediates the relationships in the education sector (Song et al., 2018; Aboramadan et al., 2019).

Third, findings reveal that SEM moderates the RL and WE relationship in education. In the education sector when individuals feel supported by their organizations, they are likely to thrive more by RL under the SIP theory. The moderating effect of SEM has also been explored by previous researchers (Akhtar et al., 2021a). De Clercq et al. (2021) concluded that SEM buffered the despotic leadership and status gain relationships. Thus, the results of their study are aligned with the present study. Therefore, POS moderates the direct relationship between RL and WE. Furthermore, we find full support for the moderated-mediation argument where SEM positively moderates the indirect link. It reflects that indirect effect was stronger in case of high SEM.

Theoretical Implications

The present study has several theoretical implications. Firstly, the findings of the present study added value to the literature of RL in the education sector by examining the relationship between RL and outcomes. Only a handful of studies have explored the consequences of RL in the education sector (Freire and Gonçalves, 2021), but no one investigated its consequences in the education sector of Pakistan by using the SIP framework. The current study is unique because it is considered as the preliminary study that examined the impact of RL on career success (internal, external, and online) in the education sector, which is not studied as an outcome of RL. Thus, the researchers examined the employees' behavioral outcome, i.e., career success, and extended the literature of career success by exploring its new antecedent RL in the education sector.

TABLE 5 | Regression coefficients and conditional indirect effect estimates.

	M (work engagement)			Y (career success)		
	B	SE	P	B	SE	P
RL (X)	−0.18	0.19	0.34	0.14	0.06	0.02
SEM (W)	0.05	0.14	0.73			
X*W	0.08	0.04	0.03			
Work engagement	–	–	–	0.66	0.07	0.00
		$R^2 = 0.27$			$R^2 = 0.40$	

Moderator	Conditional effect of X on M				Conditional effect of X on Y via M			
SEM	B	SE	LLCI	ULCI	B	SE	LLCI	ULCI
SEM − 1 SD	0.10	0.08	−0.06	0.26	0.07	0.07	−0.06	0.21
SEM M	0.20	0.06	0.08	0.32	0.13	0.05	0.04	0.25
SEM + 1 SD	0.30	0.07	0.16	0.44	0.20	0.06	0.08	0.34

N = 228.
B = standardized coefficient, SE = standard error, LLCI = lower limit of confidence interval, ULCI = upper limit of confidence interval.
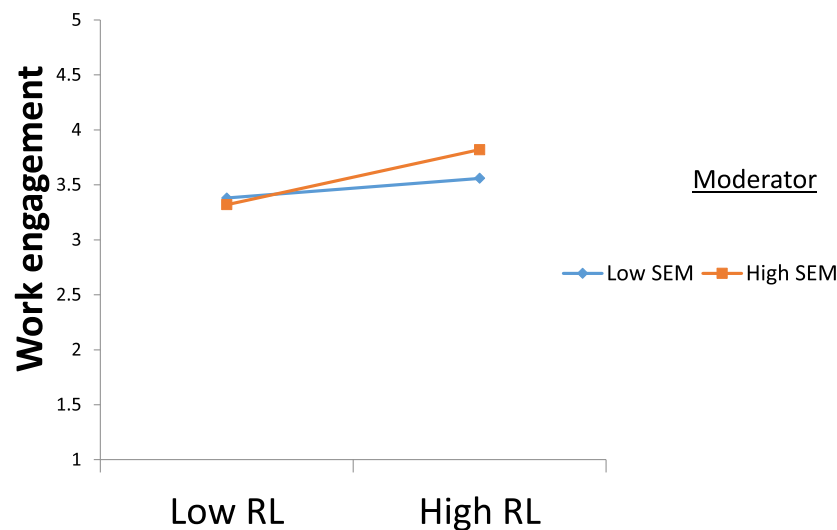
FIGURE 2 | Interaction plot.

Secondly, the present study employs the SIP theory (Salancik and Pfeffer, 1978) by contributing to the literature of RL as the previous researchers used role theory, stakeholder theory, and upper-echelon theory to explain RL and the followers' relationship. By employing this SIP theory, when in the education sector employees observe different social clues from RL, such as trust and information sharing, they may influence the employees' WE. Further, engaged individuals actively participate in their organizations' issues and problems. Thus, they are prone to display megaphone by sharing information about the strength and weaknesses of their educational organization. Hence, we added value to the literature by taking WE as an underlying mechanism between RL and career success in the education sector.

Thirdly, the current study explored the consequences of RL and used this construct by proposing a distinctive mediated mechanism and investigating the mediating role of WE in the education sector. The results indicate that the RL is positively related to WE, which further is positively related to career success. WE, in turn, mediates the positive relationship between RL and career success.

Finally, the current study investigated the moderating role of SEM and extends the literature by examining the organizational factor and establishing the link between RL and WE. Additionally, the researcher established the indirect relationship as SEM moderates the mediating relationship between RL and career success through WE.

Practical Implications

The results of the study have important practical implications for firms working in the education industry. These findings suggest that firms should recruit and develop responsible leaders because they positively influence individual-level outcomes, such as career success. Findings imply that RL brings fortunes to the educational institute because such leadership style helps managers in making employees' communicative behavior

favorable, which consequently improves a firm's image and reputation. Second, our findings show that responsible leaders can promote career success by developing WE. WE encourages employees to engage in positive megaphoning, for example, WE makes employees feel energized and alive and they tend to be positive accordingly. This suggests that firms should have RL that will promote WE. Results also imply that the firms should brainstorm and map training plans to develop responsible leaders. Third, findings suggest that organizations should practice such initiatives which make their employees believe that they are taken care of, and their contributions are valued and recognized. This belief supports RL to make employees energetic and alive. Further, policymakers should offer incentives to promote RL at the firm-level.

LIMITATION AND FUTURE DIRECTION

Although the present study provides a novel perspective on RL, it is not without limitations. As we used a time-lagged research design with data from independent sources, our study cannot be characterized as a pure longitudinal design since not all of the study variables were tapped at all the time-periods. Self-reports were used to quantify all variables each time. However, the evidence of discriminant validity, CMB tests, and support for mediation and moderation indicates that this was not the case. Future research can use a comprehensive longitudinal study design, in which all the study variables are assessed at all times. Future studies can build on our existing paradigm by proposing additional processes and contexts under which RL could lead to different outcomes. As positive affectivity and political ineptness could be used as moderators, future studies might use other mediators that might explain how and why RL could result in favorable results for individuals, such as compassion and meaningfulness. The present study investigated the effect of RL on CS via WE by using the SIP theory. Future studies can use

different theoretical mechanisms to uncover the consequences of RL, such as the social learning perspective.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by COMSATS University Islamabad (CUI), Sahiwal Campus Constitutes Campus Ethics Approval Committee. The

patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

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Impact of Music Education on Mental Health of Higher Education Students: Moderating Role of Emotional Intelligence

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Music education is one of human kind most universal forms of expression and communication, and it can be found in the daily lives of people of all ages and cultures all over the world. As university life is a time when students are exposed to a great deal of stress, it can have a negative impact on their mental health. Therefore, it is critical to intervene at this stage in their life so that they are prepared to deal with the pressures they will face in the future. The aim of this study was to see how music education affects university students' mental health, with emotional intelligence functioning as a moderator. The participants in this research were graduate students pursuing degrees in music education. Non probability convenience sampling technique was used to collect and evaluate the data from 265 students studying in different public and private Chinese universities. The data was gathered at a time, and therefore, the study is cross-sectional. The data was collected from January 2022 till the end of March 2022. Many universities have been closed because to COVID-19, therefore data was also gathered online through emails. The data was analyzed quantitatively using the partial least squares (PLS)–structural equation modeling (SEM) technique. The findings backed up the hypotheses. The results revealed that there is a significant effect of music education on student's mental health. Also, emotional intelligence as a moderator significantly and positively moderates the relationship between music education and students' mental health. Music has numerous physiological aspects, and listening to it on a daily basis may be beneficial to your general health and well-being. Furthermore, musicians and music students with a high level of emotional intelligence have a better chance of not just performing well in school, college and university or in the music industry, but also of maintaining mental health and improving it.

Keywords: music education, emotional intelligence, mental health, China, higher education students

INTRODUCTION

Music is one of the most universal means of human expression and communication, and it is present in the daily lives of people of all ages and cultures across the globe (Angel-Alvarado et al., 2022; Váradi, 2022). Listening to music, singing, playing (informally or formally), and creating (exploring, composing, and improvising) are all popular pastimes for the vast majority of people

(Liu, 2022). Music is a relaxing pastime in and of itself, but its impact extends far beyond that. These activities not only allow people to express their inner thoughts and feelings, but they can also have a variety of beneficial effects on those who take part (Hasanova, 2021). There is a growing body of empirical and experimental research on the broader benefits of musical activity, and research in music sciences suggests that successful musical engagement can positively affect many aspects of human life, including physical, social, educational, and psychological (cognitive and emotional) dimensions (McConkey and Kuebel, 2021). In Western societies, evidence that university students are susceptible to mental health (MH) problems has sparked rising public concern (Campayo-Muñoz and Cabedo-Mas, 2017; Faulkner, 2022).

Numerous prior research has found prevalence of depression, anxiety, and stress among students in higher education around the world (Hedemann and Frazier, 2017; Payne et al., 2020). Undergraduate psychological morbidity is a neglected public health issue with significant consequences for campus health services and mental policy-making. Undergraduate students must deal with the psychological and psychosocial changes that accompany the growth of a self-sufficient personal life, as well as the academic and social obligations that they face during their university studies and preparation for professional employment (Smith, 2021). As a result, many people consider undergraduate education to be crucial for building systems and intervention strategies that can help prevent or lessen mental illnesses (Kim and Kim, 2018). Music has been used to heal people since ancient times. There have been numerous studies on the benefits of music therapy in the treatment of psychiatric diseases and a variety of other health issues. As a result, compared to other undergraduates, music students may experience lower levels of sadness, anxiety, and stress (Demirbatir et al., 2012).

Music captivates and holds the attention of the listener, stimulating and utilizing many different regions of the brain. Music is tailored to a person's abilities and can reflect them. Music is a powerful memory enhancer because it arranges time in a way that humans can grasp. There is a lot of evidence that there is a link between musical training and cognitive ability. According to Fujioka et al. (2006), music training has a significant impact on brain rewiring for cognitive tasks. Music engages brain networks related with anticipation, attention, and neural clairvoyance, according to Leaver et al. (2009). According to new research, music training improves mental acuity, particularly in the areas of cognitive, verbal, and emotional intelligence (EI; Kraus and Chandrasekaran, 2010). These research back with our findings that music education (MEU) students had high levels of cognitive liveliness.

RESEARCH LITERATURE

Social Cognitive Theory

Social cognitive theory helps explain how people work by putting the focus on processes that are interactive. The theory says that cognitive activities play a special role in how people can learn new things about their environments. Individuals could provide a reflection on the theory and show how their own actions and the ideas fit together. By linking this theory to music education, the goal was to find out how important changes are for creating good ways to teach and learn for advanced students. It is critical to have a good theoretical understanding of how learning works when planning curricula and teaching services for students with high academic ability. To explain how people work, social cognitive theory focuses on the way that environment, behavior, and personal factors interact in a dynamic way. This way of thinking about how people connect and work came to be called "triadic reciprocal causation" (Avotra et al., 2021). According to the theory, cognitive processes such as watching others and the environment, thinking about it in light of one's own thoughts and actions, and changing one's own self-regulatory functions play an important role (Sun, 2022).

Music Education, Mental Health, and Emotional Intelligence

Mental well-being refers to an individual's capability to form and maintain mutually beneficial relationships, as well as their psychological functioning and life pleasure (Faulkner, 2022). Psychological health includes the capacity to maintain a sense of autonomy, self-acceptance, and personal development, as well as a sense of life purpose and self-esteem (Smith, 2021). Maintaining a healthy mind involves more than just treating or preventing mental illness (McGinnis, 2018). The majority of people listen to music at certain point in their lives. This can be done by listening to music or actively participating in musical activities. Affective results are common in this type of involvement. Positive emotional, social, physical, and health consequences, as well as intellectual, artistic, and spiritual outcomes, are all benefits and motives for any music participation.

Likewise, young people experienced that listening to music aids them pass the time, lessen boredom, relax, and forget about their worries. They see music as a multidimensional tool for mood regulation, particularly for managing and enhancing their emotions. They may also use loud music as an appropriate means of expressing their displeasure with their parents. Playing an instrument is said to provide people a sense of accomplishment and confidence, as well as a form of communication, yet it can also lead to frustration if their goals are not met (Angel-Alvarado et al., 2022). Making music in a group with peers deepens musical knowledge and understanding while also developing social and personal abilities, resulting in a high level of personal satisfaction and confidence. While there has been little research on the emotional responses of young children to music, physiological, behavioral, and concentration changes have been observed. Overall, the data suggests that music has a substantial impact on our lives, and that the impact is often affective rather than cerebral, with those who actively participate in generating music reaping the greatest benefits. Adult participation is an extension of engagement with active music creating in childhood at home or at school, according to a number of studies. As a result, at least part of the musical education provided during obligatory schooling should be focused on instilling a love of music (Hallam, 2010).

A growing body of research indicates links between music participation and broad indices of mental health, such as greater well-being or emotional competence, implying that music participation may also be associated with better specific mental health outcomes (Faulkner, 2022). Previous research has linked hours of music practice and self-reported music achievement to improved emotional competence. Similarly, a meta-ethnography of research discovered that music activities improved well-being by enhancing emotional control, self-development, providing respite from problems, and facilitating social relationships (Hedemann and Frazier, 2017). According to a study of 1,000 Australian adults, those who interacted with music, such as singing or dancing with others or attending concerts, reported greater well-being than those who engaged in the same experiences alone or did not engage. As a result, this study provides preliminary evidence that music participation is associated with improved general mental health outcomes in both children and adults, with some variation in results depending on the type of music participation (Gustavson et al., 2021).

Emotional intelligence is a type of social intelligence that allows people to detect their own emotions as well as the emotions of others. Furthermore, emotional intelligence enables people to distinguish between such feelings and make appropriate thinking and action decisions. It is a skill that can be learnt, developed, and enhanced. According to Salovey and Mayer (1990), emotional intelligence involves an "ability to monitor one's own and others' moods and emotions, to distinguish among them and to utilize this information to direct one's thinking and actions." A related definition adds the "capacity to perceive, express, regulate, and manage emotions in an adaptive manner." Age, developmental level, and gender have all been demonstrated to influence personal or emotional intelligence (Ran et al., 2021). Moreover, our attitude and perspective on life are influenced by emotional intelligence. It aids in the reduction of anxiety as well as the recovery from depression and mood swings. Those who have a high emotional intelligence score are likely to be happier (Vijayabanu and Menon, 2016).

Effect of Music Education on Mental Health

Music has existed since ancient times and continues to do so today (Váradi, 2022). It has a natural role in controlling people's emotions and psyche because it is an emotive art. Music is incredibly appealing, and it has spread to every part of the globe. Its non-traditional expression form causes individuals to unconsciously resonate with music. Students can not only appreciate beauty while listening to music, but they may also reduce tension, cultivate emotions, and improve their personalities (Wang, 2020). Many of the psychological and behavioral issues that graduate students face are caused by daily pressures (Payne et al., 2020). It can also have an impact on deeper aspects of people's personalities, such as self-confidence. Mood disorders such as depression and anxiety are widespread. When a person is stressed, they may experience a variety of negative consequences.

A stressful circumstance, for example, can affect a person's mental ability to do ongoing duties. The use of music as a therapeutic tool has been documented throughout history. The idea of music, mood, and movement is one hypothesis that attempts to explain how music affects people's psychological responses. According to this notion, "music causes a psychological reaction of enhanced mood, which leads to improved health outcomes."

Music's various aspects, such as melody, pitch, and harmony, have been demonstrated to generate a variety of emotional responses in listeners. Music is processed in the limbic system of the brain after passing through the auditory cortex, resulting in an emotional reaction (Pan et al., 2021). Music has increasingly been found to provide both physical and mental health advantages, including improvements in cardiovascular health, a link to a reduction in dementia cases in elderly populations, and increases in general mental well-being markers including stress reduction (Williams et al., 2020). By stimulating students' creativity and association, MEU can boost students' interests, emotions, and other non-cognitive characteristics, achieving the goal of cultivating inventive personalities in students. Consequently, music education at colleges and universities is an efficient method for assisting students in overcoming their "dysfunctional" personalities. Through music education, students can develop their creative identities and experience a sense of self-worth and self-efficacy, enabling them to overcome the multiple personality flaws generated by numerous negative factors in the current cultural environment (Li, 2021). As a result, based on the reasoning presented above, it is anticipated that:

> *H1:* There is a significant effect of music education on mental health.

ROLE OF EMOTIONAL INTELLIGENCE AS A MODERATOR

Emotional intelligence was first studied in the early 1900s. Salovey and Mayer described EI as the ability to notice, comprehend, make sense of, and employ emotional cues from others and oneself in order to manage others' and one's own cognitive and emotional functioning (Salovey and Mayer, 1990). They classified it as a subclass of "social intelligence," because it entails being aware of one's own and others' emotions. Daniel Goleman did the most groundbreaking study on EI when he published "EI: Why It Can Matter More Than IQ" in 1995, in which he made startling comparisons to IQ while reaffirming the relevance of EI. We learned about the renowned five components of EI from his book, which are Self-awareness, Self-Regulation, Empathy, Social Skills, and Motivation (Cherry and Morin, 2020; Solomon, 2020).

Emotional intelligence was defined by Salovey and Mayer (1990) as a collection of skills for processing a broad range of emotional information, including (a) perceiving and expressing emotions, (b) supporting emotional thinking, (c) understanding and analyzing emotions, and (d) controlling, directing, and regulating emotions. Managing one's own emotions well, comprehending the emotions of others, and maintaining

emotional control are key human adaptation skills. Emotional intelligence is likely to be a crucial component of the psychological profile of young musicians because (a) it is involved in the process of adapting to the demands of educational and concert activities and (b) it is a factor that increases emotional sensitivity during the process of musical expression. Higher emotional intelligence levels are connected with a greater development of creativity and social competence in collaborative scenarios (in the context of cooperation and teaching). In terms of health, relationships, and overcoming life's problems, emotional intelligence also increases quality of life (Nogaj, 2020).

Emotional intelligence, according to the creators of the Wong and Law Emotional Intelligence scale, is a skill. It is not, however, as straightforward as that. It is thought to be a construct made up of numerous interrelated dimensions that manifest themselves in diverse ways (Wong and Law, 2002). EI was divided into four dimensions by Salovey and Mayer (1990): Self-Emotional Appraisal refers to a person's ability to recognize and express one's own inner emotions in a natural way. Individuals with this talent are able to sense and understand their own emotions in comparison to those of others; Others' Emotional Appraisal refers to an individual's ability to comprehend and gain insight into the emotions of those around them. Individuals with these abilities are more sensitive to others' feelings and have a better understanding of them; Regulation of Emotion in the Self refers to an individual's ability to control one's own emotion, allowing them to recover more quickly from any psychological stress; and Use of Emotion to facilitate performance refers to the ability to direct emotion toward useful activities and intimate execution. People believe that acknowledging and properly dealing with emotions adds to their well-being in everyday life. According to a recent meta-analysis, emotional intelligence (EI) is linked to better health (Martins et al., 2010). A further Finnish study (Saarikallio et al., 2015) shows how musical listening affects teenagers' reported feeling of agency and emotional well-being, while also revealing how context and uniqueness play a role. Aspects of mental health are the subject of an Australian study of young adolescents with depression tendencies (Stewart et al., 2019).

Research on music school students and professional musicians has found that many activities that are based on the needs of music education are also strongly linked to the development of certain psychological traits. Most of these traits have to do with temperaments or personality traits, intellectual and social skills, emotional and motivational traits, and the ability to deal with difficult situations (Yafi et al., 2021). The emotional domain becomes more important because a music student's ability to handle both school and concert demands is one of the most important parts of how they work. This is when emotional intelligence plays a great role (Nogaj, 2020).

The goal of this study was to see how music education affected mental health and what role emotional intelligence played among university students. University is a time when students desire to learn more about themselves physically, psychologically, emotionally, and behaviorally, as well as meet new people, join a social club, or work. They emotionally connect with others while connecting with others. As university

life is a time when students are exposed to a great deal of issues regarding academic, personal or emotional area and stressors, these problems can have a negative impact on their mental health. The role of emotional intelligence is critical in dealing with various challenges. Nowadays, every company wants someone with a greater Emotional Quotient (EQ) than an Intelligent Quotient (IQ). When a firm hires people with lower EQ because they have no other option, it is an additional cost for them to implement training programs/sessions to improve Emotional Intelligence (EI). Every young adult would unknowingly overlook "Emotion Well-being" at this stage in their lives, resulting to a chaotic environment. Young individuals must have their emotional intelligence levels assessed since they are more vulnerable to stressful events such as worries in their career and/or personal lives (McGinnis, 2018; Ran et al., 2022). It is critical to provide intervention to young adults who are emotionally inept and lack a strong sense of resilience in order for them to develop into healthy, functional persons. It is critical to intervene at this stage in their life so that they are prepared to deal with the pressures they will face in the future. Giving young adult's intervention through music makes it much easier for them to connect with their emotions. It was also demonstrated that music has the ability to elicit emotion in the listeners. Many university students experience mental health problems at various stages of their education. This becomes even more important as they near the end of their studies and consider their future options. Market financial situations, particularly as a result of natural disasters such as COVID-19 (Haider et al., 2021), exacerbate the situation for many students. Another important element affecting Chinese university students' mental health is the pressure to get a job or start their own business. Therefore, the need of the present study was to highlight the effect of music education on higher education institutions students and the use of emotional intelligence strategies by students to manage their emotions and to deal with others as well. Moreover, this study will provide the development of music teaching and its link with mental health issues at university level. Based on the above-mentioned research, a hypothesis has been proposed (see **Figure 1**):

> *H2:* Emotional intelligence plays as a moderating role in the association between music education and mental health.

RESEARCH METHODOLOGY

Sampling and Procedure

The participants in this research were graduate students pursuing degrees in music education. We included both master's and doctorate students in order to have a better understanding of the diversity of our graduate students. Additionally, since these students often do at least part of their graduate course work simultaneously, interventions happening in classrooms may have an effect on students at both levels. Due to limited resources and inevitable time constraints, it is difficult to collect data from entire population (Taherdoost, 2016).
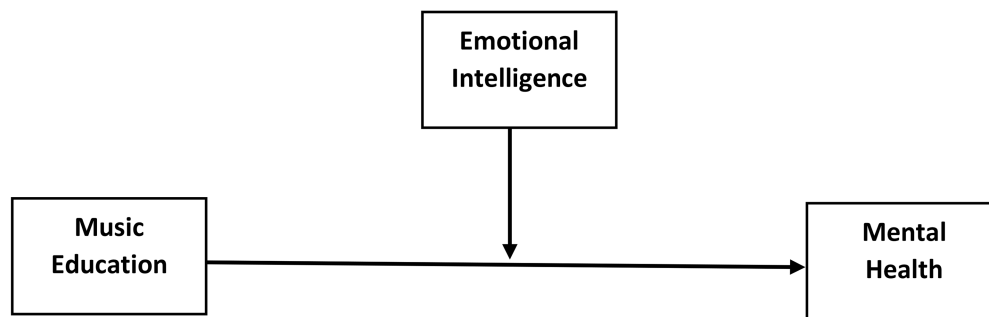
FIGURE 1 | Conceptual model.

Non-probability convenience sampling technique Stratton (2021), was used to collect and evaluate the data from 265 students studying in different public and private Chinese universities. The data was collected from January 2022 till the end of March 2022. The data was gathered at a time, and therefore, the study is cross-sectional. To maintain confidentiality, the names of the students and universities are not disclosed. The authors contacted the program director and get the permission. Also, 20 universities received an email with the option of either forwarding or providing a list of their graduate students' email addresses so that we could contact them personally.

The sample size for this research is 265 students, since data was collected during the COVID-19 pandemic and so relied on students' willingness to complete the questionnaire. Many universities have been closed because to COVID-19, therefore data was also gathered online through emails (i.e., developed questionnaire on Google doc). According to G* power software, the minimum sample size necessary for this research is 107 respondents to achieve a power of 0.95 and a medium size effect of 0.15 (Peng et al., 2012). Though, initially 300 questionnaires were distributed and 279 were received, 14 questionnaires were deleted due missing data and erroneous responses, rendering these questionnaires unreliable and so excluded However, 265 complete questionnaires were received, resulting in an 88.33% response rate. The response rate was quite encouraging in the difficult COVID-19 pandemic situation. The male students are in majority 52.1% and female students were 47.9%. The majority of the samples fell within the ages of 20–30 years 76.2%, 31–40 years were17.2 and 6% were 41–50 years old. According to their education level 44.2% hold bachelor's degree, 46% Masters and 9.8% Ph.D. holders.

Measures

The questionnaires used in this study were adapted from those used in previous research. The pilot study was designed to ensure that the questionnaire was accurate before conducting a larger-scale study. There are a total of 80 questions in the survey. Music education was examined using an independent variable of a 20-items scale derived from Sims and Cassidy (2020), with a Cronbach alpha (α) reliability of 0.870. A

6-items scale adopted from Koops and Kuebel (2021) with a Cronbach alpha value of 0.906 was utilized to examine the dependent variable mental health. Lastly, the moderating variable Emotional intelligence adopted from Nogaj (2020) based on 54-items scale divided into four sub dimensions: [Acceptance (15-items) with $\alpha = 0.819$ Empathy (18-items) with $\alpha = 0.777$, Control (11-items) with $\alpha = 0.830$, Understanding (10-items) with $\alpha = 0.797$]. The five-point Likert scale was used, with 1 indicating (Strongly Disagree), 2 suggesting (Disagree), 3 indicating (Neutral), 4 indicating (Agree), and 5 indicating (Strongly Agree). It is the most effective instrument for information collecting since it makes it possible to acquire quantitative data in an efficient and easy manner. The reliability of latent variables was assessed using the Cronbach alpha coefficient. Across all variables, the Cronbach alpha values were more than 0.70, which indicates that reliability greater than 0.7 is considered to be acceptable (Henseler et al., 2015). The results of the Cronbach alpha test are displayed in the **Table 1**.

There is a possibility of common method variance (CMV) in the data since the same respondents were employed to gather data for all variables (Tehseen et al., 2017). In spite of the adoption of procedural remedies such as a cover letter to preserve the confidentiality of the respondent's personal information and explanations of new phrases, the problem of CMV was still present. CMP (Correlation Matrix Procedure), established by Lindell and Whitney (2001), was also used to examine the CMV's influence through the correlation of latent variables. CMV could not be detected using this method because the correlation between the primary variables was less than 0.90. When it came to CMV, a comprehensive collinearity examination was utilized. In order to provide estimates of the suitability of the sampling distribution and estimates of population standard errors, the data were bootstrapped to a total of 5,000 samples using Smart-Partial Least Squares (PLS) version 3.2.8 software (Sarstedt et al., 2022). This procedure ensured that the sample data properly reflected the population. Among the multivariate fact-based tests were the following: factor loading, convergent validity, discriminant validity as measured by the Heterotrait–Monotrait Ratio (HTMT), and structural equation modeling (SEM) by calculation of coefficient of determination (R^2), explained predictive relevance (Q^2) and effect size (f^2).

Measurement model.

Constructs	α	rho_A	CR	AVE	Source
Music education	0.870	0.901	0.905	0.625	Sims and Cassidy, 2020
Emotional intelligence					Nogaj, 2020
Acceptance	0.819	0.821	0.881	0.649	
Control	0.830	0.831	0.887	0.663	
Empathy	0.777	0.778	0.857	0.599	
Understanding	0.797	0.849	0.816	0.566	
Mental health	0.906	0.908	0.931	0.731	Koops and Kuebel, 2021

α, Cronbach alpha; CR, Composite Reliability; AVE, Average Variance Extracted.

TABLE 2 | Discriminant validity through Heterotrait–Monotrait Ratio (HTMT).

Constructs	EI	MEU	MH	MEU*MH
EI				
MEU	0.663			
MH	0.853	0.794		
MEU*EI	0.141	0.193	0.140	

EI, Emotional intelligence; MEU, Music education; MH, Mental Health.

RESULTS

Measurement Model Analysis

Due to the reflecting-formative nature of the moderating variable emotional intelligence, a two-stage procedure was developed. Initially, the factor loadings of reflective-formative construct indicators (i.e., first order construct) were studied (Duarte and Amaro, 2018). Only items that met the required criteria were retained. Finally, we calculated scores for latent variables associated with all lower order constructs in order to get single items and assess the reflective-formative construct's validity (i.e., second order construct). Convergent validity occurs when one item in a construct is linked to other items in the same construct. Composite It can be assessed by factor loadings, composite reliability (CR) and average variance extracted (AVE; Hair et al., 2017). Factor loadings must be more than 0.70 in most cases. Items with outer loadings of 0.40–0.70 should be deleted if their removal improves the CR or AVE values (Sarstedt et al., 2022). **Table 2** indicated that the measurement model has convergent validity, by the fact that all Cronbach alpha, composite reliability and average variance extracted were larger than the recommended cut-off requirements.

Discriminant validity refers to the ability of a concept to identify itself from other constructs in a model (i.e., both constructs are not assessing the same phenomenon; Henseler et al., 2015). Heterotrait–Monotrait Ratio (HTMT) is the average correlation of the indicators across distinct constructs and their associated components models with conceptually identical structures have a threshold level of 0.90 (Ab Hamid et al., 2017), whereas those with unconnected constructs have a threshold level of 0.85 or lower. The values in **Table 2** show that not a single one was higher than 0.85. As a result, the discriminant validity has been established.

Second order constructs were examined for multicollinearity of items and importance of outer weights after first order constructs had been shown to be valid and reliable. According to Duarte and Amaro (2018), second-order constructs may be assessed using two stages. Latent constructs scores for the lower-order items were first obtained. In the first step, the latent constructs were tested, and the scores were utilized as EI items. **Table 3** presents the results of an evaluation of the EI measurement model, which was conducted in accordance with the recommendations of Duarte and Amaro (2018). Multicollinearity concerns were investigated using inner variance inflation factor (VIF) values (Craney and Surles, 2002). The VIF is used to assess multicollinearity when two or more components of a concept are strongly linked. A multicollinearity problem is indicated by a number larger than 5. Collinearity between the reflective- formative constructs was investigated. A collinearity estimate showed that EI might be predicted by the constructs of EI such as acceptance, empathy, control, and understanding. **Table 3** shows that there were no collinearity issues for second order reflective- formative dimensions with VIF values. The outer weight of reflective-formative indicators was used to assess them. In addition, bootstrapping was used to determine the significance of the weights. Indicator weights and significance are shown in **Table 3** that acceptance, empathy, control, and understanding were significant.

Structural Equation Modeling

After analyzing the measurement model, the structural model (also known as the inner model) was evaluated. The inner model depicts the relationship between research components in a theoretical framework. Analysis of a structural model was carried out by evaluating its importance in terms of path coefficients: Coefficient of determination (R^2), Effect size (f^2) and Predictive relevance (Q^2; Sarstedt et al., 2022). However, the multicollinearity of the inner model must be checked first before structural model evaluation since it might mislead the findings. The postulated linkages that link the constructs are known as path coefficients, and they have values ranging from -1 to $+1$ (Hair et al., 2017). Values close to $+1$ indicate an extremely favorable association, whereas values close to -1 indicate an extremely negative one. Bootstrapping may be used to determine the relevance of path coefficients in a study. As can be seen in **Figure 2**, the route coefficients are shown together with the significance and *t*-values associated with them.

Relationship among constructs	Original sample	M	SD	T values	VIF	p values	2.5%	97.5%
ACC → EI	0.296	0.294	0.023	12.863	2.268	0.000	0.247	0.338
CON → EI	0.285	0.283	0.027	10.516	1.248	0.000	0.227	0.334
EMP → EI	0.283	0.280	0.019	15.034	2.332	0.000	0.243	0.317
UND → EI	0.504	0.505	0.032	15.867	1.331	0.000	0.449	0.571

SD, standard deviation; M, Mean; VIF, variance inflation factor; ACC, acceptance; EMP, empathy; CON, control; UND, understanding; EI, Emotional intelligence.
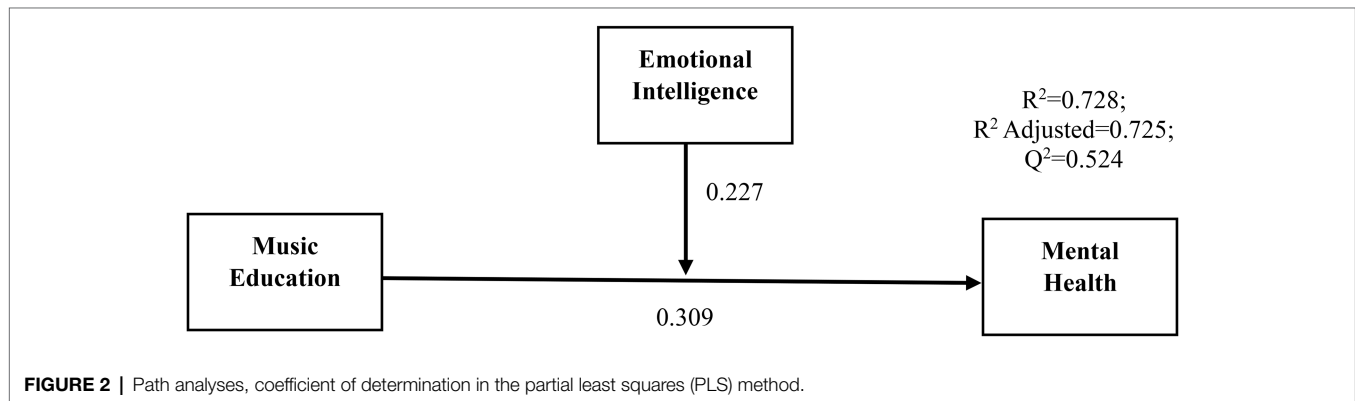
FIGURE 2 | Path analyses, coefficient of determination in the partial least squares (PLS) method.

As shown in **Table 4**, the direct effect of music education (MEU) was positively and significantly associated with Mental Health (MH). The path coefficient ($\beta = 0.309$, $T = 8.736$, $p < 0.000$) demonstrates that a one-unit change in MEU results in a 30.9% change in MH. The Coefficient of Determination (R^2) is a measure of the predictive accuracy of a model. The value of R^2 illustrates the combined influence of exogenous latent variables on endogenous latent variables, and its value ranges from 0 to 1. Higher R^2 values suggested that the model had stronger explanatory ability. According to Cohen (1988), the most significant R^2 values are 0.75, 0.50, and 0.25, which are categorized as large, moderate, and low, respectively. The values of R^2 are shown in **Figure 2**. The value of R^2 for mental health was 0.728, which is considered large and reflected that 72.8% of variation in mental health was elucidated by music education and emotional intelligence (EI).

A measure of the effect size (f^2) is how much the value of R^2 swings when a given exogenous construct is excluded from a model, in order to evaluate whether or not the exclusion has an effect on the endogenous constructs. A value of f^2 greater than 0.35 indicates a large effect size. A result in the range 0.15–0.35 indicates a moderate effect size, while a value between 0.02 and 0.15 indicates a minor effect size (Cohen, 1988). Based on the findings in **Table 4**, independent construct MEU has a large effect size on MH, whereas the combine MEU (independent construct) and EI (moderator construct) have medium effect size on MH. In order to determine the inner model's predictive relevance, Q^2 (predictive relevance) is used. Q^2 was determined using the blindfolding method, whereas the omission distance (D) was considered to be 7. A

cross-validated redundancy technique was utilized to determine predictive significance. If a number larger than zero indicates predictive relevance, a value less than zero indicates that the model is not predictively relevant (Cohen, 1988). To demonstrate the model's predictive usefulness, the Q^2 values of endogenous components are shown in **Figure 2**. Lastly, the moderating effect of emotional intelligence on mental health is also positive and significant ($\beta = 0.309$, $T = 8.736$, $p < 0.05$). Hence, the results have shown that the hypotheses H1 and H2 were supported.

DISCUSSION

The study's goal was to see how music learning affected students' mental health, with emotional intelligence acting as a moderator. The significance of music education on mental health plays a vital role for students (Faulkner, 2022). Music learning can occur in a variety of settings, including formally (as part of structured lessons in school) and informally (as in the home with family and friends), often non-sequentially and not necessarily intentionally, and where participation in music learning is voluntary rather than mandatory, such as in a community setting. These advantages can be seen throughout life, including in early childhood, youth, and later adulthood (Angel-Alvarado et al., 2022). Music's contribution to health and well-being has been studied across the lifetime, and evidence of physical and psychological effects has been found. Benefits are also observed in terms of scholastic achievements for young people, and successful musical activity can improve a person's sense of social inclusion and cohesion (Welch et al., 2020).

TABLE 4 | Results of structural equation model.

Hypotheses	Relationship among constructs	β	Mean	SD	T values	F²	p values	Remarks
	Direct effect							
H1	MEU → MH	0.309	0.307	0.035	8.736	0.203	0.000	Supported
	Moderating effect							
H2	MEU → EI → MH	0.227	0.226	0.031	4.947	0.144	0.013	Supported

SD, Standard Deviation; EI, Emotional intelligence; MEU, Music education; MH, Mental Health.

The current study influence on young adults' emotional intelligence, as well as assisting people in emotionally connecting with music and associating their troublesome issues to music. This allows individuals/participants to gain a better understanding of their own emotional intelligence. It would also assist folks in achieving a sense of equilibrium in their emotional lives.

Two important hypotheses needed to be investigated. The first hypothesis was to look at the impact of music education on university students' mental health. The results of present study findings revealed that there is a significant effect of music education on mental health of university students. The study's findings were consistent with earlier research. Prior literature supports the study hypotheses that music is used in disciplines such as music therapy to improve people's health and well-being. The findings of the study demonstrated that learning music improves mental wellness. Previous research has shown that taking part in musical activities can improve health and well-being in many ways and situations throughout a person's life. Musical activities, whether they are about listening, being creative or re-creative, or being in a group or on your own, have the potential to be therapeutic, developmental, enriching, and educational, as long as the people who do them find them interesting, meaningful, and successful (Welch et al., 2020).

The second hypothesis was to find the role of emotional intelligence as a moderator, the association between music education and mental health. The results of present study findings showed that emotional intelligence act as moderator between music education and mental health. The study's findings were consistent with earlier research. Prior researches supports the present study hypotheses. Previous research revealed that music students had significantly higher levels of EI than other students, particularly in terms of accepting, expressing, and acting on their own emotions (Kim and Kim, 2018). These findings indicate that music students are more aware of their emotions, both positive and negative, are better able to articulate their emotions, and can successfully apply their emotional knowledge. Daily practice on a musical instrument, where emotional expression is explored, may have helped the students to accept, express, and use their emotions. Furthermore, emotional intelligence is an integral part of young artists' creative talents and is a crucial component of creativity (Nogaj, 2020). According to Smith (2021) music has the ability to heal. It also has an impact on our emotional condition. A lot of music intervention research has been done in a clinical setting. Music therapy can aid patients with motor coordination,

neurological function, tranquilization or relaxation, pain relief, depression relief, and overall well-being. Another study discovered a link between emotional expression and music intervention as well (Vijayabanu and Menon, 2016). Previous studies have measured emotional intelligence using a variety of criteria such as self-esteem, self-efficacy, culture, personality, and self-confidence (Zeb et al., 2021); however, the current study focuses on improving emotional intelligence through music learning (Vijayabanu and Menon, 2016).

Personality, motivation, and social and cognitive qualities are all linked to emotional intelligence. The relationship between EI and vital aspects of mental health implies that emotional intelligence is important for life success. Musicians and music students who have a high level of emotional intelligence have a better chance of not only doing well in school or in the music industry, but also of maintaining mental wellness and even better health. There's also evidence that the amount of time spent learning a musical instrument improves emotional intelligence (Nogaj, 2020). A significant amount of study has been conducted on the relationship between music and emotion (Váradi, 2022). Music has been shown to help people regulate their emotions, and the capacity to recognize the emotions represented by music has been linked to a higher level of emotional intelligence (Campayo-Muñoz and Cabedo-Mas, 2017).

Theoretical and Practical Implications

This study makes an important contribution to the body of literature. As university students face various mental health issues and few research studies focus on this area, there was an urgent need to investigate the role of music education in improving students' mental health. This study employs social cognitive theory to examine the conceptualized path. The study's findings show that music education increases students' self-esteem, which helps to improve their mental health. The study's main practical implication is the need to increase emotional intelligence development among music students in high school, college, and university, especially in light of research that demonstrate EI is a predictor of academic success. Music psychology can have a big positive impact on one's physical and mental wellbeing. Instrument playing can promote emotional expression, socializing, and exploration of many therapeutic themes such as conflict, communication, bereavement, and so on. Music can be used to influence one's mood. Music engages our brain's neo-cortex, which relaxes us and reduces impulsivity due to its rhythmic and repetitive elements. It is frequently used to enhance or alter our mood.

While there are some benefits to matching music to our mood, it can also keep us depressed, angry, or nervous. A music therapist can play music that corresponds to the client's current mood and gradually transform the person into a more happy or peaceful state. Music has numerous physiological benefits, and listening to music on a regular basis may be beneficial to your overall health and well-being. It reduces pain by eliciting emotional responses, focusing cognitive attention, and stimulating sensory pathways in the brain that compete with pain pathways. The music appears to help shift focus away from the pain by competing with the brain's pain circuits. Furthermore, music and visual art education necessitate a diversity of student labor styles, as well as a spectrum of emotions associated with the presenting of a produced piece. In terms of coping techniques and emotional intelligence, the psychological functioning of art school students varies significantly according on their artistic activity. A musician or music student with a high level of emotional intelligence has a greater possibility of not just excelling in school, college, and university, as well as the music industry, but also of maintaining mental health and even better physical health.

Limitations

The following are the study's key flaws. To begin with, further research with a diverse sample can be undertaken in the future to guarantee that results are generalizable. Because the study included a self-report questionnaire, the sample could be skewed if students responded in a way that made them appear socially acceptable. Because preceding writing should provide hypothetical establishments to the examination topic one is studying, a lack of previous research studies could be a potential hindrance. In any case, previous investigations on our research topic were insufficient.

Suggestion for Future Researches

Following are the suggestions for future researchers. Future study incorporates qualitative study with students to explore further in depth. Future researches proceed by looking into the demographics variables, including gender differences. Moreover, future studies should focus on different variables with music among different population.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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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Impact of Parenting Style on Early Childhood Learning: Mediating Role of Parental Self-Efficacy

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The current study examined the impact of parental style on early childhood learning, as well as the role of parental self-efficacy (PSE) as a mediating factor. In the domains of education and psychology, it is increasingly recognized that parents have a considerable impact on their children's learning and development. Purposive sampling was used and data was gathered over 3 months from school children's parents. Hypotheses were tested using smart partial least squares-structural equation modeling (PLS-SEM v3.2.8) software. The findings of the present study reveal that an authoritative parenting style is positively associated with learning outcomes among Chinese students. Moreover, the mediating role of parental self-efficacy has been tested and proved to be a potential mediator between parental style and children's learning outcomes. High PSE is linked to parents' adoption of a variety of optimum parenting practices throughout childhood, including maternal sensitivity and responsiveness to children's needs, warm and affectionate parental behavior, and monitoring. Hence, low PSE has been linked to coercive or harsh parenting as well as a proclivity to give up easily when faced with parental difficulties. In China, further study is needed on the relationship between parenting style, parental self-efficacy, and learning outcome. Future parenting programs could also focus on raising parents' understanding of the need for both parents' involvement in expressive activities and mentoring. This could help them boost their parenting self-efficacy even more. Lastly, the implications for parents, children, and teachers are discussed.

Keywords: parenting style, learning outcome, parental self-efficacy, early childhood, China

INTRODUCTION

Recent studies on parental education reveal that researchers have mostly focused on mothers, and while many authors have proposed the systematic inclusion of fathers, few studies have done so (Giallo et al., 2013; Diniz et al., 2021). Despite increased acknowledgment of the critical role of fathers play in their children's growth and learning, research on parental self-efficacy and parental involvement in children's education has tended to neglect fathers (Tazouti and Jarlégan, 2019). In educational policy and research, the role of parental involvement in children's education has become a central topic (Acar et al., 2021; Ribeiro et al., 2021). In this regard, for enhancing student achievement and eliminating educational disparities, many school reforms include initiatives to promote parental involvement (Lo et al., 2021). The role of family life and parenting styles have

a significant impact on the development and maturation of early children. Therefore, parental self-efficacy is typically a goal of programs aimed at improving early life experiences in order to encourage healthy parenting practices. Besides that, parents' self-efficacy views, according to research may be crucial to the parenting practices. There is an increased sensitivity to learned helplessness and, as a result, a lack of drive to address problems when parents have low self-efficacy (Qutaiba, 2011; Gindrich, 2021).

Family involvement refers to parents active participation in a variety of activities and behaviors that encourage their children's early learning and development. A good example is Head Start school (Kook and Greenfield, 2021). This federal program teaches parents how to work with their children at home, involves parents in early intervention to improve learning outcomes for children (especially those who are poor and underachieving), and provides opportunities for parents to participate in school administration. Obviously, the parent aspect is important to Head Start (Ma et al., 2016). For children's cognitive and language development, parent involvement in play, learning, and routine home activities is critical (Tan et al., 2022). In this regard, parental involvement in literacy activities such as reading and telling stories is well known to be beneficial to children's linguistic and cognitive development in the preschool years, as well as long-term academic outcomes. Parent participation, on the other hand, involves a broader range of parent actions than simply reading to children and can include any activity that gives a learning or cognitive stimulation opportunity (Eijgermans et al., 2022).

The role parental involvement is also significant in children's academic outcomes and have also been related to the provision of educational toys, answering inquiries, and engaging in dialog with them about their experiences. Furthermore, having access to a computer at home and living in a family with a medium to high level of engagement in out-of-home activities such as visiting libraries were linked to optimal developmental outcomes for children (Le et al., 2021). Given the importance of parental involvement in boosting children's outcomes, it's not unexpected that there's been a lot of curiosity about what factors influence the kind and frequency of parents' involvement in activities with their children. Reduced cognitive stimulation in the home has also been linked to single parenthood and insecure employment (Martin et al., 2022). Even though these results tell us a lot about how economic disadvantage affects parent involvement. Giallo et al. (2013) study reveal that less attention has been paid to the psychosocial characteristics of the parent, child, and family setting that may affect how much time parents spend with their children at home. Based on the above-mentioned literature and gaps there is a need to further explore the impact of various parenting styles on early childhood learning with parental self-efficacy as a mediator. Additionally existing studies have mostly focused on structural or socioeconomic variables, implying that parents with less education who are from a lower socioeconomic standing and are experiencing financial difficulties, are less responsive to their children and provide less learning stimulation. Therefore, the present study focus is to highlight the different parenting styles influence on early childhood learning outcome

and how the role of parenting self-efficacy mediates between the two variables.

RESEARCH LITERATURE

Supporting Theories

The present study is based on the following theories. According to Bandura's self-efficacy theory (Weinberg et al., 1979), perceived self-efficacy is a major driver of activity choice, task effort expenditure, and task perseverance in the face of impediments. Self-efficacy, while not the primary predictor of behavior, plays a significant part in people's decisions about how much effort to put in and how long to keep it up when confronted with stressful conditions (Clarke-Midura et al., 2019; Ran et al., 2022).

According to Vygotsky's social interaction theory, social interaction between the child's mind and caregiver is a vital key to the child's cognitive development (Forman and Cazden, 1986). Every parent wishes best for their children, especially when it comes to their intellectual abilities, moral values, and character development. Many parents, on the other hand, are unaware that educating and caring for their children in an overly restricted or overly permissive manner might cause them to lose confidence and ambition to succeed. According to several researchers, the family environment, particularly parenting behavior, influences interpersonal competence and changes in development, including social academic achievement, in teenagers (Whittaker and Cowley, 2012; Shian et al., 2022). According to Grolnick and Ryan (1989), one factor that influences adolescent school competency is the familial environment. The family environment reveals several relationships between parents and children that have an impact on one another, particularly in terms of parental style. In this scenario, the family environment, in the form of parenting style, also provides a learning pattern and facility. Theresya et al. (2018) proposed that a good parenting style creates a positive emotional environment and boosts a child's self-confidence while learning, which helps the child do better in school.

Parenting Style and Learning Outcome

Early childhood and early school years have long been recognized as crucial to adult well-being and success (Diniz et al., 2021). Education that is developmentally appropriate from an early age leads to better educational outcomes later in life (Ma et al., 2016). Despite the large quantity of studies done in this area, there are major discrepancies in how parents are conceptualized and measured (Tazouti and Jarlégan, 2019). Some academics define parental involvement as involvement in school activities; others define it as parental ambitions for their children; and yet others define it as involvement in their children's home learning activities. Researchers have recently acknowledged that the concept of parental participation is multidimensional (Dewi and Indrasa, 2017), encompassing a wide range of parental behaviors related to their children's education. Epstein (1992) defined parental involvement as (1) parent practices that create a positive learning environment at home; (2) parent-school communications about school programs and student progress;

(3) parent participation and volunteering at school; (4) parent and school communications about learning activities at home; (5) parent involvement in school decision making and governance; and (6) parent access to a school's resources (Catsambis, 2001). Parents' involvement in their children's education, according to Epstein, is not static. Rather, differences in any of three overlapping domains of influence family, community, or school can alter the forms of parental participation (Epstein, 1992). Based on the previous literature, these variables were studied separately with either father or mother influence on children success. But the objective of present study was to explore the influence of both parents on children's and how parental self-efficacy leads to better learning outcome (Zeb et al., 2021).

Children's relationships with their families are critical to their growth (Popa, 2022). Parental child care attitudes are defined by the parents' warm and caring approach to the child; expectations of the child; communication with the child; and disciplinary attitudes toward them. In family attitudes theory, Diana Baumrind identified three categories of parental attitudes: families that are permissive, authoritative, and authoritarian (Baumrind, 1968). Permissive parents take the strategy of tolerating and endorsing behavior based on the wishes of their children without looking into the causes or grounds of the behavior (Liu and Guo, 2010). Although the child's behavior is harmful to the environment, it is tolerated, and the parents are powerless to encourage the child to follow the rules. While such parents have greater talents in terms of child care, they have less ability to control their children's conduct. They give their children too much freedom, lack discipline, and have low expectations of their children (Verrocchio et al., 2015). Furthermore, authoritarian parents use strict rules and constraints formed by an excessive level of authority to control their children's behavior. For those parents, what matters is that their children follow the rules without questioning them, and that their parents interfere and regulate their children's behavior without hesitation for the sake of the child. Despite their failures in child care, these parents have the mindset of having the most parental control. They use both verbal and non-verbal (physical) sanctions to penalize the child's unwanted behavior while failing to appreciate positive behavior (Song et al., 2022).

Moreover, in this parenting style parents place unrealistic expectations on their children (Ren and Zhu, 2022). These are the parents who are the most resistant to change and also make swift decisions. Lastly, with verbal and physical emotions authoritative parents assist their children. They have compassionated and close ties with their children. Those parents approach their children in a more cooperative manner. Their expectations are based on the abilities of their children. Those parents are attempting to mold their children's cooperative and sensitive behavior. They are aware of their children's thoughts, feelings, and attitudes, and they treat them with respect (Liu et al., 2022). The norms of authoritative parenting, which are widely regarded as the most ideal kind of parental care and attitudes, are open, obvious, and debatable. Because of its adaptable structure, it can be reconfigured.

The role of these parental attitudes and actions can have an impact on their children's personality traits and adaption to their surroundings. Growing up in a family with permissive parents might make children selfish. These children are uninterested in other people's feelings and thoughts. They may be lacking in self-control and have low self-esteem. They could be lacking in social skills. Anxiety, sadness, and uneasiness may be experienced by children of authoritarian parents. When they are furious, they may resort to more physical aggression. Furthermore, they are unable to communicate effectively. They may exhibit a lack of self-assurance. In social situations, they are introverted people who can be confrontational. Children raised by authoritative parents are more capable socially and accept responsibility; they are self-assured, cooperative, pleasant, cheerful, autonomous, socially skillful, and independent (Önder and Gülay, 2009).

With the growing emphasis on early childhood education and school success, it's more important than ever to understand the development of skills, abilities, knowledge, and behaviors that are particularly important to children. When it comes to defining learning outcomes, there are two ways that are commonly used. One method is to identify and describe desirable learning outcomes for children at various developmental stages using crucial domains of child development. The five domains of learning and development for children in early childhood education and early primary education have been highlighted by the National Education Goals Panel as vital to enhancing human development. Physical well-being and motor development, social and emotional development, and learning approaches (learning styles) that include cultural components of learning, language development, and cognition and general knowledge are among these categories (Ma et al., 2016). The way parents raise their children has a big impact on their development and learning.

In western societies, research has consistently proven that parenting style has a direct relationship with children's academic achievement (Luo et al., 2021). In general, research shows that children raised by authoritative parents have the best outcomes, whereas children raised by authoritarian or permissive parents have the worst outcomes. A study found that parenting style had a significant impact on children's self-concept development. The reported level of warmth demonstrated by both their fathers and mothers had a direct relationship with the children's self-concepts but not with parental permissiveness. Moreover, another previous study discovered that the family style affects the process of acquiring self-efficacy as outlined by Bandura (1986). According to previous studies focused on western cultures, authoritarian and permissive parenting styles have a negative impact on children's academic achievement (Huang and Prochner, 2003). Therefore, Hypothesis 1 is constructed as shown below:

H1: Parenting style is positively associated with early childhood learning outcome.

Parental Self-Efficacy and Learning Outcome

Parenthood, while frequently rewarding, is also fraught with stress-inducing obstacles. New parents must deal with the physical and financial demands of caring for a child, as well as the various lifestyle changes that might arise as a result of

this additional duty and lead to negative consequences such as strained spousal relationships and social isolation (Song et al., 2022). The emotional cost of parents' lack of confidence in their capacity to care for their children was noted as a concern for new parents as early as 1986. Once it was found, the idea of being confident in oneself and one's skills as a parent was called parental self-efficacy, and it was immediately understood within a Bandura (1986) framework.

In the following decades, parental self-efficacy (PSE), which has lately been defined as "parents' belief in their ability to influence their child in a health and success-promoting manner," has emerged as a key treatment target for parent and child well-being. Parental self-efficacy has remained relevant in published literature since its inception as such an important clinical emphasis (Albanese et al., 2019). Parental self-efficacy research is based on Bandura's (1986) self-efficacy theory, which states that one of the major processes influencing behavior is an individual's conviction in their capacity to effectively complete a task or sequence of activities. As a result, PSE measures a parent's ability to mobilize the cognitive resources and actions required to exert control over life events. While self-efficacy is defined as a dynamic dimension that varies depending on the task's needs, external variables, and a person's previous experiences (Tazouti and Jarlégan, 2019).

A parent's job is a complex and hard opportunity to support and contribute to a child's growth and development. In this regard, parental competence is made up of behavioral, affective, and cognitive elements, with parental self-efficacy being a key component. Coleman and Karraker (2000), for example, reported the following findings: parents with high self-efficacy believe they can effectively and positively influence their children's development and behavior, and they engage in positive parenting behaviors, are more responsive to their children's needs, engage in direct interactions with their children, use active coping strategies, and perceive their children to have fewer behavioral problems. On the other hand, for parents who have poor self-efficacy, the opposite is true. Previous literature supported that parent with low self-efficacy, for example, have higher rates of depression, exhibit more defensive and controlling behavior (Zeb et al., 2021), have higher perceptions of child difficulties, report higher stress levels, have a passive parental coping style, place a greater emphasis on relationship problems, show more negative affect, feel helpless in the role of parent, and use punitive disciplinary strategies (Pelletier and Brent, 2002).

Consequently, parents' involvement in their children's learning and academic progress is generally beneficial, according to researchers. Greenwood and Hickman (1991) identified a number of studies concentrating on primary school students that found links between parental participation and academic achievement, well-being, attendance, student attitude, homework readiness, grades, and educational goals. The findings revealed that academic achievement, time spent on homework, positive attitudes toward school, and lower rates of high school dropouts are all favorably associated with parental participation (Gonzalez-DeHass et al., 2005). Several studies have found that parents from higher socioeconomic backgrounds are more involved in their children's education than parents from lower socioeconomic

backgrounds, and that this involvement fosters more positive attitudes toward school, improves homework habits, reduces absenteeism and dropout, and improves academic achievement (Sui-Chu and Willms, 1996). Aside from the high emphasis put on education by Chinese parents, the fierce rivalry for a limited number of spots in higher education has an impact on parents' parenting behavior. According to prior research performed in China, over 83 percent of parents said they helped their children study in various ways, such as hiring tutors or supervising their children's homework (Zhang, 2021). In Hong Kong and Taiwan, studies on the relationship between Chinese parenting style and children's results were also conducted (Luo et al., 2021). In another study, high self-esteem is linked to positive parent-child relationships among Chinese teenagers (Tan et al., 2022). Children who have a poor relationship with their parents, on the other hand, exhibit higher maladjustment and deviant behavior. According to a Taiwanese study (Huang and Prochner, 2003), low achievement motivation and bad learning attitudes were linked to rejecting and inconsistent parents. As a result, the following hypothesis has been developed:

H2: Parental self-efficacy is positively associated with early childhood learning outcome.

Mediating Role of Parental Self-Efficacy Between Parenting Style and Learning Outcome

In the current study parental self-efficacy mediates between the relationship between parenting styles and learning outcome. Parental self-efficacy is another key theoretical construct for understanding influences on parental participation. It is a powerful predictor of parent behavior, with parents who feel more efficacious in their parenting position more likely to engage in parenting actions that are crucial in improving children's social, emotional, and behavioral development (Zeb et al., 2021). High PSE is linked to parents' use of a variety of optimal parenting strategies throughout childhood, including maternal sensitivity and responsiveness to children's needs, warm and affectionate parenting behavior, and monitoring, according to comprehensive descriptive reviews. Low PSE, on the other hand, has been linked to coercive or harsh parenting as well as a proclivity to give up when faced with parental obstacles. While PSE has been associated to increased participation in home learning activities such as reading and helping with homework with older children. Previous research on the relationship between PSE and engagement in play, learning, and home activities with younger children is limited (Giallo et al., 2013).

Parental self-efficacy can have a direct impact on a child's adaptive ability, but it can also have an indirect impact on a child's adaptive capacity due to their parents' engagement behavior. Parents with a high PSE score have fewer negative emotions and are more confident in dealing with challenging parenting situations, which benefits their children's learning (Zeb et al., 2021). It is critical for children's development that parents establish a cognitively stimulating home learning environment. According to previous research, PSE moderated the association between parents' positive perceptions (e.g., individual

FIGURE 1 | Conceptual model.
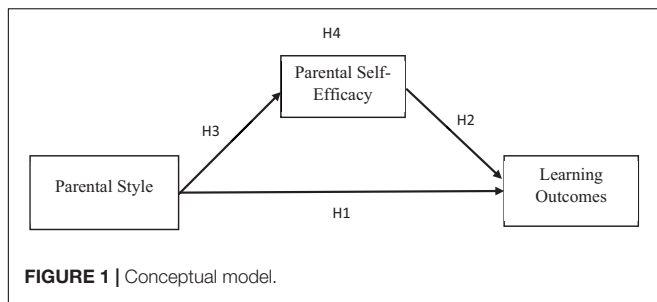
teacher invitations and general school invitations) and children's achievement. Parents' self-efficacy also plays a mediating function in parents' negative emotions (e.g., parental stress) and parenting practice behaviors, according to previous research, which can help to mitigate the detrimental impact of parents' emotions on parenting practice behaviors (Liu et al., 2022).

The purpose of this study was to determine the impact of parental participation on children's learning outcomes among Chinese children, as well as the role of parental self-efficacy as a mediating factor. In the domains of education and psychology, it is increasingly recognized that parents have a considerable impact on their children's learning and development. Academic achievement is very important to Chinese parents, and they expect their children to work hard in class. In this regard, parenting was defined as a series of actions and interactions between a parent and a child that had the potential to affect one another until the child reached adulthood. Parents were figures who played a vital role in the process of parenting, and they were obliged to continue to support and nurture their children's growth, not just physically but also emotionally (Dewi and Indrasa, 2017). According to Martin and Colbert (1997), gender, childhood background, and parental beliefs are among the characteristics that can influence the parenting process. Gender influences the parenting process since it is assumed that moms and dads have a closer relationship. Another component determining parenting is childhood background, and the third factor is parental belief. According to Martin and Colbert (1997), beliefs are the most essential since they influence a parent's values and behavior. Despite the fact that their confidence originates from nature, and their function as a parent has been influenced by their experiences since childhood, the shape and level of their confidence will change depending on how individuals perceive them (Martin and Colbert, 1997). As a result, the purpose of this study is to look into the impact of parenting style on learning outcomes among Chinese children, as well as the role of parenting self-efficacy as a mediator as presented in **Figure 1**. The above literature leads us to hypothesize that:

> H3: Parenting style is positively associated with Parental self-efficacy.

> H4: Parental self-efficacy mediates the relation between parental style and learning outcomes.

RESEARCH METHODOLOGY

Self-administered questionnaires completed by presents of early child's school students studied in different school located in China. The purposive sampling was used (Etikan et al., 2016), and data was gathered in 3 months, from January 2022 to March 2022. The data was gathered at a time, and therefore, the study is cross-sectional (Kesmodel, 2018). Author first gets the permission of their school boards and administrators, were used to collect data for this research. After class, students received a packet that included two surveys for their parents, as well as a cover letter. When the cover letter outlined the study's purpose, to better understand the role of parents in children's education it asked each parent whether they could complete their own questionnaire without consulting the other. Students returned the completed surveys for their parents to school.

According to G* power software, the minimum sample size necessary for this research is 119 respondents to achieve a power of 0.95 and a medium size effect of 0.15 (Faul et al., 2007). However, the researchers obtained data from 235 parents, exceeding the required sample size. A total of 290 surveys were distributed, and 250 parents returned the survey. After the deletion of incomplete responses, 235 surveys remained useable, representing an 81.03% response rate. The response rate was quite encouraging in the difficult Covid-19 pandemic situation. Out of the 235 parents, 150 mothers and 85 were fathers completed the surveys. Majority of parents age from 35- to 50 years, had a had a degree from a college or university, and household income more than $60,000 to $80,000 United States dollars.

The questionnaire consisted of a total of 58-items, including: a 30-items scale developed by Robinson et al. (1995) was used to measure parental style the independent variable, and a 20-items scale was used for dependent variable children's learning outcomes adopted from Ajibade et al. (2020). For the mediating variable parental self-efficacy 8-items scale adopted from Liu and Leighton (2021). All scale evaluated based on five-point Likert scale, comprising 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree).

RESULTS

The analysis was conducted with the help of Smart PLS v.3.0 (Wong, 2013). The variables of the survey questionnaire are evaluated and the instrument is made accurate during the first phase of the measurement model. Based on the bootstrapping approach (T-tests for 5,000 sub- samples), Hair et al. (2017) determined whether or not factor loadings, weights, and path coefficients were statistically significant for each variable. Factor loadings assessments are carried out, as well as Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) analyses. The validity of explicit indicator hypotheses may be determined by their factor loadings, which indicate that loadings greater than 0.50 on two or more variables are substantially reflected (Hair et al., 2011). As a result, the three variables and parental style, parental self-efficacy, and learning outcomes all provide valid measurements of their respective

TABLE 1 | Measurement model.

Constructs/ Items	Factor loadings	Cronbach's Alpha	rho_A	CR	AVE	Source
Parental style		0.937	0.942	0.944	0.520	Robinson et al., 1995
Ps1	0.524					
Ps2	0.554					
Ps3	0.589					
Ps4	0.735					
Ps10	0.579					
Ps11	0.598					
Ps12	0.655					
Ps13	0.664					
Ps14	0.533					
Ps15	0.648					
Ps17	0.738					
Ps18	0.726					
Ps19	0.718					
Ps20	0.744					
Ps21	0.745					
Ps22	0.742					
Ps23	0.771					
Ps24	0.730					
Ps25	0.747					
Ps26	0.631					
Ps27	0.731					
Ps28	0.727					
Ps29	0.633					
Ps30	0.554					
Learning outcomes		0.936	0.945	0.944	0.564	Ajibade et al., 2020
Lo1	0.714					
Lo2	0.762					
Lo3	0.724					
Lo4	0.746					
Lo5	0.764					
Lo6	0.756					
Lo7	0.785					
Lo8	0.581					
Lo9	0.763					
Lo10	0.768					
Lo11	0.788					
Lo12	0.799					
Lo13	0.902					
Lo14	0.789					
Lo15	0.619					
Lo16	0.659					
Lo17	0.536					
Lo18	0.558					
Lo19	0.704					
Lo20	0.773					
Parental self-efficacy		0.812	0.863	0.865	0.570	Liu and Leighton, 2021
Pse1	0.821					
Pse2	0.811					
Pse3	0.816					

(Continued)

TABLE 1 | (Continued)

Constructs/ Items	Factor loadings	Cronbach's Alpha	rho_A	CR	AVE	Source
Pse4	0.794					
Pse5	0.832					
Pse6	0.707					
Pse7	0.695					
Pse8	0.729					

TABLE 2 | Discriminant validity through Heterotrait-Monotratit (HTMT).

Constructs	Learning outcomes	Parental style	Parental self-efficacy
Learning outcomes			
Parental style	0.780		
Parental self-efficacy	0.646	0.715	

TABLE 3 | Coefficient of determination in the PLS method.

Constructs	R Square	R Square Adjusted	Q^2 (= 1- SSE/SSO)
Learning outcomes	0.875	0.874	0.398
Parental self-efficacy	0.535	0.533	0.243

variables, as seen in **Table 1**. According to Hair et al. (2020), AVE value is must be greater than 0.5 and the CR and Cronbach's Alpha are more than 0.6, then variable's convergent validity is accepted. Hair et al. (2020) developed a strategy for excluding items with factor loadings between 0.40 and 0.70 from assessment if excluding observed variables increases AVE and composite reliability values in reflective scales. Thus, items PS 5, 6, 7, 8, 9 and 16 for parental style were deleted for the increased of AVE values. By deleting particular items, factor loadings, Cronbach's Alpha, CR, and AVE calculations will exceed the recommended cut-off values. The **Table 1** shows the measurement model that has a convergent validity.

Furthermore, the Henseler et al. (2015) proposed Heterotrait-Monotratit (HTMT) approach was applied. The discriminant validity of the HTMT approach was evaluated in two ways. To begin, the threshold value was determined using HTMT. A value greater than the HTMT threshold value demonstrates the absence of discriminatory validity. The precise HTMT cutoff value is controversial "when the correlation is near to one." Some researchers have offered a threshold value of 0.85 (Ab Hamid et al., 2017), while others have suggested a value of 0.90 (Henseler, 2017). Second, discriminant validity was assessed and established by examining the confidence intervals around the HTMT values that were less than one. When the value 1 is removed from the interval range, it demonstrates that the variables are empirically clear. According to **Table 2**, the HTMT values for all constructs are less than 0.85. As a result, this research accepts discriminating validity.

After the measurement model has been calculated, the structural equation model of the observed data is constructed. With the use of bootstrapping technique, we were able to find

TABLE 4 | Results of the structural equations model.

Hypotheses	Relationship among constructs	β	M	S.D.	T Values	F Values	*P* values	Remarks
	Direct effect							
H1	PS - > LO	0.129	0.132	0.043	3.036	2.515	0.002**	Supported
H3	PS - > PSE	0.786	0.790	0.021	38.175	1.153	0.000***	Supported
H2	PSE - > LO	0.824	0.822	0.037	22.027	1.178	0.000***	Supported
	Indirect effect							
H4	PS - > PSE- > LO	0.786*0.824 = 0.648	0.650	0.036	18.177		0.000***	Supported

PS, parental style; LO, learning outcomes; PSE, parental self-efficacy; S.D., standard deviation.
*p < 0.05, **p < 0.01, ***p < 0.001.

significant correlations between the variables. We employed the method proposed by Henseler (2017), to investigate the relationships between the parental style and learning outcomes through mediating role of parental self-efficacy. Therefore, consequently, four particular criteria were utilized to examine the direct and indirect impacts of the structural equation model: To begin, we examine every construct. The degree of R^2 for endogenous latent variables is used to estimate the variance for each construct (Hair et al., 2017). An adequate assessment of R^2 may be conducted depending on the research arrangement (Cohen, 1988). High, medium, and low scores were calculated as follows: 0.26; 0.13; and 0.09. Despite this, the direct effect model in the current study has a 53.5% R^2 value for the endogenous variables of the defined parental self-efficacy, which means that 53.5% of the change in parental self-efficacy is predicted by parental style. Moreover, R^2 value for early childhood learning outcomes is 0.875, which suggests that 87.5% change of learning outcomes is predicted by parental style and parental self-efficacy. Therefore, **Table 3** indicate, the model shows a reasonable predictive accuracy.

Secondly, a cross-validation redundancy (Q^2) was employed to evaluate the accuracy of the research model in identifying its significant aspects in order to establish predictive significance (Hair et al., 2017). As shown in **Table 3**, the direct impacts of each of the above-mentioned factors on early childhood learning outcomes are represented by $Q^2 = 0.398$ and parental self-efficacy $Q^2 = 0.243$, which indicates that the value of Q^2 is greater than zero. Hence, the model's appropriate predictive relevance can be considered (Henseler et al., 2015). The findings also support the direct hypotheses H1 H2 and to H3, the direct effect of parental style on early childhood learning outcomes is positive and significant (β = 0.129, *p* < 0.001), Furthermore, the direct effect of parental style on parental self-efficacy has positive and significant impact (β = 0.786, *p* < 0.000) and parental self-efficacy on learning outcomes (β = 0.824, *p* < 0.000), this suggests that the hypotheses H1, H2 and H3 have been accepted.

In addition, the effect size (f^2) is the impact of an independent variable on the dependent variable to estimate the magnitude of an exogenous (independent variable) effect on the endogenous (dependent variable) (Hair et al., 2017). An effect size (f^2) estimates between 0.02 and 0.15 or 0.35, according to Cohen (1988), reflects medium, small and large effects, respectively. **Table 4** indicated the effect size as follows: 0.515 for PS to LO, 1.153 PS to PSE and 1.178 PSE to LO. The findings show that

these exogenous factors have a medium and large impact on the endogenous variables, respectively. Finally, the **Table 4** presented that the indirect mediating effect of parental self-efficacy on the relationship between parental style and learning outcomes is positive and significant (β = 0.648, *p* < 0.001). Therefore, hypothesis 4 is accepted.

DISCUSSION

The current study looked into the effect of parental involvement on early childhood learning outcomes as well as the role of parental self-efficacy in mediating this effect. The academic engagement of students can be influenced by parental actions. Song et al. (2022) looked at how parent participation affected the social and academic functioning. Izzo et al. (1999) used a 3-year longitudinal design to examine several aspects of parent involvement, including the number of educator contacts with parents, the quality of those interactions, parents' participation in school activities, and parents' involvement in home activities to help their children develop socially and academically. Tan et al. (2022) studied how these parental involvement variables influenced students' school engagement, which is particularly relevant to this topic. Students' engagement was assessed by looking at their attention-getting activities, work habits, task orientation, operating in the face of distractions, frustration tolerance, and ability to cope with failure. Parents' involvement in school activities was found to be a favorable predictor of student engagement. Surprisingly, higher levels of parent–teacher communication were linked to lower levels of school involvement (Gonzalez-DeHass et al., 2005). The parent involvement rating scale, parental sense of competence scale, and student assessment of learning gains scale were all employed in the study.

The following hypotheses had to be tested: First, there would be a significant link between parental involvement and learning outcomes. The findings demonstrated a strong, beneficial relationship between parental participation and learning outcomes. Parents who are more involved in their children's activities at home and at school have higher results. According to research (Epstein, 1992), parental participation is positively associated with children's achievement and motivation to learn. Previous research has demonstrated the significance of parents' educational goals for their children. In both primary and secondary schools, high parental ambitions are

closely linked to student accomplishment (Catsambis, 2001). Parental participation has been shown to improve students' math proficiency and accomplishment, as well as advances in reading ability and performance on standardized examinations and academic evaluations. Furthermore, parental involvement has been linked to fewer behavioral issues at school, improved attendance and class preparation, course completion, and decreased dropout rates (Fan and Williams, 2010).

Second, there would be a significant relationship between parental self-efficacy and the learning outcome. The findings demonstrate a positive relationship between parental self-efficacy and learning outcomes. Parental self-efficacy is described as parents' opinions of their abilities to positively impact their children's behavior and development in the field of parenting. Parental self-efficacy can be characterized in terms of schooling as parents' belief that they can have a positive impact on their children's learning and academic accomplishment. PSE has been connected to parental educational methods, which have been extensively researched. According to previous research, mothers and fathers with strong parental self-efficacy are more involved in their children's everyday learning and play activities. Several studies have found that when parents have high hopes and expectations for their children, they achieve higher academic achievements and stay in school longer than when their parents have low aspirations and expectations (Tazouti and Jarlégan, 2019).

Third, there would be a significant relationship between parental self-efficacy and parental involvement. According to research, parental self-efficacy is linked to a better knowledge of the role of parents and boosts parents' monitoring of their children's schooling. Parental self-efficacy, parental involvement in their children's education, and academic accomplishment are also linked. PSE also predicts parental involvement and monitoring, which predicts adolescent academic adjustment. Previous research has demonstrated a strong relationship between PSE and parental involvement. Both parents had a deep connection, but the mother's was stronger. There have been few previous studies that have looked for empirical correlations between these two ideas. According to a prior study, PSE is linked to parents' knowledge of their role in their children's education and leads to parents being actively involved in their children's education (Tazouti and Jarlégan, 2019). Finally, there would be a considerable link between parental involvement and children's learning outcomes, with parental self-efficacy serving as a mediating factor. The findings are consistent with earlier research. High PSE is linked to parents' adoption of a variety of optimum parenting practices throughout childhood, including maternal sensitivity and responsiveness to children's needs, warm and affectionate parental behavior, and monitoring, according to comprehensive descriptive studies. Low PSE, on the other side, has been linked to coercive or harsh parenting, as well as a proclivity to give up easily when faced with parental difficulties (Giallo et al., 2013). According to research, parents that have low parenting self-efficacy experience bad outcomes in their parenting. Low parenting self-efficacy was discovered to have a negative impact on parental behavior toward their children. According to the Indonesian Child Protection Commission

(Setyawan, 2015), violence against children in Indonesia has increased over time, with the primary perpetrators being their own parents. The main reason for this was because parents felt they had failed and were no longer capable of caring for their children, so they vented their frustrations by using violence on their children when they made mistakes. In fact, research shows that parents with high parenting self-efficacy view parenting challenges as a challenge rather than a threat, which can lead to them harming their own children. Parental participation has a substantial association with parenting self-efficacy, according to previous study (Dewi and Indrasa, 2017).

CONCLUSION

The purpose of the present study was to investigate the effect of parental involvement on children's learning outcomes as well as the role of parental self-efficacy as a mediator. Findings of this study supported our hypothesis of parenting styles, learning outcomes and parental self-efficacy having a significant positive relation. The results revealed that parental participation had a considerable impact on learning outcomes in Chinese students. The study findings also affirm that there is a significant positive relation between parental self-efficacy and learning outcomes. From this study it can be inferred that those students who have parental involvement in their education are more likely to take personal responsibility for their education as compared to others. Besides that, students adopt a mastery goal orientation to learning when their parents show an interest in their child's education by getting involved. Moreover, those parents who are not aware regarding the needs of students at educational level leads to negative impact on the children's learning outcome. Therefore, in future studies, more targeted initiatives are needed to help parents develop their knowledge and abilities to give educational support to their children at various stages of schooling. Likewise, programs that promote the parent as teacher model offer the parents a variety of opportunities to learn skills that will help them believe in their own efficacy.

Both parents and teachers will benefit from this research in the future. As a result of this study, parents get understanding and awareness of engaging in activities that result in a more balanced parenting style in order to improve children's learning outcomes. Moreover, recognizing effective parenting styles can aid in the development of children's developmental needs, as well as their academic achievement and future professional prospects. Each parenting style has an impact on the social and psychological lives of children. The psychological control is what distinguishes each parenting style from the others. Therefore, it is the responsibility of parents to provide a parental environment and resources that are more conducive to academic success for their children.

The study's limitations should also be considered because they direct researchers to use these procedures in future research. The current research contributes to a better understanding of the factors that influence children's learning outcomes. But cross-sectional design of the study is a limitation. Although cross-sectional designs aid in the prediction of relationships, they are unable to capture transitions that may affect the variables'

associations. Therefore, in future researches other methods will be used to further explore these variables.

Theoretical Implications

This study makes an important contribution to the body of literature. According to the previous studies, parental self-efficacy is defined in the field of parenting as parents' beliefs about their ability to positively influence their children's behavior and development. Additionally, parental self-efficacy in schooling can be defined as parents' beliefs that they can have a positive influence on their children's learning and academic achievement (Tazouti and Jarlégan, 2019). According to previous research, mothers and fathers with strong parental self-efficacy are more involved in their children's everyday learning and play activities.

Practical Implications

The present study includes several implications. Parental involvement plays a significant role in learning outcome of children at educational level. The findings of this study will be helpful for parents in evaluating their parenting styles. It will provide parents an insight to be more capable and eager to become active if they want to effectively affect their children's education. Besides that, parents' experiences such as feeling tired, receiving harsh comments and frequently giving in to children's demands, are all associated to lower parental self-efficacy. These are the factors that should be consider while providing training and awareness session to the parents. Furthermore, when parents are involved as a resource for academic activities at home, the connection between the school and home environments is strengthened. As a result, the child feels more capable of mastering academic tasks at school. Therefore, parents can help their children learn new content by assisting them in scaffolding new concepts. When children see their parents as role models and trusted learning partners, they are better able to appraise their own talents and performance.

This study will not only prove beneficial that parental support provides a sense of security and comfort in an unpredictable culture as the child strives for growth and self-development. Also, effective when parents are involved, they may establish limits, encourage their children, and provide resources as they face the academic, social, and personal obstacles that each day brings. Moreover, when parents go to parent-teacher conferences, open houses, and other school events, they show that they care about their children.

Understanding social learning theory and how to apply it to self-efficacy development through regulating exposure to sources of influence can be extremely beneficial to practitioners. Furthermore, practitioners can increase local parenting support by adopting practices that are congruent with the establishment of environments rich in positive sources of self-efficacy by developing an awareness of parental self-efficacy experiences in a community. This kind of behavior could affect how parents and children interact with each other and, in turn, how children and communities grow and change over time. Lastly, this research can also support future researches as it provides a new perspective to the relationship between parenting styles, learning outcome and parental self-efficacy among Chinese students.

Limitations

The following are the study's limitations. First, data from both parents in the family was unavailable, making it unable to run more complicated models involving both parents and make within-family comparisons. More research in this area and the addition of child outcomes would help us learn more about how family relationships affect how children grow and develop. In addition, the sample size was small, limiting the generalizability of the present study.

Future Suggestions

The recommendations for future researchers are listed below. First, the schools can help parents create a welcoming and comfortable learning environment for their children. Besides that, teachers and schools should strengthen their control and warmth with students in order to drive children to improve their academic performance. Second, it is envisaged that future studies will be able to explore the aspects other than the person and their family context that influence learning outcomes, such as peer group and school environment. Third, future research will include qualitative researches with students to go deeper into the subject and also examine the relationship of study variables with demographics.

Moreover, research is needed to determine how mothers' and fathers' working hours and employment conditions affect their participation in a variety of play, learning, and caregiving activities with their children. As a result, future parenting programs could focus on raising parents' understanding of the need for both parents' involvement in expressive activities and mentoring/advising duties. This could help them boost their parenting self-efficacy even more. Lastly, academic progress is associated to parenting involvement in a significant way. In this context, additional study on parenting styles, learning outcomes, and parental self-efficacy across cultures is needed to examine the differences in parenting styles. Furthermore, the use of a longitudinal study would be beneficial in analyzing changes in people's perceptions of their parents and different parenting styles over time.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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 from the patients/participants or patients/participants legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

CK wrote the manuscript. FY performed review editing and submission. Both authors contributed to the article and approved the submitted version.

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Exploring the Motivational Factors for International Students to Study in Chinese Higher Education Institutions

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China has witnessed a remarkable surge in the enrollment of international students in recent years and the state government has made a massive investment to build key universities of international repute. These trends made it imperative to investigate the underlying motivational aspirations of foreign students arriving from diverse regions to get enrolled in public sector Chinese universities. The present study designed an in-depth survey questionnaire and collected data from 618 foreign students enrolled in postgraduate programs at seven key state universities in the Hubei province of China. The item-based, dimension-based, and variable-level analysis approach is used to systematically uncover the facets of the internationalization of Chinese higher education in the current setting. In so doing, we employ descriptive statistics, principal component analysis, ANOVA, correlation and regression estimations, and path models to ensure the robustness of empirical outcomes. In light of the push and pull factor model regarding motivational factors for foreign students to study in China, the findings of this study assert that academic pursuits mainly dictate the international student's decision to attain higher education in China. While obtaining a foreign degree, international image prestige, and better employment prospects after the completion of the degree were the key intentions that mainly shape the students' decision to get enrolled in Chinese universities. Furthermore, the discriminant analysis posits that international students significantly differ in their motivational dimensions to obtain a higher degree from China. As foreign students from Asia and Africa mainly have academic goals while Europeans and Americans predominantly have pleasure and enjoyment motives to study in China. The outcomes of this research can assist Chinese administrators to understand the key motivational factors for foreign students to study in China and devise a policy accordingly to attract high quality foreign talent.

Keywords: international students, motivation, higher education, Chinese universities, ANOVA

INTRODUCTION

Since the adoption of the reformation and official launch policy in 1980, the phenomenal rise of China's economy has piqued the interest of many countries when it comes, to commercial, and educational cooperation. International students' mobility is a cornerstone of internationalization around the globe. Accordance to the Organization of Economic Corporation and Development

(OECD), "the global demand for international higher education is set to grow by 7.2 million students by 2025." Countries and institutions must satisfy these students' aspirations in order to compete in the global market by creating rigorous strategies and policies that include a financial investment in the students' enrollment (James and Yun, 2017). The active mobilization of students embarked on demographic, economic, and socio-linguistic structures (Li et al., 2020). Since 2011 China became the world's second-largest economy, Because of its economic strength and expanding home market, it has played a unique position as a hub for regional commerce, economic growth, and integration into Asia and Africa (Xing, 2019).

Globalization of education in China went through several stages in accordance with globalization trends and to strengthen cultural, political, and economic relations between China and the rest of the world. By 2018, about 500,000 international students were obtaining higher education from China, with 70% of them coming from Africa and Asia (Ministry of Education of the People's Republic of China, 2020). According to the most recent scenario, the Chinese government's international education plan for the decade 2010–2020 aimed to gradually increase the number of foreign students, and by 2020, the government plans to accept more than 500,000 foreign students, 150,000 who are now expected to be research students enrolled in graduate and postgraduate programs. In order to meet these targets, Chinese institutions accelerated the enrollment of scholarship and self-finance students, and China enrolled 397,635 overseas students in 2015, making it Asia's largest host country (MOE, 2016; Xing, 2019).

The attainment of education specifically higher education in a foreign country is becoming an educational trend in recent times which is perhaps the reason that the worldwide mobility of students has increased dramatically (Vázquez et al., 2014). The students who decide to pursue foreign education have to experience difficulties in adjustment and adaptation to a new environment. Mainly adjustment and adaptation problems were related to psychological, educational, and socio-cultural issues. Despite these concerns, the inclination toward foreign education is rising exponentially mainly because of accessible resources, equitable opportunities, and flexibility in educational policies. It motivates the students to be enrolled in foreign educational programs that lead to short-term stay abroad or permanent migration. The reasons or motivational factors behind foreign mobility are not explored much, particularly about deciding to go abroad, stay and study there (Lauermann, 2015).

Students' choice to study abroad is considered as a first stride toward the most important revolution in their academic career mainly for those whose degree necessitates staying for an extended time period (Ward et al., 2020). The decision to study abroad implies an educational experience in a foreign academic system that generally leads to an advancement in the academic stage like from graduate to postgraduate stage. On top of it, this decision entails facing challenges of a different and new environment, sociocultural change, and psychological efforts of adaptation (Selvarajah, 2006). The term "motivation" in this perspective is explained as every effort or activity undertaken for the decision to acquire foreign education

may become a reason for students' choice to foreign study. The factors of motivation mainly consisted of values, goals, and expectations. Hence, students generally to decide study abroad for the fulfillment of their goals or to accomplish their values and expectations. Educational policies and students' academic backgrounds also work as motivational factor that affects the students' study abroad decisions (Lauermann, 2015). Likewise Gbollie and Gong (2019) observed that availability of scholarship, easy visa entry requirements, and perception of quality education are the important push and pull factors for foreign students to opt China as their study destination.

Students have a variety of reasons for studying abroad like job opportunities, culture, social understanding, and immigration. Min et al. (2012a) classified students' motivation for study abroad into two main categories. The first one is acquiring quality education and the second is looking for better career opportunities such as jobs, immigration chances, settlement, and to broaden exposure and social experience. Chirkov et al. (2007) recognized two main objectives of students that motivate them to study abroad that are preservation objective and self-development objective. The preservation objective comprises activities and efforts that were undertaken to escape from problems in the home country to ensure one's safety. While self-development objective includes endeavors such as getting a quality education and better job opportunities. Chirkov et al. (2008) identified that students who independently decided to study abroad for higher education and settlement purposes were much more satisfied and successful as compared to those who moved abroad unwillingly and merely due to the pressure of family, and people, or society.

China is the most attractive platform for international students. China's international higher education department is a global player worthy of attention and is changing rapidly in a fast-growing economy (Peters et al., 2020). The Chinese government is spending millions of dollars in terms of grants and scholarships to foreign students as the government provided scholarships to 40,600 foreign students enrolled in degree programs in 2015 which makes up for 89.38% of total degree students studying in China (MOE, 2016). This shows massive investment on the part of the Chinese government in an attempt to internationalize its educational environment. Among the very aims of the internationalization plan implemented by the government, creating some top-ranked universities in various disciplines by inviting the world talent, upsurge innovation, and research productivity in order to transform China from a knowledge user to a knowledge-producing country and bringing Chinese higher education system at par with the developed world are some of the important objectives that the government aspire to achieve through these educational investments. Furthermore, the Ministry of Education of the People's Republic of China (2020) reports that in 2018, China had over 492,000 students from 192 countries studying in 31 provinces, with not all of them receiving government or institutional funding for their studies. This depicts that China is now becoming the most powerful market for international students. Besides, the inbound foreign students in China were found to bring in economic

benefits by significantly boosting foreign direct investment (Lin et al., 2020).

In the backdrop of these assertions, it is important to examine the motives of foreign students coming to China specially to pursue a graduate or postgraduate degree program. The contribution of this research lies in the fact that it empirically examines both academic and non-academic motives of international students to opt China as their study destination. The outcomes of such investigation will assist Chinese HEIs in identifying the underlying aims of foreign students hence enabling them to enhance their particular services to ensure a more fulfilling learning experience. In addition, as postulated by previous researchers that pre-enrollment motivation can influence the level of satisfaction of the students (Yasmin et al., 2021), the present study investigates whether foreign students with a higher level of motivation to pursue their studies in Chinese HEIs experience higher satisfaction and vice versa. The current drift of literature uses survey research methods to explore the motivational factors, especially for Master's and Ph.D. degree students to study in the Chinese host universities. For determining the key motives behind foreign students' motivation to select China as their study destination and their perceived degree of satisfaction, and adapted Five points Likert scale was used to obtain the responses of foreign students. A total of 618 questionnaires were collected and analyzed from Masters and doctorate students enrolled in the seven public sector universities of Wuhan, China. Respondents respond to the dimensions of academic and education quality, personal and financial security, career and migration, pleasure and experience, and other motivational factors.

The contribution of this manuscript is twofold. China has emerged as an international education market. It has overtaken the United Kingdom and it is the second-largest host of international students' population (Cai, 2020). Firstly, a large stream of literature in the context of China focused on the satisfaction level of foreign students with the studies in China but has ignored the evaluation of the motivational factors for the foreign students to study in Chinese Universities. In view of the increased incursion of China in regional and world political and economic scenarios and a massive influx of international students in China in recent years makes it is imperative to know about the motivation of students in choosing China as a study destination and their current experience and satisfaction while studying in China. Notwithstanding, China is a vast international education market and there is a rapid influx of international students, it is imperative to investigate the motivational factors to figure out the sustainability of the Chinese international higher education system. Hence, this study is an endeavor to construct a bridge between the stream of foreign students in China and the sustainability of the Chinese international higher education system by determining the factors that motivate these students to study in Chinese universities. Secondly, to ensure the accuracy of this study, we use a bottom-up approach by using descriptive, reliability, principal component analysis (PCA), and analysis of variance (ANOVA) techniques to conduct the analysis.

The rest of the paper is constructed as follows. Section "Literature Review" discussed the theoretical underpinnings and literature review. The research methodology is discussed in section "Materials and Methods". Section "Data Analysis and Interpretation" depicts the results and discussion. Conclusion along with policy implications and suggestions are given in section "Conclusion".

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Literature Review

Several motivational theories such as the expectations framework, cognitive and social theory, and need-based theories like self-determination or autonomy theory resolve the ambiguities in acquiring foreign education. Despite concentrating on particular goals or reasons to acquire foreign education, these theories reflect the more general principles that lead the students toward varied academic opportunities or selections (Wigfield and Eccles, 2000). As per the expectations framework, these principles just consist of the interaction among expectations of students to succeed if the students avail the given opportunity such as acquiring foreign education and values of students linked with this selection like cost-benefit analysis that involve efforts to increase the job chances because of foreign education and accomplishment value such as self-efficacy (Eccles and Wigfield, 2003). This framework supplements the prior-reviewed research in several ways. Firstly, the values and expectations theory is very crucial to determining the decision-making of students. This suggests that although the majority of the students significantly value the study abroad as the result of the push/pull model, the students will not prefer to be engaged in foreign education programs if they have any doubt of failure. It provides further insight about push/pull factors that these factors may not be sufficient to describe the individual decision-making of students' consideration to acquire a foreign degree (Mazzarol and Soutar, 2002; Macready et al., 2011).

Secondly, however, the expectation factor is usually neglected; several push/pull factors and identification of goals related to studying abroad are relevant to the value aspects of the discussed framework. This involves such as perception of cost (expenses or funds), usability (acquisition of quality education and job chances), and concentration or interest (the availability of chance to know and experience the diverse culture) (Mazzarol, 1998; Wilkins et al., 2011). Thirdly, the pre-enrollment expectations theory is also related to this viewpoint. For example, Goldstein and Kim (2006) claimed that the components of the value system like expected pleasure and joy from the foreign education experience and the expectancy to interact with diverse people are the positive predictors of the foreign education program. The expectation of success is a very important factor in the theory of value expectancy as well as in the theory of social cognition. According to social cognition theory, academic choices draw a solid impact and have a strong influence on the supposed self-efficacy of students.

The self-efficacy of students is the perceived competence to perform a required course of action to accomplish a particular motive or goal. Thus, people with a higher level of self-efficacy have a strong belief in their abilities to succeed. These people are likely to establish quite tough and stimulating tasks and are

much interested in spending more effort and energy to overcome the difficulties. This attitude increases performance and success (Bandura, 1997). At the same time, low self-esteem leads to avoiding behavior such as the decision to stay in the home country despite having an interest to go abroad for studies. It is merely due to less trust in one ability that results in fear of failure inside. The significant antecedents of self-efficacy contain previous experience of achievement and failure, the effect of relevant societal orientation (such as perception of other people's successful experience of studying abroad) social inducement like the positive and encouraging attitude of parents, and psycho-physical responses like nervousness and fears associated with stay and study in a foreign country (Lee, 2008).

Similar to the expected value framework, the low level of self-efficacy related to foreign education describes the reasons for deciding not to move abroad for studies even with the presence and effect of push/pull factors. The students' age was also found influential in the decision making to travel abroad for study purposes (Simpson, 2010). Furthermore, this framework supplements the previous literature because numerous factors that describe the "inclination to foreign education" also link with antecedents of self-efficacy. It also involves previous education success and linguistic abilities, socio-cultural paradigm, the influence of parents and background of the family, and emotional responses to the varied cultural interactions (Goldstein and Kim, 2006; Salisbury et al., 2008). Thus, considering the influence of these antecedents, the concept of acquiring foreign education explained by the self-efficacy theory may be perceived as the mechanism of motivation that links with the process of personal decision to move abroad for studies. These links among antecedents and significance of motivational concepts establish the basic merits of research that deal with theories of motivation, as opposed to the models that focused only single concept. As well as it permits the researcher to establish theory-based assumptions to examine a blend of theoretically associated factors such as value-expectancy. Moreover, these theoretical paradigms can also help to establish significant mediation by creating scenarios that encourage the basic requirements of independence, competency, and association of individuals.

The international students' decision to study in a foreign country has been examined from several viewpoints. In the context of the educational market, the leading framework to identify the factors is known as "push and pull" factors. It is believed that the push and pull factors are probably more important in attracting international students to a specific institution or country (McMahon, 1992; Mazzarol and Soutar, 2002). Some supplementary approaches incorporate some other factors like the university selection model (Lee, 2008; Salisbury et al., 2008), studies on students' beliefs, pre-enrollment expectations before selecting any country (Chirkov et al., 2007), and their goals and motivations (Martin et al., 1995; Chirkov et al., 2008) before deciding to move abroad. These frameworks provide important perspectives of motivation to understand the reason for students' decision of taking foreign education. They basically draw attention to some particular motivational aspects rather than based on theoretical grounds of psychology. Amongst the aforementioned models, the push and pull factors

model more accurately elucidate the motivational elements for foreign students to study in Chinese HEIs and hence provides the conceptual basis for the empirical inquiry of this study.

The most prevalent and frequently used model of the foreign relocation of students to study abroad is based on the description and implications of "push and pull" factors (Altbach, 1998). Maringe and Carter (2007) described that mainly the process of students' decision making regarding studying abroad is influenced by the blend of push and pull factors. Push factors are based on the situations from which the individuals try to escape in their own country like inadequate academic facilities, economic, social, and security issues, etc. While pull factors are grounded on the individuals' preferred situations related to the foreign or host countries like a high level of academic quality and a better standard of living (Macready et al., 2011). The push factors strongly influence the overall decision of students to get enrolled in an abroad study program. Whereas, given the available opportunities, pull factors play a vital role in the choice of a specific country as a study destination (Mazzarol, 1998).

Another version of the push and pull model is a three-stage model which was introduced by Mazzarol and Soutar (2002). The model describes the decision-making phases of students to get registered in an overseas study program. The primary stage of the model represents that students' decision to foreign education rather than studying in their home country is shaped by the push factors. The second stage designates that students' selection of a particular country as their study destination is determined by pull factors. Henceforth, taking into consideration the available options, the selection of a specific institution for higher education from the host country is the last step in the decision-making process to study abroad. The push and pull factors are diverse. For instance, push factors are typically associated with inadequate academic opportunities and improper educational access in the home country (Li and Bray, 2007), and social and financial dissatisfaction in the domestic country (Mazzarol and Soutar, 2002; Macready et al., 2011). While pull factors apply to the recommendation and support provided by friends and family to move to study abroad, the host country's repute, economic matters like fees and living expenses during the stay abroad, and social concerns like discriminatory attitudes and style of living (Mazzarol and Soutar, 2002; Li and Bray, 2007).

The review of past studies in this area proposes that the three-stages push and pull factor model has been adopted in numerous researches, especially for students from Asian and African countries. The most significant push factors identified by the empirical studies are academic and job dissatisfaction arising from inadequate educational opportunities at home and inclination of the job market toward individuals holding a foreign degree (Wilkins et al., 2011). Additionally, the influence and pressure of family is another noteworthy factor in deciding to study abroad. The economic and political unrest in the domestic country is also a common issue (Pimpa, 2003). While, the most common pull factors are relevant to the provision of quality education, abundant employment opportunities, and a chance to be acquainted with a different culture in the host country. Besides, some scholars attempted to transform various recognized factors into organized categories, for instance, the

category of social and cultural factors encompasses similarities between the home and host country and geographical and cultural intimacy. The category of economic factors includes matters relevant to educational fees and living expenses in the host country. The category of political factors involved educational policy establishment and academic support (Naidoo, 2016). Though the vast majority of research is concentrated on a particular factor as compared to diverse categories and different subsections of that factor have been explored to understand the student's decision process.

Literature Review

There has been a significant emphasis given to providing the students with a broader interaction with the global business community over the past few years. The academic institutes acknowledged this situation by offering students different opportunities to seek foreign education especially by increasing the availability of various short-term and long-term programs to study overseas (Mills et al., 2010). There are multiple prospects available for the students to move abroad for pursuing education. Specifically, the increasing number of opportunities for international study programs provides social and economic benefits to the less privileged students. Students' participation in overseas study programs was found associated with an increase in their confidence and global understanding (Slotkin et al., 2012).

The study abroad programs may be short-term or long-term in nature. The short-term study abroad programs mostly involve students' movement for one or more than one semesters to a host country or to spend a summer in the host country without being entitled to complete the entire degree. The popularity of short-term study programs abroad has markedly increased and the reasons behind such a surge are perhaps the resources and economic issues confronted by the universities and colleges and also the budgetary limitations faced by the students as well as their families to afford a full-time long-term study program (Carley et al., 2011). The students in long-term study abroad programs are likely to be enrolled in master's or post-graduate degree programs to advance their qualifications in the host country. In recent times, there is another popular form of international education, such as studying on an international campus which is sited in the home country. This form of education provides foreign degrees to their students without students being spending their whole time abroad but are required to spend a limited time on the main campus located in the foreign country (Wilkins et al., 2011).

There is another important difference among students who take part in foreign study programs. This difference can be termed as some students have got any form of scholarship programs while others are known as the free movers and they are independent in organizing their study based on their own resources. An important and comprehensive study was conducted in Germany based on international students' motives to be there. The study findings posit that the majority of international students were free movers. These students mainly came from developing countries with a motive to migrate to a developed country and be enrolled in long-term study programs like post-secondary or postgraduate programs to expand their stay abroad. The free movers have three interesting distinctions. Firstly, these students have no financial support and guidance from the study abroad program. What is more, due to their long-term stay abroad they have to face challenging situations in their academic, psychological and sociocultural pursuits, therefore, completion of a degree becomes difficult for such students. Lastly, these students are the main target of the educational market because they are self-funded and open to relocation to any other country (Bhandari and Blumenthal, 2011).

The inclination amongst various forms of mobility is normally linked with international students' regions from which they belong. This background of international students affects their goals and motivations for the foreign study program. Lauermann (2015) cited that foreign students who come from developed and advanced countries are mostly involved in the short-term academic program while foreign students who engage in long-term educational programs are usually from developing or less economically advanced countries. In addition, studies found that students from advanced countries do not only prefer to undertake short-term educational programs over long-term educational programs but they also prefer social goals over academic goals (Mazzarol and Soutar, 2002).

Likewise, Llewellyn-Smith and McCabe (2008) evaluated the study abroad motives of international students registered in an international student exchange program in Australia by taking a sample from America and Europe. The results showed that availing the opportunity for enjoyment, fun, travel, desire to experience the changing weather, natural climate, and tourism are the reasons for mobility. Moreover, contrasting to the previous research on international students from less advanced and developing countries, the motive for career enhancement by studying abroad was not highly considered to be an important goal by these student's goals (Mazzarol and Soutar, 2002). The students taking part in short-term or exchange programs are considered educational tourists (Llewellyn-Smith and McCabe, 2008).

Another study comprised of international students from North and Latin America and Europe was conducted in Mexico. The outcomes of this study pointed out that the students from Europe and North America had shown their interest in the short-term study program and were generally excited about gaining study experience in Mexico rather than getting a degree. While the Latin American students had possessed high educational goals and were committed to completing the degree and also wanted to upgrade their academics (Cantwell et al., 2008).

In general, the above-discussed studies entail that the international students' region plays a vital role in decision making selecting a country for study abroad. Moreover, international students from advanced countries and less economically developed countries have different intentions and reasons behind their mobility to take part in short-term or long-term educational programs. Due to their diverse relocation motives, the international students can be categorized as short-term "non-degree" and academic tourists, program students (long-term) "degree students" and free movers (Solaun, 2003). The factors that influence the categorization of international students are mainly associated with the motivation of international students

toward foreign study programs like prioritizing their educational or social goals.

The sociocultural factors that absolutely predict the inclination to foreign education include respect for diverse cultures, excitement to meet new people and ideas, concentration in reading and writing, interaction with diverse people in the university, and participation in co-curricular activities (Sideli et al., 2015).

Yasmin et al. (2021) contended that the views of the old students of the concerned universities perform a vital role in the motivation level f the prospective students. Prior students' satisfaction level with the service quality of the institutions corroborates the motivation of the new applicants. Another study by Kim and Cocks (2021) wobbled the importance of the local built environment of the host countries to attract and retain international students in China. They argued that the quality of life offered by the host country plays a metamorphosis role in the motivation of the international students. Moreover, understanding languages play a vital role in the attraction and motivation of prospering students. Li et al. (2020) found that multilingual and transnational networks construct a gateway in the shifting paradigm of students toward China. In the Chinese mainland, technology will reshape the history of universities. Students' ambition to engender the new wave of technology is really widespread. The attainment of the elusive technology understanding motivates the influx of international students toward the market in China (Murphy, 2020).

Generally, the research on pre-enrollment expectations, goals, and motives of students put great stress on personal differences in the attitude of students toward their diverse beliefs about foreign education rather than considering the influence of students' economic, social, and cultural backgrounds. It reveals that the attitudes and belief systems of individuals can strongly affect the actual experience of students. This direction may point out the significance of applying the theory of motivation to study students' decisions of acquiring foreign education.

MATERIALS AND METHODS

Data Collection

We collected the data for this study from the master's and Ph.D. students enrolled in seven different universities in Wuhan, China. The justification for this selection is the consideration of this city as a Chinese educational hub due to the existence of numerous significant state-level colleges. Our sample includes 321 Asian students, 176 African students, and 150 European and American students (see **Figure 1**). This resulted in a sample size of 647 international students. Twenty-nine questions, however, were either incomplete or wrong. As a result, our final sample contains 618 valid questionnaires for data analysis. All of the selected universities are part of Project 211, which intends to build 100 significant Chinese universities for the twenty-first century, and thus receive preferential treatment and financial support from the Chinese Ministry of Education. The sample included all male and female foreign students enrolled in Master's and Ph.D. programs.

The researcher went to the universities in the sample to self-administer the questionnaire. The questionnaire was carefully filled out by the respondents. Foreign students' participation in the poll was fully optional and anonymous. Details of the selected universities and the description of the sample size is given in **Figure 2**.

This study was carried out using the survey research approach. This approach has the best level of generalizability when it comes to representing a bigger population. The collected data has a better understanding of the relative characteristics of the study's population. Because of the larger representative sample size obtained through this approach, it is typically easier to publish statistically vivid conclusions than when using alternative data. Procedures for gathering the examination of many variables can be carried out effectively by said research. Furthermore, for scientific research investigations, the survey approach is ideal since it provides a verified stimulus to all research participants (Douglas and Douglas, 2006).

Figure 3 includes information on various demographic characteristics of the sample respondents to aid in a better comprehension of the data in this study.

The foreign students' medium of instruction is listed below.

Instrument of Research

We organized a questionnaire to examine the motivational factors of the sampled students among the Chinese universities. The research instrument of this study was mainly divided into four parts. The first part asked questions from respondents about such personal attributes as gender, nationality, degree level, the name of the university, and medium of instruction. The second part of the questionnaire was designed to explore the deciding motivational factors of global students to study in China. The third part of the questionnaire was developed to explore the service quality dimension of sample Chinese universities. Subsequently, the last part of the questionnaire explores the overall satisfaction of global respondents from their practice of studying in China. The details of each dimension construction are given below.

(I) Academic and Education Quality, this dimension consisted of nine items that are mainly relevant to the motivational factors of foreign students' mobility such as acquiring a foreign degree, receiving quality education (Min et al., 2012b), completing the degree within due time, to get better teaching and research facilities (Zeeshan et al., 2013), to get the job due to upgrade their education (Min et al., 2012b), and increase in image and prestige at home country by holding a foreign degree.

(II) Personal and Financial Security, this dimension contained five items related to came China due to poor law and order situation in the home country, chose China because of safety reasons (Zeeshan et al., 2013), poor economic and employment conditions in the host country were the reasons to came to China, because of the reasonable amount of scholarship and came to study in China due to unemployment condition in the domestic country.

(III) Career and Migration contained five items to explore the motivational factors such as the opportunity to get a promotion in the current job due to study in China, finding a part-time
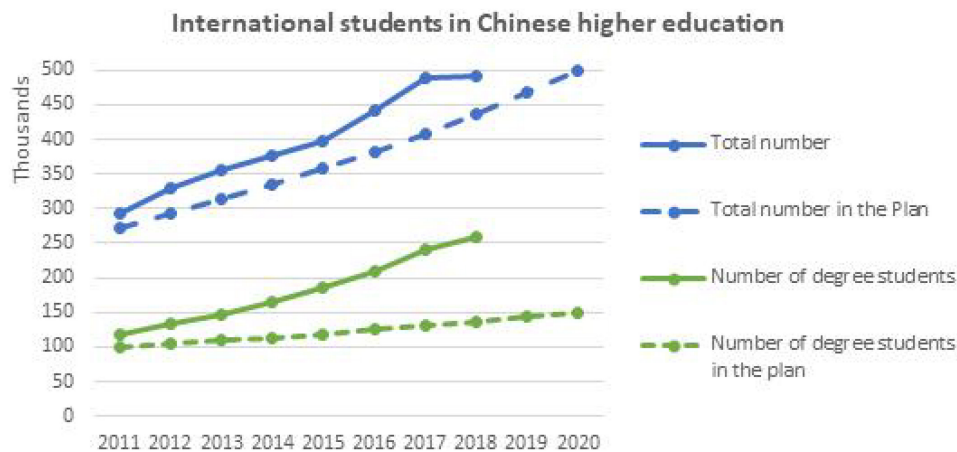
FIGURE 1 | International students statistics.
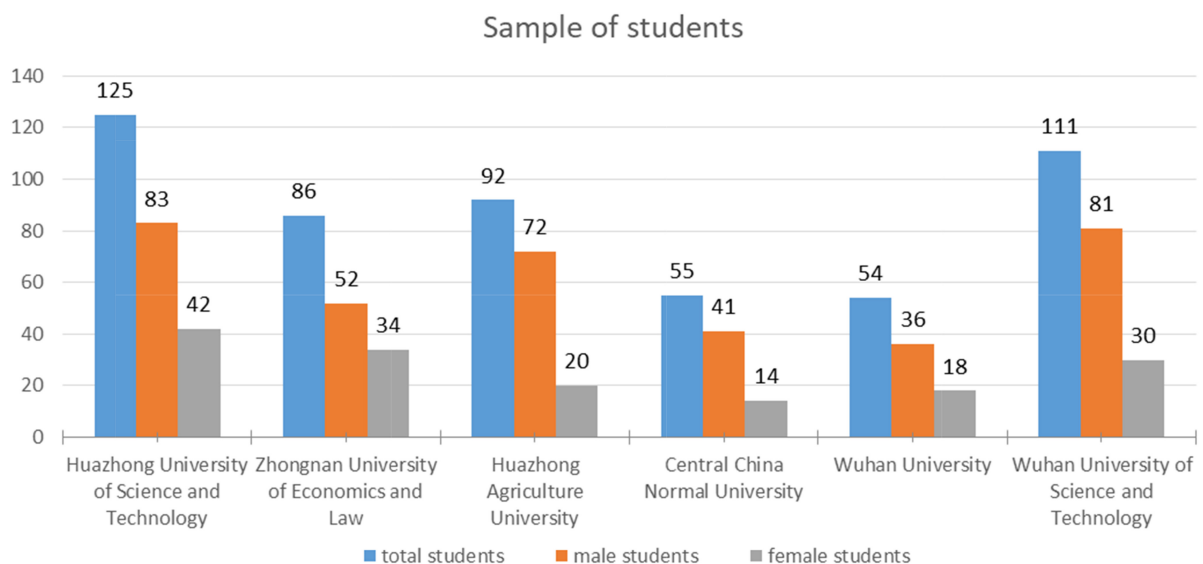
FIGURE 2 | Sample attributes.

job/business along with studies (Zeeshan et al., 2013), can gain the chance of English teaching experience while studying here, intend to find a job in China after the completion of degree and want to settle in China permanently (Min et al., 2012b).

(IV) Pleasure and Experience consisted of seven items intended to discover the motivational factors such as selecting China to study abroad due to having many tourist attractions, meeting people from different nationalities, removing the boredom from routine life, experiencing a different culture, to get away from stressful situations in the home country, to enjoy life as a foreign student and to come here in pursuit of an ideal life (Min et al., 2012b).

Other Motivational Factors were added to the questionnaire that includes six general items such as coming to China because funding agency/institution has sent here, moving to China because others (family and friends) invited to come here and

helped in getting admission (Zeeshan et al., 2013) and came here to learn the Chinese language.

Validity and Reliability

To extract eigenvalues and the variance explained by each component the principal components analysis technique was used.

Figure 4 explains the Eigenvalues and the variance explained by each of the components extracted through the principal component analysis. Eigenvalue explains how many dimensions or how many components could be extracted from a set of data. The benchmark for the Eigenvalue is usually a value greater than or equal to 1. The eigenvalues reported above signify that all of our five dimensions qualify the criteria as eigenvalue in all cases is greater than 1. The first component has the highest level of eigenvalue and explains the largest amount of
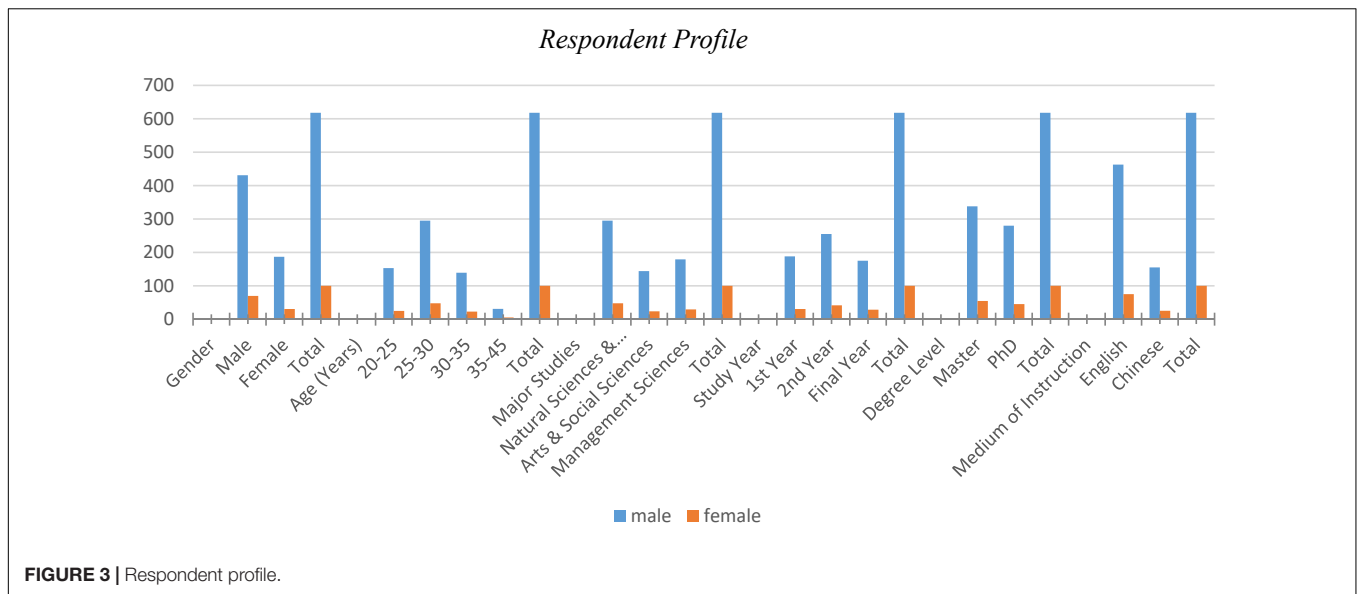
FIGURE 3 | Respondent profile.
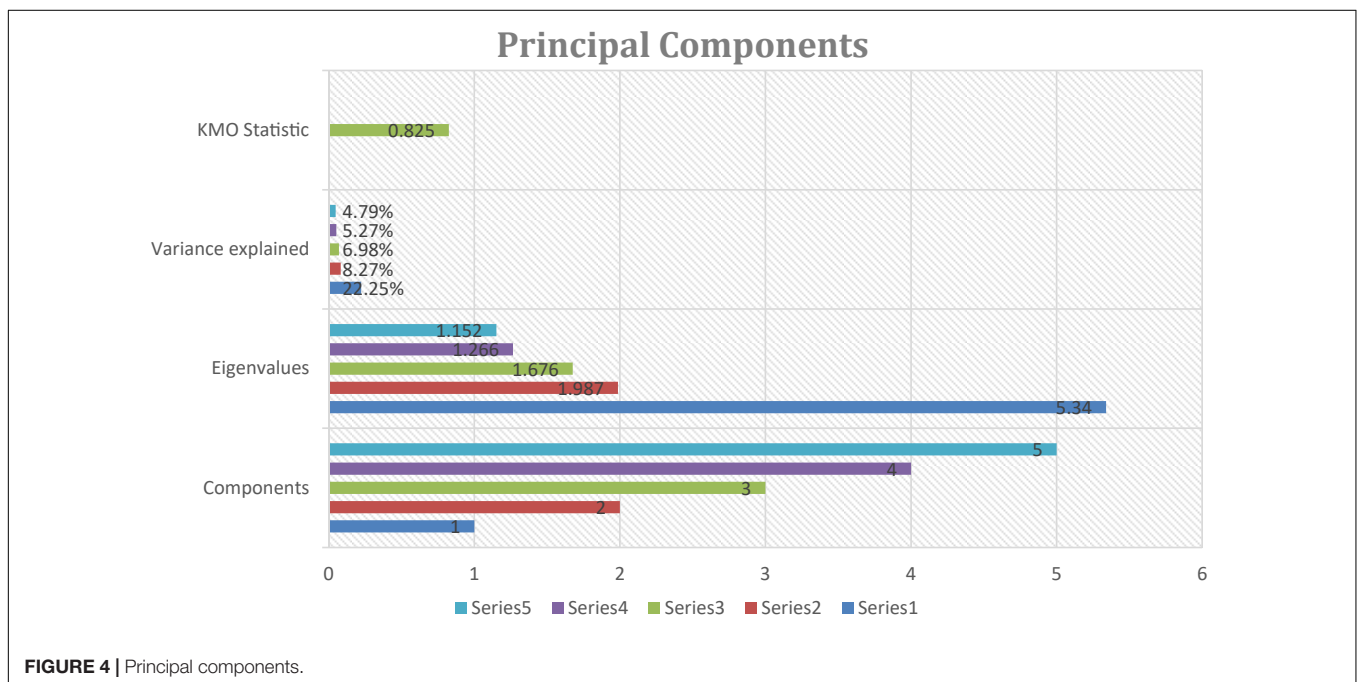
FIGURE 4 | Principal components.

variance of 22.25% which could be interpreted as the 22.25% of the variance in the student's motives to study in China is explained by our first component. Subsequently, the second principal component has the eigenvalue of 1.98 and explains 8.27% of the variance in the motivation of the foreign students. The third and fourth principal component explains 6.98 and 5.27% of the motivation respectively. While, our last principal component explains the smallest portion of the variance in foreign students' motives to pursue their higher studies in China. Moreover, the value of the KMO statistic of sampling adequacy is 0.825. The usual cut-off point for this statistic is at least 0.50 so this outcome suggests that our sample is adequate for principal component analysis.

Principal Component Analysis and Reliability Analysis of Motivational Aspects to Study in China

The forthcoming analysis outlines the factor or principal component analysis of the motivational factors for prospective international students in China. Further, it provides the dimension-wise and overall reliability score of the motivation part of the questionnaire. The results confirm the validity and reliability of the constructs in gauging various aspects of foreign students' motives to pursue a study program in Chinese HEIs.

Table 1 presents the factor analysis of foreign students' motivation along with the reliability analysis of each dimension.

TABLE 1 | Principal component analysis of foreign students' motivation to study in China.

Motives/Items	Reliability statistic (alpha)	Factor loading
1.Quality education	0.635	
The certificate or degree conferred by my Chinese university would help me to get a job easily.		0.421
I planned to pursue in China and I want to earn a foreign degree.		0.369
I wanted to study in China so that I could finish my degree on time.		0.361
I chose to study at a Chinese university because its degree will increase my image and prestige at home country and abroad		0.349
2.Personal and financial security	0.674	
I came to China because of poor law and order situation in my country.		0.613
I opt to come to China because of poor economic and employment conditions in my country.		0.573
I came to study in China because I was unemployed.		0.476
I decided to move to China because of the reasonable amount of scholarship		0.419
I chose China as the country of my study abroad because it is a safe place.		0.410
3.Career and migration	0.628	
I intend to settle in China and do not want to go back.		0.540
I intended to pursue study in a country where I can gain English teaching experience while studying.		0.527
I prefer china to study because I thought that I will be able to find a part time job/business along with my studies.		0.497
After finishing my degree, I aim to work in China.		0.472
I chose to study in China because after the degree completion I will be able to get promotion in my current job.		0.375
4.Pleasure and experience	0.731	
I came to China to get away from the harsh surroundings in my own country.		0.597
I came here because I get bored from the routine life and was looking for some change.		0.545
I came to China to enjoy my life as a foreign student.		0.513
I chose China as the country of my study abroad because it is a vast country and has many tourist attractions.		0.504
I came to study in China in pursuit of an ideal life.		0.453
I came to here because I believed that here I can meet people from different nationalities.		0.399
5.Other motives	0.646	
Others (family and friends) compelled me to relocate to China.		0.570
I came to China because someone from my family or friends was studying here and he/she helped me in getting admission.		0.634
I chose to study in China because the Chinese value system matches with my personal beliefs.		0.417
I am studying in China because my funding agency/institution has sent me here.		0.512

Bartlett's Test of Sphericity: 3519, df = 276, p < 0.001.

It is important to mention that if any factor or item has a factor loading of less than 0.3 it shows that this particular item is not contributing meaningfully toward the component to which it belongs. The overall Cronbach's alpha of all the motivational factors is 0.843 which is quite acceptable and indicates that 84% of the variance explained by all the motivational dimensions is true variance. Thus, we can claim that the items are reliable and internally consistent. Bartlett's Test of Sphericity statistic is also substantial at a *p*-value of 1%.

Empirical Strategy

We performed item-wise, dimension-wise, and variable-level analyses to gain a thorough understanding. A number of dimensions to a few sample variables give adequate information

as much as was available in the broader data collection (Mazziotta and Pareto, 2018). Given that the results of our survey data cover a variety of dimensions of service quality; the application of PCA allows us to transform a larger collection of variables into a smaller set with minimal information loss. In addition, an ANOVA is used to determine significant difference.

DATA ANALYSIS AND INTERPRETATION

It is important to determine the most important dimensions which describe the key inspiring factors for foreign students to study in China. This section discusses the descriptive results of the motivational dimensions, further it provides a ranking of the motivational constructs based on the mean score of respondents. Later, each motivational dimension is ranked based on the regional category of international students. This section ends with the ANOVA to check whether or not a statistically significant difference exists between the motives of foreign students.

Table 2 reveals the descriptive statistics of the motivation dimensions as well as the aggregate motivation score of the foreign students.

Figure 5 demonstrates the mean score of the motivation dimensions in ascending order. The graph clearly reveals that, to Obtain Quality Education and Pleasure and Experience were

TABLE 2 | Descriptive statistics of motivation dimensions.

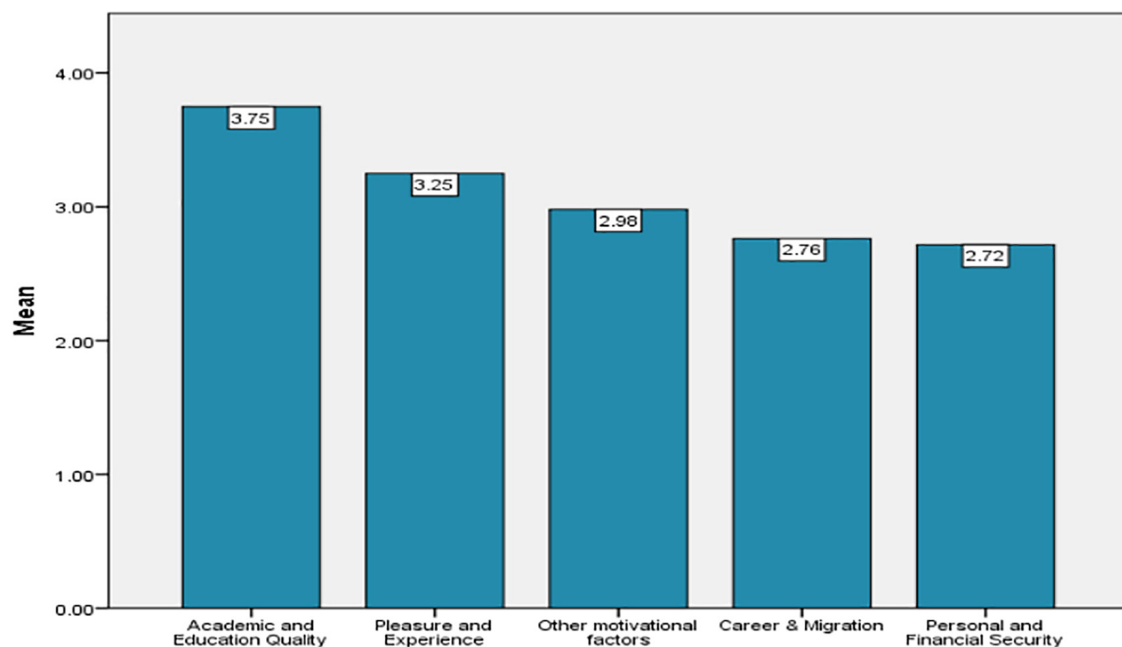| Dimension	Mean	SD	Frequency	Percent (%)
Academic and education quality	3.75	0.58	463	75
Personal and financial security	2.72	0.77	336	54
Career and migration	2.76	0.74	341	55
Pleasure and experience	3.25	0.72	401	65
Other motivational factors	2.99	0.65	368	60

FIGURE 5 | Mean score of the motivation dimensions in ascending order.

TABLE 3 | Region-wide differences in the motivation of foreign students.

Dimensions		N	Mean	Rank	SD
Academic and education quality	Asian	325	3.85	1	0.56395
	Africans	232	3.71	2	0.50864
	Europeans	61	3.35	3	0.71807
Personal and financial security	Asian	325	2.86	1	0.80265
	Africans	232	2.60	2	0.70100
	Europeans	61	2.37	3	0.68817
Career and migration	Asian	325	2.84	1	0.76939
	Africans	232	2.66	3	0.66169
	Europeans	61	2.76	2	0.83890
Pleasure and experience	Asian	325	3.35	2	0.73837
	Africans	232	3.07	3	0.66034
	Europeans	61	3.39	1	0.66615
Other motivational factors	Asian	325	3.02	1	0.68949
	Africans	232	2.96	2	0.56163
	Europeans	61	2.83	3	0.70685

the key Motivational Aspects. Whereas, Personal and Financial Security got the least favorable response from the foreign students and were ranked lower among all the motivational dimensions.

The **Table 3** presents the region-wise mean scores and ranking of foreign students on each motivational dimension. Asian students show a higher ranking on academic quality, financial security, and career and migration, while European students exhibit a higher ranking on the pleasure and experience dimension. **Table 4** presents the region-wise analysis of variance in the motivational factors for foreign students to go after their higher education. The *F*-statistics and the corresponding significance level reveal that there are significant differences

among foreign students coming from various regions of the world on all the motivation dimensions except Other Motivational Factors. Similarly, there is a shred of evidence of the statistical difference in the Overall Motivation level of students coming from Asia, Africa, and Europe. This outcome entails that the region has a significant effect on the preferences and motives of foreign students to pursue their higher education abroad.

There are contradictory arguments about the nature of pre-enrollment expectations and their subsequent role in affecting the satisfaction from the actual study experience. These factors are important to identify the students who have a strong will to acquire foreign education. In addition, the studies indicate

TABLE 4 | Results of analysis of variance (ANOVA) using foreign students region as the category variable.

Dimensions		Sum of squares	Degree of freedom	Mean Square	Frequency	Significance
Academic and educational quality	In between groups	13.157	2	6.579	20.882	0.000
	Within groups	193.744	615	0.315		
	Total	206.901	617			
Personal and financial security	Between groups	17.329	2	8.664	15.196	0.000
	Within Groups	350.662	615	0.570		
	Total	367.991	617			
Career and migration	Between groups	4.262	2	2.131	3.911	0.021
	Within groups	335.162	615	0.545		
	Total	339.424	617			
Pleasure and experience	Between groups	11.581	2	5.790	11.714	0.000
	Within groups	303.996	615	0.494		
	Total	315.577	617			
Other motivational factors	Between groups	2.073	2	1.036	2.482	0.084
	Within groups	256.871	615	0.418		
	Total	258.944	617			
Overall motivation	Between groups	7.135	2	3.567	12.271	0.000
	Within groups	178.790	615	0.291		
	Total	185.925	617			

the two different directions of the positive pre-enrollment expectations of students. The first direction suggests that undue positive expectations have unfavorable effects on the adaptation of students abroad. The second direction suggests that the pre-enrollment positive expectations have favorable effects and it reinforces the likelihood of the students to take part in foreign education programs. These directions associate with the diverse influence of positive expectations and therefore, permit further research in this area (Goldstein and Kim, 2006).

Foreign students are considerably different in terms of their motives to opt for an overseas destination for their studies abroad. Zeb et al. (2021) postulate that prior expectations of the students will define their resulting level of satisfaction. Chirkov et al. (2008) proposed that motivation to study abroad significantly helps foreign students in adaptation to the new environment. Likewise, Min et al. (2012b) suggested that higher education institutions must account for the motives of the students while devising their educational programs to increase the satisfaction levels of foreign students.

If the pre-enrollment expectations of students meet the level of expectation or intrude upon positively (for instance, the output is positive and even beyond the expectation) then it affects the overall satisfaction of students positively with their experience of the study abroad program. Though in a similar case where the expectations meet negatively or being violated negatively (for instance, the output is even more negative than expected) then it influences the student negatively in the terms of adjustment issues in academics, psychological problems, and sociocultural problems to adjust in a foreign country (Martin et al., 1995).

Furthermore, Berno and Ward (2003) examined a similar phenomenon in Asian students studying in New Zealand. Based on their findings, they postulate that in general Asian students came to the foreign country with the most optimistic pre-enrollment expectations rather than their experience of living

abroad. The most negatively violated expectations relevant to lack of communication with the natives, discrimination, less emotional and social support, language barrier, and problems in dealing with the rules and regulations established by the New Zealand government. These negative outcomes made a difference between the pre-enrollment expectations and the real living experience abroad which resulted in depression, maladjustment, adaptation, and academic problems. Thus, the reality-based pre-enrollment expectations are associated with better positive adaptation to a foreign country. Therefore, studies defining negative and positive disconfirmed expectations specify that pre-enrollment expectations strongly affect the students' adjustment abroad. A positive attitude (always be determined and ready to adjust) toward the new situation is helpful for foreign students. Moreover, conscious efforts of preparing oneself to face the challenges of foreign education resulted in reality-based expectations such as being mindful of language problems and other adjustment issues in the foreign country. Thus, international students need to keep realistic expectations and develop suitable strategies to cope with the challenges (Lauermann, 2015).

The foreign students' adaptation to a new place is mainly linked to the likelihood of participating in the foreign study program. Goldstein and Kim (2006) showed in their study results that American undergraduate students who got a chance to participate in short-term study abroad program expressed the most positive expectations to study abroad such as excitement for expected enjoyment of their experience as well as an eagerness to meet new people, had less fear of the degree completion, much interested in learning of foreign language, and less biased toward racial equality rather than the students who got no opportunity of foreign education during their study period. The sociocultural beliefs and expectations made differences among the participants and non-participants of the study abroad program in logical way.

In addition to the pre-enrollment expectations, the experience of living abroad may also affect the set goals of students in participating in the foreign education program. Kitsantas (2004) conducted a study on college students in America. The findings revealed three types of effects as students became more willing to know about the host county's culture, became determined to achieve academic goals like foreign language learning, and were more interested in the subject offered in the short-term study abroad program. Lastly, students became more connected with friends who were taking part in the foreign education program and establish a bond with the host country's cultural inheritance. The above findings propose that the set goals or expectations of students before going to a foreign country greatly influence their experience of learning in the foreign education program.

Chirkov et al. (2007) conducted a study to examine the motivational factors of Chinese international students in Canada and Belgium by using self-determination theory (SDT). The framework of theory recommends that the similar behavior of international students is motivated by diverse reasons. These different reasons behind the motivation to take part in a study abroad program may range from self-determined and independent to forced and fully controlled by the outer environment (Ryan and Deci, 2000). The completely independent and self-determined motivations are basically linked with the most positive output of students like, mentally relaxed, good performance, and better learning. However, motivated behaviors by the outer environment are associated with more negative output. The students who experience the more independent type of motivation are the most satisfied because of the fulfillment of their basic requirements of autonomy, competence, and relatedness. Whereas autonomy is related to self-determination of an individual's behavior, competency is related to effective interaction with the social environment, and relatedness is linked with the establishment of more positive rapport with others (Schmuck et al., 2000). In adding to what extent personal goals relate to basic needs, the particular goals are classified into intrinsic and extrinsic goals. Intrinsic goals are mainly relevant to the significant relationship, individual growth, and social support, while, extrinsic goals are relevant to financial security, positive reputation, and physical attraction. As with autonomous motivation, the intrinsic goals enhance psychological relaxation and efficiency in working (Kasser and Ryan, 1993; Ryan and Deci, 2000).

Thus, a motive-focused educational program will not only be able to attract more foreign students but will also be able to enhance their satisfaction with the services provided by these HEIs. Based on these arguments the present study aims to figure out the broad motivational factors of foreign students to opt for Chinese places as a study hub and to what degree these motives relate to their overall satisfaction.

CONCLUSION

The study findings led to various conclusions as a result of an investigation of international students' evaluations of the Chinese universities' service quality. These findings not only illustrate the current situation of international higher education programs in Chinese universities, but they also merit consideration from the respective authorities. These universities will be transformed into long-term knowledge cultivation hubs of international standings.

A detailed insight into the extant literature clarifies that international students have a vast set of intrinsic as well as extrinsic factors which motivate them to register in a study abroad program. Though, mainly the push and pull factors based on the social, economic, and cultural factors largely shape the decision of students, yet, personal factors such as the openness to experience and risk appetite of individuals also play a significant role in their foreign study decisions. The highly discussed factors in the literature about motivational factors of foreign students to study abroad were to get better academic and career prospects, migration, experience a different culture, tourism, and seek enjoyment and fun. However, the region and age of foreign students were also found to influence the motivational aspects of these students. As students from advanced countries mainly prefer to enroll in a short-term degree or exchange program with the key motive to seek pleasure and enjoyment from their short-term stay in a country abroad. While students from developing countries were inclined to get enrolled in long-term degree programs and academic motives were quite dominant in their abroad study decisions. An exhaustive survey of foreign students' motivation reveals that academics have mainly investigated the motivational factors of foreign students registered in developed countries. Yet, recent positive growth in the number of foreign students in China and the emergence of China as a key international market for higher education makes it crucial to know the dynamics of the decision of these foreign students. Moreover, past empirical studies on the subject also provide footings to understand the motivational factors of a massive number of foreign students coming to China to pursue higher education and thus aid in constructing a tool to observe the underlying phenomenon.

Some academics argued that the motivation level of foreign students can help in adapting to the new environment and HEIs shall account for these motives in order to devise a more effective academic program. The pre-expectancy theory and expectation disconfirmation framework also support this argument. Additionally, the studies on the motivation of foreign students also indicate that foreign students have a range of academic and non-academic motives for pursuing their studies abroad where some students are very ambitious to upgrade their existing knowledge and skills while others may prefer to pursue non-academic motives. Thus, by linking the ideas put forward in the extant literature on motivation we conjecture that the motivational factors of foreign students are important to be understood to perceive their resulting satisfaction.

Policy Implications and Future Directions

Against the backdrop of the massive Chinese government's substantial financial and policy support for the long-term globalization of China's higher education system. As a result, we use a bottom-up statistical technique to handle this research and found that different academic and non-academic factors motivate foreign students toward Chinese universities. These findings postulate many policy implications for the Chinese HEIs. Firstly, the understanding of the motivational factors of

the foreign students provides them a ground to make new policies according to the factors. This revision of policies not only grants them more recognition but also is a reason for their high ranking. Secondly, the findings give a way to differentiate the main motives of students' satisfaction and highlight the importance of academic and non-academic factors among the students. This understanding will improve and strengthen the Chinese education system. Last but not the least, practitioners will be able to learn that do the students of the different regions are motivated by the same factors or their region diversity affect their motivation too.

Our study provides new avenues for future research by highlighting that another study can be conducted on the comparison of motivational factors in China among undergraduate and post-graduate students and what kind of challenges are faced by Chinese universities to accommodate foreign students. We are leaving these questions for future research.

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DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

AUTHOR CONTRIBUTIONS

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Impact of Foreign Language Classroom Anxiety on Higher Education Students Academic Success: Mediating Role of Emotional Intelligence and Moderating Influence of Classroom Environment

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The current study aimed to investigate the impact of foreign language classroom anxiety (FLCA) on academic success through mediating role of emotional intelligence communication (EIC) and moderating role of class room environment. Due to the disruptive impacts of the COVID-19 pandemic, teaching and learning were moved online nation-wide. The convenient sampling technique was used, for data collection from Chinese university students. There was a total of 615 students that participated in the survey and data gathered in 5 months from November 2021 till March 2022. Covariance-based structural equation modeling (CB-SEM) in SPSS V.25 and AMOS V.22 was used to assess model fitness and hypotheses, as well as construct reliability and validity of the measurement model. The results revealed that FLCA is negatively and significantly influence students' academic success. Furthermore, EIC as a mediator significantly and positively mediates the relationship between FLCA and academic success. The current study shows that emotional intelligence has the ability to reduce students' foreign language anxiety and so improve their language skills. Lastly, classroom environment positively and significantly moderates the relationship between FLCA and emotional intelligence communication.

Keywords: foreign language classroom anxiety, academic success, emotional intelligence communication, class room environment, higher education institution

INTRODUCTION

Teaching foreign languages is a difficult career that demands a great deal of energy, imagination, and innovation (Khajavy et al., 2018). The majority of academics in the field of foreign language acquisition agree that learning a foreign language is emotionally charged for students (Imai, 2010; López, 2011; Dörnyei and Ryan, 2015; Mierzwa-Kamińska, 2021). As a result, it is reasonable to conclude that regulating appropriate human emotions throughout the acquisition of a foreign language is an essential component of effective academic communication in students (Oz et al., 2015). Therefore, being emotionally intelligent in a foreign language class is associated

with increased academic productivity, positive emotions, and motivation to continue learning the second language (Guslyakova and Guslyakova, 2020). Furthermore, individual differences influence the learning process, which is one of the reasons why foreign language learning is difficult. To put it another way, research findings show that learners' beliefs, attitudes, expectations, and affective states are important factors that influence the foreign language learning process (Afzali and Izadpanah, 2021). According to the findings of existing research, test anxiety has significant effects on the process as an affective state (Roick and Ringeisen, 2017). The purpose of this study is to investigate the difficulties Chinese students face when learning a foreign language in a classroom setting. It is especially important for Chinese students who have limited actual English communication in their daily lives, as it enables them to create their own speaking opportunities both inside and outside of the classroom, thereby reducing their anxiety and enhancing their proficiency and academic success.

The role of foreign language anxiety in foreign language learning has long been a subject of study in the field of second language acquisition. All of the data points to the impact that foreign language anxiety can have on foreign language learning and performance in a variety of disciplines. Foreign language anxiety, in particular, may have detrimental academic, cognitive, and social consequences for students (Dewaele and MacIntyre, 2016; MacIntyre, 2017). In other words, worry impedes learners' proficiency progress and undermines their confidence in the foreign language, which in turn enhances anxiety, creating a vicious cycle. Students who are anxious may try to avoid communicating with others (Jin and Dewaele, 2018). One factor in this regard would be individual differences in language ability, willingness to study, attitudes toward the target language community, and available resources all contribute to inter-learner differences in foreign language outcomes (Paul Sun and Jun Zhang, 2022). In addition, emotional experiences in the foreign language classroom that are repeated over time might affect learners' foreign language learning process (Horwitz, 2017). According to research, foreign language anxiety is caused by a variety of circumstances, including perceived social support, which is one of the possible factors that influence foreign language anxiety. Previous research has pointed to interpersonal differences in personality, temperament, mood, and/or language learning experiences as explanations for why students view social interactions differently (Jin et al., 2017). Furthermore, a positive viewpoint might influence how social bonds are perceived. Students who regularly interpret themselves, others, and life events in a favorable light have a higher opinion of social relationships (Ran et al., 2021). As a result, it is logical to believe that learners who have a good attitude are less likely to have foreign language classroom anxiety (FLCA; Jin and Dewaele, 2018). One of the most prominent purposes of foreign language teaching around the world is to prepare students who are ready and able to speak in another language. The development of communicative competence among language learners has been stressed in foreign and second language instruction, yet proficiency does not always imply a willingness to use the language for meaningful conversation. It is also important to talk and write in order to learn a second language, according to well-known theories like the interaction hypothesis (Khajavy et al., 2018).

The purpose of the current study was to examine the impact of foreign language classroom anxiety on higher education student's academic success through mediating role of emotional intelligence: moderator class room environment. In the domain of higher education, issues relating to second language learners, particularly in university students with Chinese backgrounds, are significant. Chinese English learners at various educational levels frequently experience anxiety to varying degrees because of their limited use of English in daily life (Lu and Liu, 2015; Liu, 2016; Liu and Xiangming, 2019). Therefore, the majority of learners share their anxieties and apprehensions about studying English as a foreign language as well (Afzali and Izadpanah, 2021; Paul Sun and Jun Zhang, 2022). Anxiety can cause a variety of issues in language acquisition, retention, and production (Pyun and Byon, 2022), affecting student's grades when compared to other more relaxed classmates. According to Tanir and Özmaden (2018), anxiety is one of the most common psychological symptoms that has a negative impact on university students' mental health. The term anxiety is defined as a troubling emotion that arises when it appears that a strong desire or impulse will not be fulfilled (Alver et al., 2016). According to Kanero et al. (2022), situation-specific anxiety can be defined as anxiety that is provoked when certain conditions are present including examinations, acting on stage, giving a speech, and/or communicating in a second or foreign language are among the situations described by Horowitz (2001). Anxiety among Chinese students learning a second language is one aspect of the problem. This study's primary objective was to investigate what generates anxiety during different phases of classroom learning and how anxiety impacts the grades of undergraduate students in China. There is a limited amount of literature on this topic in the Chinese population, and these variables have not been studied combined previously. Therefore, the present study must investigate the effect of foreign language classroom anxiety on the academic performance of higher education students and the significance of emotional intelligence and classroom environment. Second language learners with a greater level of emotional intelligence are better able to control impulses, manage stress, and keep a positive attitude in the face of difficulties and frustrations during the process of acquisition.

RESEARCH LITERATURE

Broaden and Build Theory

In the field of positive psychology, the Broaden-and-Build theory is the fundamental underpinning theory (Fredrickson, 2003). According to this theory, positive emotions extend people's thought-action repertoires, which helps them generate social resources, whereas negative emotions restrain people's thought-action repertoires. Positive emotions, it is claimed, cause learners to acquire more information and build more resources for future language learning. Negative emotions, on

the other hand, will reduce learners' focus and limit the range of possible language input. Interest shifted away from foreign language classroom fear and toward a broader range of feelings such as pleasure, love, pride, hope, humiliation, remorse, and boredom (Dewaele and Li, 2021). Broaden-and-build theory emphasizes the positive predictive effect of positive emotions on academic performance (Fredrickson, 2004). Students will evaluate their own behaviors, causing positive or negative emotional reactions according to the social cognitive theory of self-regulation (Bandura, 1991). When they put in enough effort to learn a foreign language, they tend to positively evaluate their own behaviors, resulting in positive emotional reactions such as foreign language enjoyment. Enjoyment is a positive emotional sense that comes from pushing oneself beyond one's homeostatic boundaries and doing something challenging (Dewaele and MacIntyre, 2016). The enjoyment of a foreign language can help pupils study more effectively by expanding their cognitive resources. Foreign language enjoyment can also help learners gain positive power, relieve stress, and increase their enthusiasm for foreign language learning (Piniel and Albert, 2018).

Foreign Language Classroom Anxiety and Academic Success

Anxiety is something that most people experience on a regular basis. It is regarded as one of the most common and enduring human emotions, affecting physiological arousal and cognitive processes (Kanero et al., 2022). Anxiety can be useful when it leads to excitement and enthusiasm, but it can also be harmful when it leads to worry, confusion, fear, and a loss of self-esteem (Karatas et al., 2013). According to Phillips (1992), there are two types of anxiety: state anxiety and trait anxiety. State anxiety is a situation-specific trait anxiety; that is, an individual with state anxiety will have a stable tendency to be anxious, but only in certain situations. Trait anxiety, on the other hand, is a relatively stable tendency to be anxious in a wide range of situations. Consequently, when it comes to learning any language in a classroom setting, individuals face obstacles, which results in language anxiety.

According to Horwitz et al. (1986), language anxiety is a complex of self-perceptions, beliefs, attitudes, and behaviors that develop from the uniqueness of the language learning process in the classroom. The term foreign language classroom anxiety is a mental condition as well as a social construct. To put it another way, internal psychological processes, cognition, and emotional states, as well as the demands of the circumstance and the presence of other people, co-shape it. The feeling of discomfort that language learners feel because they lack the linguistic means to portray themselves genuinely is the main root of foreign language classroom anxiety. Indeed, for some people, presenting themselves to the world through an imperfectly regulated new language is inherently anxiety-provoking (Li and Dewaele, 2021). Due to science, commerce, tourism, technology, and other factors, learning a foreign language has become increasingly important for many individuals all over the world. But the process of learning English as a second language is

affected by many psychological factors, such as self-esteem, self-efficacy, motivation, and attitudes, as well as some linguistic factors, such as language anxiety, cultural background, and learning style. Horwitz (2017) said that students suffer from anxiety when learning English as a foreign language. Several students experience significant levels of stress when learning a foreign language, according to Riasati (2011), who urged that English language teachers be aware of language anxiety in the classroom and identify ways to simplify the language learning process.

Horwitz et al. (1986) identified three categories of foreign language anxiety: Firstly, communicative apprehension refers to a learner's level of concern or fear in relation to actual or anticipated communication with others. Researchers have become increasingly interested in the elements that influence English as a foreign language learners' performance in recent years. According to Paul Sun and Jun Zhang (2022), when compared to other courses, oral learners have a higher level of anxiety. Anxiety over speaking in public is a typical problem among English language students. Another study discovered that 20% of participants had anxiety about performing in front of an audience (Mohamad et al., 2009). In addition, he found that one out of every five students who had oral performance anxiety had a negative effect on their oral performance and grades. Secondly, test anxiety is the inclination to evaluate one's performance in an evaluating scenario. When students' performance on previous examinations has been poor, they develop test anxiety. As a result, the students have a negative perspective on tests and have incorrect perceptions when evaluating circumstances. Unconsciously, this bad impression is passed on to the English class. Similarly, students may have wrong perceptions of language learning. They may consider any poor test result a failure. According to Roick and Ringeisen (2017), test anxiety can have a greater impact on weak students' performance than on students with higher competence levels and more anxiety in evaluative settings. According to a study, test anxiety and foreign language anxiety had negative statistical effects on students' examination grades (Mohamed Khalifa Gawi, 2020). Additionally, test anxiety has a noticeable impact on classroom discourse and student performance. Test anxiety is one of three components of foreign language anxiety generated by the dread of failing examinations (Horwitz, 2017). Thirdly, Horwitz et al. (1986) describe fear of negative evaluation as the fear of others' assessment and evaluation. According to Gardner and MacIntyre (1993), fear of unfavorable appraisal is directly linked to fear of communication. When pupils are unsure of what they are saying, they are afraid of being judged negatively and doubt their ability to provide positive results. The fear of being judged negatively is one aspect of the anxiety associated with learning a foreign language. It is also linked to a negative interpretation of social feedback and appraisal. It is a sense of failure, as well as a lot of attention from other people's opinions. Students' performance during evaluations or social activities such as job interviews or in English lessons when it comes to speaking can reveal their fear of bad criticism (Afzali and Izadpanah, 2021). Fear of negative assessment, test anxiety, and communication apprehension were identified as

important theoretical frameworks for illustrating the foreign language by Horwitz et al. (1986).

Previous research has looked into the impact of anxiety on English as a Second Language learning (Liu and Xiangming, 2019). The findings of the studies demonstrated the harmful impact of anxiety on the learning of English. A high level of anxiety can lead to a variety of issues, including disappointing students and poor performance. Learners with high anxiety levels frequently perform poorly, have low achievement, and are nervous when it comes to learning. Students who perform poorly in English language classes and assessments feel high levels of anxiety (Mohamed Khalifa Gawi, 2020). To alleviate student tension, English language teachers should create a pleasant atmosphere in the classroom. On the other hand, students' anxiety goes up when teachers are too serious or strict in the classroom (Razak et al., 2017).

Prior research revealed a weak link between foreign language speaking anxiety and participants' language learning outcomes (Al-Khotaba et al., 2019). According to the findings of Alaleh (2018), the participants had a moderate level of reading and language anxiety. It also found that the primary drivers of foreign language reading anxiety include problems understanding new words' meanings, pronunciation, difficulties reading extensive texts, and the fear of making mistakes. It should also be noted that examination anxiety is a hindrance to students' successful performance (Roick and Ringeisen, 2017). Many researchers have studied the relationship between foreign language anxiety and students' academic success, and it has been concluded that foreign language classroom anxiety has a negative impact on student performance (Razak et al., 2017). Therefore, we have developed the following hypothesis:

> *H1*: Foreign language classroom anxiety has a negative impact on academic Success.

Foreign Language Classroom Anxiety and Emotional Intelligence Communication

Emotional intelligence is defined as the ability to notice emotions, access and generate emotions to aid thought, comprehend emotions and emotional knowledge, and reflectively control emotions to enhance emotional and intellectual development (Mayer and Salovey, 1997). It integrates all possible feelings and emotional skills into a unified framework as a theoretical construct. As a result, it is thought to enable an individual to recognize and regulate unpleasant emotions as well as to develop and use positive emotions to aid thinking. MacIntyre (2002) said about language learning, in some ways, learning a language can cause a lot of strong feelings.

Negative emotions like worry, fear, tension, and wrath, in particular, might jeopardize a learner's ideal learning potential and significantly diminish their language learning ability (Ran et al., 2022). Positive emotions, on the other hand, such as self-esteem, empathy, motivation, and enjoyment, can place learners in the best possible state for language learning and considerably facilitate the process. Second language learners with a greater degree of emotional intelligence are better able to regulate impulses,

manage stress, and keep a good attitude in the face of challenges and frustrations. In short, emotional intelligence claims to be able to predict how learners will react to the demands of distinct second language learning and usage settings, which are critical for successful second language acquisition. Two distinct models have emerged from research on the measurement of emotional intelligence (Zeb et al., 2021). The ability model of emotional intelligence uses a purely cognitive metric to elicit maximum performance on particular emotional information processing activities from test takers. The trait model of emotional intelligence, on the other hand, is concerned with behavioral dispositions and self-perceived abilities as judged by self-reports that heavily reflect personality factors. In trait emotional intelligence theory, emotional intelligence is viewed as a collection of emotion-related self-perceptions and dispositions. This theory is in line with not only the most common theories of personality, but also with most of the evidence from a number of different areas, such as life satisfaction, ruminating, and coping methods (Shao et al., 2013).

The nature of foreign language anxiety (FLA) is a critical question based on the substantial research that documents the importance of EIC for learning in general. Individuals with high emotional intelligence feel they can control their emotional reactions over time, manage stress, and assert themselves. They are also more likely to be confident in their capacity to communicate well in a foreign language, which reduces their risk of foreign language acquisition (Dewaele et al., 2008). These kinds of theoretical and empirical discoveries are especially important for educational systems with huge numbers of foreign language learners, such as China, which has the world's largest number of English-speaking foreign language students. Even when they are high performers, most of these students have few opportunities to speak English outside of the classroom and are often hesitant to use the language in public or naturalistic contexts. As a result, there is a pressing need to address their emotional needs and feelings while learning a foreign language, for the obvious reason that knowing how to reduce anxiety on the part of students themselves may improve learners' ability to become successful language users and language learners (Shao et al., 2013).

Previous research has found that language learners who have a higher level of trait emotional intelligence are less worried during their language learning process (Li, 2020). In a previous study, trait emotional intelligence, which includes components like emotion regulation, stress management, and assertiveness, was found to have a significant negative connection with anxiety levels in the English classroom among Chinese university students. Higher-trait emotional intelligence individuals are thought to be better able to control their own emotions and gauge the emotional reactions of others, allowing for more fluid interpersonal relationships and reduced anxiety levels. The discovery that students with high levels of emotional intelligence have lower levels of foreign language classroom anxiety (Jin and Dewaele, 2018). On the basis of the above literature, we have developed the following hypothesis:

> *H2*: Foreign language classroom anxiety is negatively associated with emotional intelligence communication.

Emotional Intelligence Communication and Academic Success

Several studies have found that emotional intelligence positively predicts academic success in a variety of educational settings (Li, 2020). The correlations between foreign language classroom anxiety and academic achievement, as well as between emotional intelligence communication (EIC) and academic success, found in a Chinese university English foreign language context, suggest that emotionally competent students are more optimistic about their English proficiency, have more self-confidence, and have better actual performance (Shao et al., 2013). The majority of studies in the realm of education have focused on the relationship between EIC and academic performance. Previous research has shown that EIC can predict pupils' academic performance in future (Ran et al., 2022). In another study, EIC was revealed to be a strong predictor of students' academic achievement. Overall, past research has found that trait EI has a correlational or facilitative effect on a variety of significant life outcomes (Chen and Zhang, 2020). Therefore, the abovementioned literature leads to the following hypothesis:

> H3: Emotional intelligence communication is positively associated with academic success.

Mediating Role of Emotional Intelligence Communication Between Foreign Language Classroom Anxiety and Academic Success

According to a prior study, the mediated impact arises when students with higher emotional intelligence participate in more positive interpersonal activities, such as competent communication (Ran et al., 2022). They will also have more influence over the communication behaviors of other team members. Students with greater emotional intelligence will initiate reciprocal contact inside the group, which will increase their emotions of attraction and belonging to the team (Troth et al., 2012). The results demonstrated that trait emotional intelligence was positively connected to foreign language English scores, implying that learners with a higher trait emotional intelligence were more likely to enjoy foreign language learning. According to the ability EI model, which includes the ability to generate positive thought-facilitating emotions, is based on a substantial association between students' trait emotional intelligence and foreign language English scores, which has been conceptualized as a thought-broadening positive emotion (Li, 2020). Previous research has discovered that emotional intelligence can considerably alleviate and regulate negative emotions such as foreign language acquisition, which has an indirect positive impact on foreign language success (Yu, 2021). The above literature leads us to hypothesize that:

> H4: Emotional intelligence communication mediates the relation between foreign language classroom anxiety and academic success.

Moderating Role of Classroom Environment Between Foreign Language Classroom Anxiety and Emotional Intelligence Communication

Classroom environment refers to the atmosphere, ambience, tone, or climate that pervades classroom settings (Dorman et al., 2006). It is crucial to learning because it influences how students think, feel, and act in the classroom (Jennings and Greenberg, 2009). Student cohesiveness, teacher support, self-involvement, investigation, task orientation, cooperation, and equity are all characteristics of a positive classroom environment (Li and Dewaele, 2021). The relationship between the classroom environment and students' cognitive and affective outcomes has long been the focus of general education research. Negative classroom environments are linked to negative feelings, inattention, and lack of engagement in learning activities, whereas positive classroom environments are linked to positive feelings, heightened attention, motivation, and engagement in the learning environment (Yafi et al., 2021). The study of second language acquisition has gone through a similar transformation. As foreign language students' high levels of classroom anxiety may be due in part to their cognitive and emotional assessments of the classroom environment, as a result, anxiety has both internal and social dimensions. In a previous study, perceived student engagement and teacher support were found to be negatively related to foreign language classroom anxiety scores, but there was a positive relationship between perceived task orientation and anxiety in Spanish students at both levels (Jin and Dewaele, 2018). Students with a higher positive orientation are more open to pleasant moments, more sensitive to signals of reward from teachers or peers, and less concerned about setbacks in learning. They can also recover from frustration faster. All of this adds to higher positive orientation students' subjective well-being, as measured by reduced anxiety, and, as a result, optimal foreign language classroom performance. Learners who think less favorably, on the other hand, are more prone to noticing negative features of situations or people, and are more likely to misinterpret something nice or neutral as bad (Jin and Dewaele, 2018).

Previous research has suggested that contextual and situational factors may also play a role in the level of test anxiety. Environmental and situational variables, it was discovered, had significant differential effects on high-and low-test-anxious students, masking learning performance (Khajavy et al., 2018). Another study attempted to determine a rough estimate of a language learner's aptitude in oral communicative exchange. The findings revealed that the examiner's flexibility and easygoing demeanor, as well as a comfortable seating arrangement that does not put the examiner and learner in direct opposition, can help to alleviate some stress; nonetheless, reducing some sources of student anxiety can be challenging (Roick and Ringeisen, 2017). The present study confirms that the classroom environment plays a moderating role FLCA and EIC (see **Figure 1**). Therefore, Hypothesis 5 is constructed as shown below:

> H5: Moderating role of classroom environment between foreign language classroom anxiety and emotional intelligence communication.

Research Methodology

Due to the disruptive impacts of the COVID-19 pandemic, teaching and learning were moved online nation-wide. The convenient sampling technique was used (Taherdoost, 2016), for data collection from Chinese university students. The first author specifically contacted the head of department of public and private universities in China. The head of department agreed to help with data collecting and sent the online survey to university students through a WeChat (a popular social media app) group. The data gathered in five months from November 2021 till March 2022. Those students who want to participate further shared the questionnaire to their class WeChat group. Students were informed of the survey's nature, purpose, estimated completion time, anonymity, and their freedom to refuse the invitation or withdraw at any time. An aggregate of 700 surveys were distributed and 640 were returned. After the deletion of 25 incomplete responses, a total of 615 surveys were selected, yielding a response rate of 87.85%. Harman's single factor test is performed after data collection to find common method variance. The result of the extraction sums of squared loading is 24.44% of variance, which is less than 50%, indicating that there is no common method bias issue in the data (Tehseen et al., 2017). There was a total of 615 students that participated in the survey. There were 368 male (59.8 percent) and 247 females (40.2 percent). The majority students were 22 to 35 years old and have Bachelors and Master's degree holders. The students were enrolled in English and Chinese language courses, these two languages were not their main language. Although, the Ministry of Education of the People's Republic of China issued the same English textbook and curriculum for all students.

Instruments

Data were gathered through questionnaires, and all construct items were adapted from existing sources. A pilot study was conducted to confirm that the instrument is valid before conducting a large-scale investigation (Van Teijlingen et al., 2001). All questions were evaluated using a five-point Likert scale: (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) strongly Agree. This instrument is suitable for data collection since it helps to gather information quantitatively in an efficient and easy manner. The foreign language classroom anxiety (FLCA) scale based on 33 items was used to assess foreign language anxiety (Horwitz et al., 1986). It was first designed to assess foreign language specific anxiety. It is usually thought to have a one-factor structure that measures three types of anxiety: communicative apprehension, test anxiety, and fear of negative evaluation (Horwitz, 2017). Fraser et al. (1986) developed a scale with 56-items that was used to measure moderating variable classroom environment (CE). Davies et al. (2010) designed a 10-item scale that was used in the process of measuring mediating variable Emotional Intelligence Communication (EIC). Lastly, the academic success (AS) was evaluated with the use of a 50-item scale that was developed by Prevatt et al. (2011).

RESULTS

Measurement Model

A measuring model and a structural model were both used by Anderson and Gerbing (1988) in order to put our theory to the test. Covariance-based structural equation modeling (CB-SEM) in SPSS V.25 and AMOS V.22 was used to assess model fitness and hypotheses, as well as construct reliability and validity of the measurement model. The technique of measurement indicated the validity and reliability of the constructs. The suggested models were tested using a maximum likelihood method to confirmatory factor analysis (CFA; Brown and Moore, 2012). Based on an evaluation of Cronbach's Alpha, the scale's reliability was determined. Cronbach's alpha values ranged from 0.563 to 0.882, indicating good reliability, according to Taber (2018). In addition, convergent and discriminant validity were evaluated using factor loadings,

FIGURE 1 | Research model.
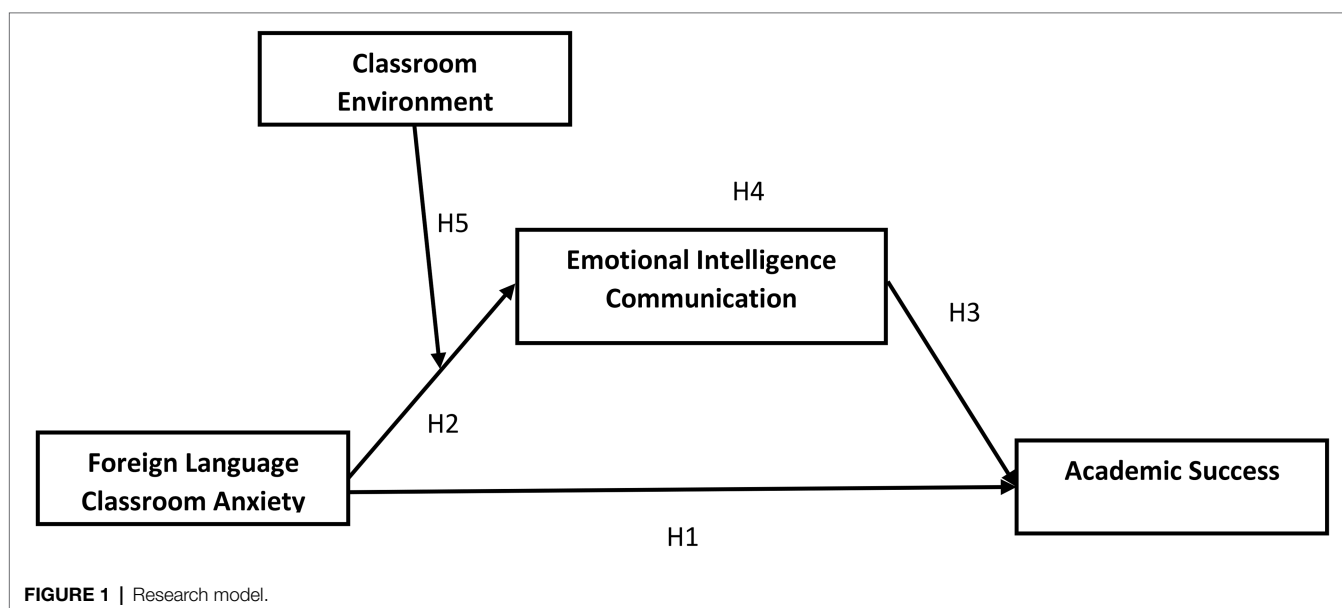
composite reliability (CR), and average extracted variance (AVE). Factor loadings that are more than 0.70 are considered substantial in the majority of cases. It is only advisable to remove items with factor loadings ranging from 0.40 to 0.70 if doing so would result in an improved CR or AVE score (Ong and Puteh, 2017). According to **Table 1**, which shows that all estimates of CR, and AVE exceeded the set cutoff requirements, the measurement model is valid and convergent. Since the correlation between each variable is greater than its square root, we may conclude that our model is appropriate. The results of the measurement model show that it is very reliable and valid in this manner (see **Table 1**).

Model Fit Analysis

In our examination of the theoretical structure, we used the methodology proposed by Byrne (2001) and made use of several goodness of fit criteria. According to the findings of the structural model study, the proposed model has a satisfactory match with values that are either more than or equal to 0.90 percent. Incremental fit index (IFI), Comparative fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), root mean square error of approximation (RMSEA), and chi-square fit statistics/degree of freedom (CMIN/dfZ) were used to determine whether or not the tested model should be accepted or rejected. We considered values of CMIN/df less than 5.00 as acceptable in order to comply with the guideline given by Tao et al. (2021). Given that CMIN was dependent on sample size, we found that this was an appropriate threshold. When the RMSEA was less than or equal to. 08, GFI, IFI, and CFI values that were more than or equal to. 95 were considered to be good fits in the available research. It is abundantly obvious that the provided hypothetical model has a strong overall data fit, and its application concerns the estimation of foreign language classroom anxiety, academic success, classroom environment, and emotional intelligence communication. The findings of this structural model revealed

good fit (IFI = 0.93, CFI = 0.93, GF1 = 0.94, AGFI = 0.91, the CMIN/df = 2.40, and the RMSEA = 0.039), as given in **Table 2**.

Correlation Analyses

A correlation study was performed to establish the relationships between variables (Cohen et al., 2014). Pearson correlation determines the degree and type of a relationship using a correlation between −0.1 and 0.1. Positive sign indicates variables going in the same direction, whereas negative sign indicates variables moving in the opposite direction. Furthermore, the "r" value indicates the link's strength.

Table 3 indicates depicts information related to the correlation between variables. Correlation table shows that independent variable foreign language classroom anxiety has significant and negative correlation with academic success ($r = -0.392$, $p < 0.05$), emotional intelligence communication ($r = -0.552$, $p < 0.05$), and classroom environment (r = −0.443, $p < 0.05$). Furthermore, the mediating variable emotional intelligence communication correlation with academic success ($r = 0.755$, $p < 0.05$), and classroom environment ($r = 0.281$, $p < 0.05$), were also positive and significant. Lastly, the classroom environment the moderating variable also positively and significantly correlated with academic success ($r = 0.146$, $p < 0.05$).

Mediation and Moderation Analyses

For analysis of mediation and moderation, Hayes and Preacher (2014) methods were used. Model 4 is used for mediation analysis, whereas model 7 is used for moderation mediation analysis. Regression analysis is a method that evaluates the statistical relationship between two or more variables (association). The degree to which a result variable is reliant on the predictor variable is shown through regression analysis. It explains how the estimate of a measure variable varies when a variation occurs in one or more independent variables. As a result, it reveals the causal link between variables, while

TABLE 1 | Measurement model.

Construct	Cronbach's Alpha	CR	AVE	Source
FLCA	0.834	0.878	0.548	Horwitz et al., 1986
Academic Success	0.795	0.858	0.548	Prevatt et al., 2011
Classroom Environment	0.866	0.875	0.367	Fraser et al., 1986
EIC	0.822	0.875	0.585	Davies et al., 2010

FLCA, Foreign language classroom anxiety; AS, Academic success; CE, Classroom environment; EIC, Emotional intelligence communication; CR, Composite Reliability; AVE, Average variance extracted.

TABLE 3 | Correlation analyses.

Constructs	AS	CE	EI	FLCA
Academic Success	1			
Classroom Environment	0.146**	1		
EIC	0.755**	0.281**	1	
FLCA	−0.392**	−0.552**	−0.443**	1

*FLCA, Foreign language classroom anxiety; AS, Academic success; CE, Classroom environment; EIC, Emotional intelligence communication; CR, Composite Reliability; AVE, Average variance extracted; N = 615. **Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level; ***Correlation is significant at the 0.001 level (2-tailed), **p < 0.01.*

TABLE 2 | The analysis of model fit (metric invariance).

Measurement models	IFI	CFI	GFI	AGFI	CMIN/df	RMSEA
Threshold values	> 0.9	> 0.95	> 0.95	> 0.8	< 3	0.05–0.1
Configural invariance (baseline model)	0.865	0.868	0.845	0.765	4.321	0.059
Metric invariance	0.935	0.935	0.940	0.915	2.40	0.039

correlation analysis only describes the association between variables. The regression process is carried out using a variety of methods (for example, Baron and Kenny, 1986), however for the convenience and suitability of the study, Hayes and Preacher (2014) process approach is used for investigation.

According to Preacher and Hayes (2008), methodology is antiquated since it requires a condition of absolute causality for intervening, which some experts believe is unnecessary and even a hindrance in the process for testing genuine effect (Hayes and Preacher, 2014). According to these researchers, the indirect effect through mediation is also possible even if no indications of direct influence between predictor and outcome components were detected (Hayes, 2012). Furthermore, because information in sociology is constantly vulnerable because of the circumstance, nature, and setting of respondents, the bootstrapping procedure for intercession in Hayes (2012) process technique builds the amiability of satisfactory outcomes because the example is divided into numerous small odds and ends and analysis is kept running on those smaller measured subsamples.

The results of hypothesis testing are shown in **Table 4**. First, the direct impact H1, H2, and H3 were investigated that "foreign language classroom anxiety is negatively associated to academic success." The results show that there is a negative and significant association between FLCA and AS ($\beta = -0.070$, $p < 0.05$). The value of β demonstrates the percentage change, illustrating that a one-unit change in FLCA results in a -0.070 unit change in AS. The findings show that about -7% of the change on the dependent variable is observed, and a value of p of 0.05 indicates a greater degree of significance, providing solid reasons to accept hypothesis H1. Also, support the relationship between FLCA and EIC ($\beta = -0.445$, $p < 0.001$), which indicated that FLCA decreases EIC by -44.5 percent. Finally, the relationship between emotional intelligence and academic success is positive significant ($\beta = 0.727$, $p < 0.001$), and emotional intelligence bring 72.7 percent change in academic success

According to the results FLCA indirect impact on AS through mediator emotional intelligence is positive and significant ($\beta = 0.323$, $p < 0.001$). **Table 4** reveals the bootstrapping results of Lower Limit Confidence Interval (LLCI) = 0.258 and Upper Limit Confidence Interval (ULCI) = 0.384, without having any zero between both limits, which clarifies that the results are significant. Lastly, the results indicated that classroom environment positively and significantly moderate the relationship between FLCA and EIC ($\beta = 0.197$, $p < 0.001$). The LLCI is 0.120 and ULCI is 0.259, which shows that there is no zero in the 95% bootstrap confidence interval. Hence, the Hypothesis H4 and H5 were accepted.

DISCUSSION

The purpose of this study was to examine the impact of foreign language classroom anxiety on academic success among Chinese students, by looking into the role of emotional intelligence communication as a mediator and the classroom environment as a moderator. As foreign language anxiety is said to be the most powerful predictor of foreign language performance among affective components. The learner develops attitudes and feelings toward learning a new language skills scenario after a few experiences within the foreign language setting. If these encounters are negative, foreign language anxiety may arise; if these negative experiences continue, foreign language anxiety becomes a regular occurrence, and the learner becomes anxious and performs poorly. Anxiety and failure expectations are heightened by poor performance and bad emotional reactions, and the following anxiety is a reaction to this perceived threat (Razak et al., 2017). Foreign language lessons have been found to be the most anxiety-inducing classes (Tuncer and Dogan, 2015). The role of emotional intelligence is becoming more widely recognized as a critical characteristic that can influence not only the quality of people's lives but also their chances of success in any endeavor. This is perhaps truer in the field of language teaching and learning than in many other areas. This is due to the fact that the language we use is so strongly associated with who we are and who we strive to be. As a result, we believe that emotional intelligence and classroom environment is the cornerstone, the most basic components, and the very foundation of foreign language learning.

The following were the hypotheses of the study: Firstly, foreign language classroom anxiety has a negative impact on academic success. The results of the present study were consistent with previous literature. In previous studies, three recent meta-analyses found that foreign language classroom anxiety and

TABLE 4 | Mediation and moderation analysis.

Hypotheses	Relationship among construct	β	Mean	SD	*T*-value	*P*-value	LLCI 2.5%	ULCI 97.5%	Remarks
	Direct Effect								
H1	FLCA → AS	−0.070	−0.072	0.030	2.349	0.019*	0.013	0.130	Supported
H2	FLCA → EIC	−0.445	−0.441	0.042	10.583	0.000***	0.357	0.522	Supported
H3	EIC → AS	0.727	0.727	0.022	32.718	0.000***	0.682	0.770	Supported
	Mediating Effect								
H4	FLCA → EIC → AS	0.323	0.321	0.032	10.035	0.000***	0.258	0.384	
	Moderating Effect								
H5	FLCA * CE → EIC	0.197	0.190	0.036	5.522	0.000***	0.120	0.259	Supported

FLCA, Foreign language classroom anxiety; AS, Academic success; CE, Classroom environment; EIX, Emotional intelligence communication; CR, Composite Reliability; AVE, Average variance extracted; LLCI, Lower limit confidence interval; ULCI, Upper limit confidence interval.
*$p < 0.05$ and ***$p < 0.001$.

achievement measures have substantial negative relationships (Li and Dewaele, 2021). Previous research has indicated that as a learner's academic performance deteriorates, so does his or her anxiety over certain academic assignments. Similarly, it is commonly established that a worrier learner would struggle academically. According to several research reports, there is a negative association between foreign language anxiety and success in language learning or language competency (Afzali and Izadpanah, 2021), and foreign language anxiety has a detrimental impact on academic progress in language acquisition. A substantial speaking anxiety element has also been documented in the literature as a common component of foreign language classroom anxiety. The results of comparable investigations revealed that anxiety impasses language development. Furthermore, another study found that the students' anxiety levels fluctuated and grew over time during their English prep instruction and that this fluctuation was a strong predictor of their academic achievement (Tuncer and Dogan, 2015).

Secondly, foreign language classroom anxiety is negatively associated with emotional intelligence communication. According to research, social and emotional abilities have been linked to success in a variety of areas, including successful teaching, student learning, excellent relationships, and academic performance (Jin et al., 2017). Many studies show that emotional intelligence is beneficial in the workplace and in school, and that it improves interviewing, cognitive tasks, and contextual performance (Zeb et al., 2021). In a previous study, metacognitive, affective, and social learning techniques were found to contribute positively to English language proficiency. Another study discovered a relatively high positive association between EI and writing ability (Guslyakova and Guslyakova, 2020).

Thirdly, emotional intelligence communication is positively associated with academic success. The findings of the study were consistent with the prior literature. A study discovered that there was a rather high positive link between EIC and writing ability (Guslyakova and Guslyakova, 2020). The findings revealed that emotional intelligence and linguistic achievement are inextricably linked. Previous studies have also shown that emotional intelligence has a positive impact on academic attainment (Ran et al., 2021). In another study, the relationship between emotional intelligence and English language learning was investigated (Paul Sun and Jun Zhang, 2022). The results showed that the two variables were substantially connected. Emotional intelligence has been proven to have a significant impact on pupils' linguistic abilities. As a result, it may be argued that emotional intelligence has the potential to improve learning in general and educational goals in particular (Dastgoshadeh and Javanmardi, 2021).

Fourthly, emotional intelligence communication mediates the relationship between foreign language classroom anxiety and academic success. Many of the findings of this study, as previously noted, are similar to past research in that it discovered a series of significant correlations between students' emotional intelligence, foreign language acquisition, and English achievement (Shao et al., 2013). This study promotes student views of social cohesion by increasing understanding of how EIC is resourced and utilized within students through the promotion of competent communication procedures. The fact that emotional intelligence and communication

ability have a mediating influence has practical implications (Troth et al., 2012). When calculating student allocation configurations, the level of a student's EIC may be a relevant factor to consider. While, there is some controversy about whether EIC can be taught, there is substantial evidence that individuals can be taught communication skills and communication norms. Students who receive communication skills training early in their university careers may be better equipped to engage in teamwork and have a more favorable experience. This emphasizes that improving communication and emotional skills should be a priority in order to maximize performance opportunities (Troth et al., 2012).

Lastly, the moderating role of the classroom environment between foreign language classroom anxiety and emotional intelligence communication. The relationship between the classroom environment and student emotions has been studied by a number of second language acquisition academics. A study revealed a positive association between classroom environment and enjoyment as well as a negative relationship between classroom environment and anxiety. In addition, Li and Dewaele (2021) discovered that classroom environment and trait emotional intelligence together predicted both foreign language enjoyment and foreign language classroom anxiety in a Chinese-English foreign language environment. The conceptual assumptions and actual findings support the notion that the classroom environment and foreign language emotions are linked (Li and Dewaele, 2021). Furthermore, the classroom environment influences the association between foreign language anxiety and academic success as well as the relationship between foreign language anxiety and emotional intelligence communication. As previously noted, many of the findings of this study are consistent with past research in that it discovered a number of significant correlations between students' emotional intelligence, foreign language acquisition, academic success, and classroom environment (Zeb et al., 2021). In such circumstances, it is reasonable to predict that students with higher emotional intelligence would have less or no language anxiety and would achieve better levels of language proficiency (Li and Dewaele, 2021).

Theoretical Implications

This study theoretically supports the literature in various ways. First, previous studies have not examined foreign language classroom anxiety with these variables together. The current study's findings revealed that emotional intelligence and classroom environment play an important role in foreign language anxiety among Chinese students. This study also employs broaden and built theory of positive psychology, emotional intelligence model and social cognitive theory to investigate the conceptualized path. Moreover, the role of emotional intelligence communication as a mediator between foreign language classroom anxiety and academic success and class room environment as a moderator between FLCA and emotional intelligence communication are also new contributions to this study.

Practical Implications

The following are the study implications: First, teachers should attempt to develop a classroom culture in which language

mistakes are accepted as a natural part of the learning process. Prioritize instilling the attitude that mistakes are chances for learning. Second, teachers can employ cooperative learning to complete tasks with students in small groups. Cooperative learning encourages peer collaboration, intentional communication, and interaction with real-world literature. Third, effective praise and feedback should focus on the effort and care that the student put into the task, on the advances in knowledge or abilities, rather than encouraging students to compare themselves to others. Fourth, criticism should not be used to scold students or make them feel bad about themselves. Instead, it should be used to teach students how they can improve.

It is also recommended that the classroom climate be warm, supportive, and motivating. Learners should understand that making a mistake is not fatal and that they are not alone in making mistakes when learning a foreign language. Many students are happy to hear that they are not the only ones who are worried about learning and utilizing a foreign language, as Horwitz (2017) pointed out. Thus, it is critical to handle anxiety-inducing situations with caution. Although it is neither practicable nor useful to totally avoid all anxiety-inducing circumstances, teachers and course designers should create teaching activities that can assist students in reducing their anxiety. It is only possible when foreign language teachers are aware of their students' difficulties and anxiety-provoking situations, as well as have the skills to deal with them. Teachers should also provide more understandable input to their students. Teachers can do this by speaking at a slower pace in class. They may occasionally switch from the target language to the learner's native language if they are having difficulty understanding the foreign language.

Roick and Ringeisen (2017) discovered that a teacher's personality and interactions with students can minimize students' language anxiety by creating a calm environment. To reduce students' anxiety, Dewaele and Li (2021) claimed that teachers should utilize an effective teaching strategy that develops respect for students' sentiments. Furthermore, teachers should employ games to help students relax. They should also aim to replace previous teaching methods, which mostly focused on teachers, with approaches that emphasize the role of students, i.e., a student-centered approach. Finally, these significant pedagogical consequences can assist instructors in overcoming classroom anxiety language, such as teacher trainers emphasizing the value of teacher passion to trainee teachers and strategies to convey it clearly, verbally, and nonverbally. These tactics, when combined with the skillful use of humor, care, and sympathy for students, can result in positive emotional contagion, resulting in increased student engagement, progress, and well-being for both students and teachers. Emotional intelligence should be a part of all educational activities across the board.

Limitations of the Study

The study had certain drawbacks. This study adopted a purely quantitative method to investigate students' emotional intelligence, classroom environment, and foreign language acquisition, which may in some ways fail to reveal the learners' real situations and experiences. Some students may be unable to fully comprehend and appropriately assess their emotional intelligence and foreign language skills, undermining the validity of the research. It would be able to get a more thorough picture of these concerns by combining qualitative approaches like observation, interviews, and reflective journals. Teachers can understand how well students are aware of their emotions in English class and how they use emotional intelligence to manage their anxiety and language acquisition, for example, by paying close attention in the classroom. More research will be done in this area, with different variables based on Chinese undergraduate difficulties.

Suggestions for Future Researches

The following are the suggestions for future researchers: Future research may employ a mixed-method approach that includes both quantitative and qualitative methods. It is suggested that in future studies, the elements that positively affect test anxiety be further investigated. Furthermore, follow-up studies could expand the number of participants to allow for a more powerful analysis as well as incorporate a variety of test anxiety measures. Therefore, in future, higher education institutions should focus on advanced and instructional resources in the classroom, such as posters, flashcards, comfortable lighting, and music, to produce a favorable learning environment that allows students to relax and enjoy themselves. Teachers and examiners should also get training to learn more about how test anxiety affects the learning process. Studies have shown that test anxiety has a big effect on students' achievement, performance, competence, and language skills.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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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Carrot and Stick Approach: The Exploitative Leadership and Absenteeism in Education Sector

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Utilizing the conservation of resources theory, this study investigates serial mediation of facades of conformity and depression between exploitative leadership and absenteeism. A total of 211 education sector employees using the convenient sampling technique took part in the survey with data collected in a time-lagged research design. Findings of the study reveal that facades of conformity and depression mediate the independent paths and play a serial mediating role between EL and absenteeism path. This study suggests that EL works as a workplace stressor, under which employees try to protect their valuable resources from further loss in the form of facades of conformity, in doing so, it leads to depression; thus, employees ultimately use absenteeism as an active coping strategy to cope with workplace stressors.

Keywords: exploitative leadership, facades of conformity, depression, absenteeism, education sector

INTRODUCTION

Leadership plays an important role in shaping employees' behavior at the workplace and is vital for organizational success (Yukl, 2012). Recently, organizational researchers have started focusing on the negative side of leadership (Schyns and Schilling, 2013) especially in education sector (Akhtar et al., 2021b; De Clercq et al., 2021, 2022). This negative or dark side of leadership is marred with emerging new constructs and multiple labels such as abusive supervision (Tepper, 2000), petty tyranny (Ashforth, 1994), despotic leadership (De Hoogh and Den Hartog, 2008; Syed et al., 2020), destructive leadership (Krasikova et al., 2013; Schyns and Schilling, 2013), and exploitative leadership (EL) (Schmid et al., 2019b). Akhtar et al. (2021b) investigated the effect of dark leadership on employee outcomes with mediation and moderation models in education sector.

Exploitative leadership mostly encompasses the features of destructive leadership (Schmid et al., 2018). EL is defined as "*leadership with the primary intention to further the leader's self-interest by exploiting others, reflected in five dimensions: genuine egoistic behaviors, taking credit, exerting pressure, undermining development, and manipulating*" (Schmid et al., 2019b). Recently, Schmid et al. (2019b) debated on the concept of EL as a prevalent negative leadership behavior targeting the followers; however, it is void of inherent hostility or aggressiveness. EL is different from other forms of negative leadership due to its distinctive factors. First, the exploitative leader is usually high in

self-interest, and she/he is more likely to act egoistically. She/he mostly prioritizes her/his goals over subordinates' needs and takes the credit of subordinate's works (Schmid et al., 2019b). Second, exploitative leaders pressurize their subordinates by using influential tactics or manipulating them such as overt aggression and create rivalry among subordinates to benefit herself/himself (Schmid et al., 2019b). Third, exploitative leaders behave friendly and delegate additional tasks among subordinates, even if they are already burdened and overloaded (Schmid et al., 2019b). Fourth, exploitative leaders underchallenge the subordinates by delegating the tedious tasks among them and hinder their career advancements (Schmid et al., 2019b).

Exploitative leadership integrates with a broad range of dysfunctional outcomes observed at the individual level. There has been consistent efforts invested to examine mediated models, as by doing so, studies are able to directly examine theoretical mechanisms, i.e., how employees get avenged due to dark supervision (Tepper et al., 2017). Schmid et al. (2019a) investigated exploitative leaders' impact on the different individual levels (e.g., job satisfaction, commitment, burnout, and workplace deviance behavior). Schmid et al. (2018) apprised in their study that how EL plays an adversal role on employee's emotional reactions (i.e., negative affect) and turnover intentions. Syed et al. (2021) stated that EL is a stressor that dampens the employee job performance and creativity through knowledge hiding. Despite this plethora of research, we know very less about how EL works and converts into different employee outcomes such as knowledge hiding, psychological distress, and turnover intentions. Thus, very less attention has been devoted to uncover the consequences of EL, especially how EL may influence employee absenteeism, "*as a form of withdrawal behavior whereby employees avoid unfavorable work situations by not showing up for work*" (Harrison and Martocchio, 1998). As employee absenteeism is very dangerous for organization (Bowen, 1982), by practicing it employees try to enhance a distance between the organization and themselves (Farrell and Petersen, 1984). Therefore, the intent of this research was to explore the effect of EL on employee absenteeism from the lens of conservation of resources (COR) theory. As Hobfoll (1989) stated, normally people attempt to protect their valuable resources from further loss when encountered threatening situations. EL is a workplace stressor. Hence, when a leader behaves exploitatively, then the follower engage in absenteeism in order to protect their valued resources. In addition to the direct effect of EL to absenteeism, we proposed two mediating mechanisms, namely, facades of conformity (FOC), "*false representations created by organization members to appear as if they embrace organizational values*" (Hewlin, 2003), and depression, "*as a common mental health issue in which the individual feels fatigued as well as sad and loses interest in everything*" Kroenke et al. (2001), under COR assumptions. According to the study by Hobfoll (1989), individuals try to gain and protect their valuable resources. The underlying principle of the theory of COR is "*individuals strive to retain, protect, and foster those things that they value*" (Hobfoll, 2001;

Westman et al., 2004). Hobfoll corroborates that employees are susceptible and likely protect their numerous valued resources ranging from object resources to energy and from personal to condition based (Hobfoll, 1989, 2001). Exploitative leaders are usually the source of pressure and a threat to resources loss due to their self-interested characteristics and tendencies (e.g., egoistic, manipulative, taking credit, exerting pressure, and undermining the followers), which leads workers to hide their emotions and mask themselves (FOC) (Hobfoll, 1989, 2001, 2011). The exploitative leaders exert pressure and undermine against the personal favors he/she provided to their followers; therefore, followers may indulge in conformity to avoid punishment (Aycan, 2006). In the end, hiding an internal resource (i.e., adoption of facades) may cause psychological suffering such as depression among followers, and they may detach (i.e., absenteeism) themselves from their work (Hobfoll, 2011). Followers become frustrated in a situation where exploitative leaders demand undue favors and loyalty (Soylu, 2011), which deteriorate of their resources; therefore, they engage in absenteeism.

Through our application of COR theory as an overarch to uncover the EL-absenteeism relationship, we sought several contributions in the literature. First, recent studies have examined the EL and employee behaviors (Schmid et al., 2018, 2019a); we extended the literature on EL by positing that the FOC may act as the underlying mechanism by which subordinates protect their valuable resources from loss and engage in absenteeism due to EL. We drew upon COR theory (Hobfoll, 1989) and opined that employees "*strive to retain, protect, and build resources and that what is threatening to them is the potential or actual loss of these valued resources*" (p. 516). Hobfoll defined resources as "*those objects, personal characteristics, conditions, or energies that are valued in their own right, or that are valued because they act as conduits to the achievement or protection of valued resources*" (2001). Strains occur if people experience a threat to one of their resources, an actual resource loss, or a lack of resource gain after a resource investment. Then, exploited employees might engage in increased FOC (i.e., masking themselves) and opt absenteeism behavior, just to protect their resources from exploitation.

Second, this study contributes by assessing how depression mediates the relationship of EL and employee absenteeism; subsequently, FOC and depression serially mediate the relationship between EL and employee absenteeism. In situations where the workers perceive that there is a contradiction in their values with that of their organization, they mostly pretend that they are fit into the organization (Hewlin et al., 2017). Due to work pressures or work stressor employees, publicly, they may indulge in such types of behavior which are not real or original (masking themselves) (Hewlin, 2003). This further leads to the hampering of the employee mental health/cognition in the form of depression and finally leads to employees' absenteeism. The employee use it as a coping strategy just to protect their valuable resources from the exploitative boss. In particular, we focused on EL and absenteeism's relationship that is serially mediated by FOC and depression. Finally, this inquiry is built on a lagged design research design, which is likely to minimize the threat of common method bias (CMB) (Podsakoff et al., 2003).

THEORY AND HYPOTHESES

Exploitative Leadership and Absenteeism

Exploitative leaders being high on self-interest build all the connections with their subordinates based on personal gains and interests; moreover, such leaders tend to utilize their followers to achieve self-centered objectives (Schmid et al., 2019b). Schilling (2009) stated that exploitative leaders usually adopt a carrot and stick approach, i.e., fear strategy, and exploit their followers through extrinsic rewards to achieve personal and organizational goals. Voluntary absence from the workplace occurring due to domestic pressures and sudden ailing of the employees might yield harmful ramification in employees such as workplace stress, diminished self-confidence/self-esteem, and workplace maltreatment (Lach, 1999). Such employees, when faced exploitative leaders at the workplace, indulged into unfavorable outcomes, including high turnover intentions and low organizational commitment (Schmid et al., 2018, 2019b; Syed et al., 2019a), job performance, and creativity (Syed et al., 2019a).

Tepper et al. (2006) reported that dark leadership yields negative consequences in employees, such as low productivity, high absenteeism, and hospitalization costs. Exploitative leaders being focused on self-interest behave egoistically, take undue credit, exert pressure, and manipulate the followers. These action tendencies may make the workplace stressful, and followers adopt absenteeism as a coping strategy to protect their valuable resources from exploitative leaders. Previous research also corroborates that to cope with stressful work environments, employees usually take short breaks such as temporary or short-term absenteeism from the work settings (Hassan et al., 2014).

Based on COR theory (Hobfoll, 1989), this study proposes that EL works as a workplace stressor; employees initially engage in efforts to meet an exploitative leader's undue demands. Employees' behavioral reactions to poor work conditions such EL, as a way of mitigating the resource loss caused by EL, increase when relevant personal qualities increase the desirability of preventing more resource drainage, according to the COR mechanisms (Hobfoll, 2001). It becomes very taxing for subordinates of such exploitative leaders, and they are unable to recover and replenish their resource pool, which results in energy depletion. Thus, such employees engage in absenteeism as a coping strategy to save their energy and continue their work. Hence, it is proposed that:

> H1: Exploitative leadership (EL) is positively related to employee absenteeism.

Facade of Conformity as a Mediator

Hewlin (2009) in their study stated that perceived non-participative work environments, minority status, self-monitoring, and collectivism were significantly related to creating FOC. Although some antecedents of facade creation have been discussed in the literature, e.g., subjectivity in the organizational reward system and leader's integrity (Hewlin et al., 2017), we do not know much about why and how it operates. The dark leadership types have been deleteriously associated with a range of employee perceptions, behaviors, and workplace outcomes (Mackey et al., 2017). Creating facades is also a result of diminished self-esteem among organizational members (Mitchell et al., 2015). So exploitative leaders discourage his/her followers by acting egoistically, manipulating, exerting pressure on them, and taking credit for their efforts, that is why followers will indulge in the process of FOC.

Creating FOC, in actuality, is the reflection that the employees are prone to the environment, which leads them to suppress their feelings and view to cope with the stress and show their submissiveness to the organizational values beliefs (Hewlin et al., 2016). The result of this blitz is that it can end up in the individual's retaliation (i.e., direct or indirect) against the organization. It continuously presses him/her to engage in facade creation, which contradicts his/her true values and core beliefs (Hewlin et al., 2016).

Exploitative leaders are loaded with egotism along with manipulative intentions; individuals when confronted with such leaders try to avoid, make distance, engage less in interaction, and are less likely to come up with new and innovative type of work-related ideas. Among employees, exploitative leaders' reputations plummet due to their negative evaluation for such leaders who engaged with followers and are more concerned with overloading their task (Schmid et al., 2018, 2019b). Heightened distance between leaders and followers, more absenteeism, low commitment, and low hedonism at workplace are likely to follow when employees face such leadership. Since exploitative leaders are found to perpetrate by delegating additional tasks with mounted pressure in workplace settings (Schmid et al., 2018), employees feel disrespect, dehumanized, and are likely to indulge in facade creation to get relief from, under such a situation, extra tasks. A more self-lover and egoistic exploitative leader tend to gratify himself/herself with attainment of his/her personal goal achievement on the cost of followers hard work; consequently employees might perceive that their inner self being ruined thus are not be able to produce creative value-driven ideas. Since exploitative leaders are not habitual to offer liberty to followers, they hamper their cognitive development by assigning average or even below-the-line tasks (Schmid et al., 2019b), employees labeled these leaders as opportunistic who undermines their competency level, which encourages them to create the FOC. According to the study by Hobfoll et al. (2018), when people experienced actual loss or threatened of resource loss, then they experience strain. Guo et al. (2020) suggested that EL consumes followers' resources such as social support, self-esteem, and job control. Indeed, when employees witnessed exploitation from leaders, then they feel a threat to lose their psychological resources (Schmid et al., 2019a). Indeed, it is suggested that EL facilitates the adoption of FOC. Previous studies reported that EL increases psychological distress (Majeed and Fatima, 2020), knowledge hiding, and turnover intentions (Syed et al., 2021). Therefore, it is suggested that followers when confronted with exploitative leader's behavior tend to embrace FOC.

According to COR, individuals are highly sensitive about the loss of valued resources (Halbesleben et al., 2014). Resource loss is more salient than resource gain, and for this very reason, individuals try to protect their resources, i.e., personal skills

and personal traits (Hobfoll et al., 2018). As per COR, when followers face acute losses in resource, then they experienced anxiety and want to protect their remaining resources (Hobfoll, 2001). Guo et al. (2020) stated that EL consumes individual resources. Thus, when leaders exercise exploitative style, then followers experience FOC and absenteeism as a coping strategy, i.e., to protect their resource (Magee et al., 2017). Because when they perceive the threat of resource loss from the supervisory side (i.e., exploitative leader), they are engaged in the facade of conformity to protect their valuable resources. According to COR theory (Hobfoll, 1989), people want to attain, sustain, and reserve resources. COR theory posits that resource loss is more powerful than resource gain in magnitude and tends to affect people more rapidly and at an increasing speed over time (Hobfoll et al., 2018). So, to protect their valuable resources, individuals indulge in increasing absenteeism (i.e., lateness at workstation) because they feel threatened to lose their resources (Ahmad and Begum, 2020) under an exploitative leader. Thus, when followers experience manipulation under an exploitative leader, they tend to protect their valuable resources by engaging in conformity facades, which then leads to employee absenteeism as a coping mechanism. Thus, it is hypothesized that:

H2: *The relationship between exploitative leadership and absenteeism is mediated by facades of conformity.*

Mediating Role Depression

It is also vital to understand how effective coping strategies can alleviate the exploitation impact (Schmid et al., 2018, 2019b). EL termed to be the main reason for social support loss. Likewise, followers who are victimized to consistent exploitation termed such loss as a loss of autonomy and loss of job control. As exploitative leaders consistently assign boring and unmatched tasks to followers, elusive work pressure evolves (Schmid et al., 2018). Thus, such individuals are likely to make the employee depressive and sadist. Drawing on this theoretical reasoning, this research predicts leaders' exploitation being a stressor which instigates a negative impact on followers' resources and thus tandem psychological stress and tension to meet job demands. A significant form of psychological tension studied in previous research is depression (Harvey et al., 2007).

Exploitation significantly affects mood causing several reasons. First, exploitation at the workplace produces a painful and negative experience, while studies examined that intense emotional reactions such as pain and tension might be prompted due to negative experiences (Taylor, 1991). In addition, such oppression might increase if employees are confronting a stressor at the workplace (Choi, 2019). Evident in the findings of earlier studies is that apostates are miserable and depressed (O'leary, 1990; Ferris et al., 2008). Previous studies reported that workplace stressors might threaten employee's psychological wellbeing and increase their risk for mental health problems, such as depression (Luo et al., 2016; Han et al., 2017).

Overall, EL has been found to be a fatal workplace stressor that posits threats to employees' resources, their wellbeing,

and the ability to perform tasks (Syed et al., 2019b). Under depressive work environment, employees' resources reduce rapidly, and resource replenishing might not be useful for all due to different personalities (Zhou et al., 2018). Specifically, exploited employees experience more negative self-evaluation about themselves, such as discouragement and inferiority. These negative self-evaluation leads to depression. In the same line of reasoning, previous research revealed that depression has a positive and significant effect on various withdrawal behaviors (Pollack et al., 2012). Experiencing stressor at the workplace (i.e., EL) can cause poor mental health (i.e., depression) (Sawhney et al., 2018; Bartoll et al., 2019), which is likely to result in increased absenteeism in employees from work. Hence, based on the aforementioned arguments, it is hypothesized that:

H3: *Depression mediates the relationship between exploitative leadership and employee absenteeism.*

Serial Mediation

As shown in **Figure 1**, and in line with studies that discussed EL (Schmid et al., 2018, 2019b) and employee absenteeism (Nevicka et al., 2018), this study aimed to establish these relationships in a serial mediation model where it is suggested that how EL is linked to employee absenteeism *via* FOC and depression. Previous studies reported that a negative form of leadership might directly increase employee absenteeism due to his/her social relationship with subordinates. Still, this above relationship might be influenced indirectly as well (Nevicka et al., 2018). Individuals exposed to exploitative leaders tend to reduce further loss of other resources, therefore are prone toward disengagement with task and withdraw themselves as a coping strategy (Shirom, 2003). Therefore, depletion of resources, combined with withdrawal from one's tasks, is likely to result in high absenteeism. Specifically, it is argued that under EL, subordinates are entitled to engage in creating facades (i.e., mask themselves or hide their true self) to protect their valuable resources from exploitation. Also, when such exploited individuals indulged in facade creation perceive insecurity about their new ideas/inputs, it is likely to result in poor mental health (e.g., depression), which ultimately leads to absenteeism. Therefore, we predicted serial mediation hypothesis as:

H4: *Facades of conformity and depression sequentially mediate the relationship between exploitative leadership and absenteeism.*

RESEARCH METHOD

Study Design and Participants

This study developed and tested the serial mediation model. The data were collected from telecom sector employees with the help of a self-administered paper-based survey questionnaire. This study follows the time-lagged (i.e., three waves) and single-source (self-report) design. Previous studies reported that self-reported data might lead to CMB (Podsakoff et al., 2003).

FIGURE 1 | Research model.
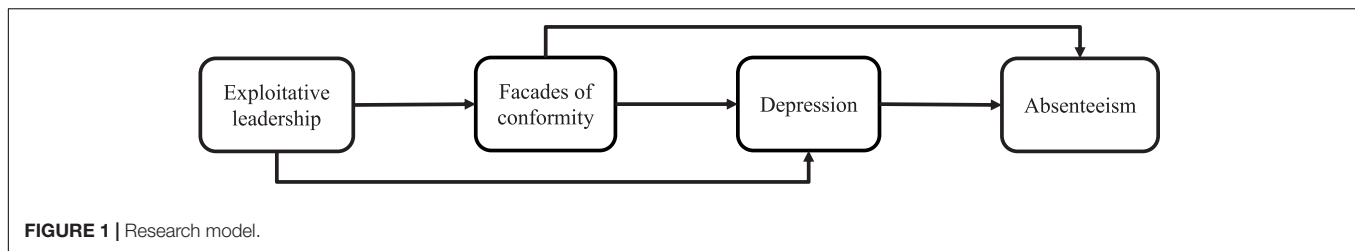
To minimize CMB, we applied multiple methodological and statistical analyses recommended by Conway and Lance (2010), (a) providing the justification why self-reports are appropriate, (b) using proactive measure, and (c) giving the construct validity of the measure.

First, this study will explore the consequences of EL in the education sector. Self-report measures are appropriate for the participants' assessments of their immediate supervisor who displays exploitative behavior (e.g., manipulative, egoistic, taking credit, and undermining them). EL, FOC, depression, and absenteeism are commonly perceived as subjective. For this, obtaining self-report response seems adequate. Second, we divided the survey into three different time lags with a four-week interval in each. In Time 1, we distributed 440 surveys comprising the respondents' demographic information (e.g., survey unique ID or name, gender, job details, organization, marital status, and education), EL (i.e., self-reported) items, and received back 380 surveys wholly filled. After a four-week gap of receiving the first survey, in Time 2, we distributed the 380 surveys FOC (i.e., self-reported) among the same respondents (identified with the help of survey unique ID or name) and found 335 filled surveys. Furthermore, after the four-week interval in Time 3, we distributed the 335 surveys asking questions on depression and employee absenteeism (i.e., self-reported) from same participants. In sum, a total of 211 complete questionnaires were obtained comprising a response percentage of 48%. Finally, to justify the construct validity, we performed the conformity factor analysis for the structural model, and the results show that fit indices [x^2 (192) = 570.11, comparative fit index (CFI) = 0.95, Tucker–Lewis index (TLI) = 0.94, root mean square error of approximation (RMSEA) = 0.08] are better than those of other models

[x^2 (210) = 3512.40, CFI = 0.50, TLI = 0.45, RMSEA = 0.27] (refer to **Table 1**).

Variable Measurement

To collect the data, this study adopted the existing valid measures of the study constructs. The questionnaire was administered in English, as language was not an issue and is the official business language in Pakistan (Akhtar et al., 2020a,b; Javed et al., 2021). All the measures are anchored on a 5-point Likert scale. Measures for study constructs were adopted from previous studies in line with the operational definitions of the variables.

Exploitative leadership: We used 15-item scale of Schmid et al. (2019a) to measure exploitative leadership at Time 1. The Cronbach alpha reliability of this instrument is found to be 0.78. The sample items include: *"Takes it for granted that my work can be used for his or her personal benefit"* and *"Puts me under pressure to reach his or her goals."*

Facades of conformity: In this study, we have used a 6-item scale to measure FOC originally developed by Hewlin (2009). The alpha reliability of scale is found to be 0.83, whereby items are, *"I don't share certain things about myself to fit in at work"* and *"I suppress personal values that are different from those of the organization."*

Depression: A 9-item Patient Health Questionnaire (PHQ) developed by Kroenke et al. (2001) was adopted to tap depression at Time 3; the reliability of this instrument is found to be 0.80. A sample question includes *"during the last month, how often were you bothered by feeling down, depressed, or hopeless?"* Answers were measured on a response scale, 1 (i.e., not at all), 2 (i.e., several days), 3 (i.e., every week), 4 (i.e., more than half the days), and 5 (i.e., nearly every day).

Absenteeism: We measured employee absenteeism at Time 3 by using the 5-item scale, three items from Geurts et al. (1994)

TABLE 1 | Measurement model comparison.

Measurement models		χ^2	Df	χ^2/Df	TLI	CFI	GFI	RMSEA
1	EL and FOC (2 factor) EL and FOC (1 factor)	53.83	8	6.72	0.90	0.94	0.92	0.16
		1086.41	9	120.71	0.20	0.52	0.51	0.68
2	FOC and Depression (2 factor) FOC and Depression (1 factor)	211.77	8	26.47	0.43	0.70	0.81	0.34
		1083	14	77.40	0.33	0.56	0.53	0.55
3	Depression and Absenteeism (2 factor) Depression and Absenteeism (1 factor)	63.71	13	4.90	0.92	0.89	0.93	0.13
		1343.98	54	24.88	0.49	0.59	0.48	0.31
4	Full Model (4 factor) Full Model (1 factor)	**570.11**	**192**	**2.96**	**0.95**	**0.96**	**0.84**	**0.08**
		3512.40	210	16.72	0.45	0.50	0.41	0.27

Better fit indices are presented in bold; full model (4-factor model) combines exploitative leadership, facades of conformity, depression, and absenteeism.

Sr. no		Mean	SD	1	2	3	4
1	Exploitative leadership	3.26	1.29	*(0.94)*			
2	Facades of conformity	3.15	0.47	0.39**	*(0.70)*		
3	Depression	2.81	0.64	0.65**	0.40**	*(0.70)*	
4	Employee Absenteeism	2.96	0.50	0.69**	0.65**	0.70**	*(0.87)*

N = 211; bold values represents alpha reliabilities are presented in parentheses,
**p < 0.01.

and two items from Autry and Daugherty (2003). The sample question is "*I have been absent for reasons associated with work stress this year*" and "*How often have you been absent from the job because you just didn't feel like going to work?*" The reliability of the scale is 0.78. All the items were measured on a 5-point Likert scale ranging from 1 "never" to 5 "very frequent; every day."

RESULTS

Table 2 shows estimates for all study variables, i.e., descriptives, correlations, and reliability statistics, along with the value of means and standard deviations. The Cronbach alpha's result also reported that all the variables' measurement scales are reliable, having a value of above 0.70, and the cutoff value is recommended by Nunnally (1982).

All the variables of the study were conducted at different time lags. EL has a significant positive correlation with FOC ($r = 0.40$, $p < 0.01$), depression ($r = 0.65$, $p < 0.01$), and employee absenteeism ($r = 0.69$, $p < 0.01$). Also, FOC has a significant and positive correlation with depression ($r = 0.40$, $p < 0.01$) and employee absenteeism ($r = 0.65$, $p < 0.01$). Finally, depression has a significant and positive correlation with employee absenteeism ($r = 0.70$, $p < 0.01$).

For testing direct, indirect, and serial mediation hypotheses (i.e., H1, H2, H3, and H4), this study employed PROCESS Macro by Hayes (2015). We performed Model 4 for simple mediation and Model 6 for serial mediation, respectively, in PROCESS Macro (refer to **Table 3**). The mediation technique used by Hayes' "*directly tests the indirect effect between the*

predictor and the criterion variables through the mediator via a bootstrapping procedure, addressing some weaknesses associated with the Sobel test" (Van Jaarsveld et al., 2010). Furthermore, it provides bootstrapped confidence intervals (CIs) and associated statistical significance tests for indirect paths (Warner, 2013). Therefore, in this study, we validated the indirect effects (ELs) and its effect on ABS *via* FOC and depression.

As evident from results, EL has a positive relationship with absenteeism ($b = 0.20$, $t = 3.75$, $p < 0.01$) (**Table 3**). Thus, H1 is supported. H2 stated that EL and absenteeism relationship is mediated by FOC. According to **Table 3**, EL has an indirect effect on absenteeism *via* FOC ($b = 0.07^*$, SE = 0.03, Z = 1.98, $p < 0.05$) as the indirect effect of EL on employee absenteeism *via* FOC did not include zero [$\beta = 0.07$, CI (04, 0.10)], which provides support to H2. As indicated in **Table 3**, EL has an indirect effect on absenteeism *via* depression ($b = 0.11^*$, SE = 0.03, z-value = 2.05, $p < 0.05$) as the indirect effect of EL on employee absenteeism *via* depression did not include zero [$\beta = 0.11$, CI (07, 0.115)], which provide support to H3. Also, the result indicates that EL has an indirect effect on absenteeism *via* FOC and depression ($b = 0.08^{**}$, SE = 0.01), which was found to be substantiated at 95% CI (0.006, 0.018). Therefore, hypothesis 4 was substantiated.

DISCUSSION

In the present highly competitive workplace environment, EL has been considered as an acute threat and risk for employees (Schmid et al., 2018, 2019b; Syed et al., 2019a), although it is still in infancy that how and why it happens in organizations (Schmid et al., 2018, 2019b). By addressing this important question, we investigated the effects of EL on employee absenteeism; furthermore, the impact of EL on employee absenteeism is serially mediated by FOC and depression.

This study filled an important gap in the literature, as limited studies investigated the outcomes of EL (Schmid et al., 2018, 2019b; Syed et al., 2019a). Therefore, this study examined the effects of EL on employees' absenteeism. This study's findings revealed that leaders' exploitative behavior pushes the followers toward absenteeism because exploitative leaders manipulate

TABLE 3 | Mediation analysis.

		M^1 (FOC)				M^2 (Depression)				Y (Absenteeism)		
		Coeff.	SE	P		Coeff.	SE	p		Coeff.	SE	p
Exploitative Leader (EL)	a^1	0.14	0.02	0.000	a^2	0.29	0.03	0.001	$c^{\cdot 1}$	0.12	0.02	0.001
Facades of conformity (FOC)		–	–	–		0.23	0.08	0.01	b^1	0.41	0.05	0.001
Depression		–	–	–		–	–	–	b^2	0.27	0.04	0.001
Constant	i^1	2.68	0.08	0.000	i^2	1.14	0.22	0.000		0.52	0.14	0.001
		$R^2 = 0.16$				$R^2 = 0.45$				$R^2 = 0.70$		
Indirect effects (EL on Absenteeism)									Effect [95% CI]			
Indirect effect *via* FOC									**0.07* [0.04 0.10]**			
Indirect effect *via* Depression									**0.11** [0.07 0.15]**			
Serial mediation (EL→FOC→ Depression → Absenteeism)									**0.008* [0.006 0.018],**			

N = 211 for self-reported outcome. *p ≤ 0.05. **p ≤ 0.01 s. Bold values are confidence intervals.

followers and do not care about followers' development. The findings of the this study aligned with previous studies, which reported that EL positively affects employee behaviors (Schmid et al., 2018, 2019b). Theoretically, when employees face workplace stressors (i.e., EL in our case), they tend to cope with the situations to prevent their resources (i.e., employee absenteeism as a coping strategy). This is in accordance with the theoretical assumptions of COR theory (Hobfoll, 1989, 2001, 2011; Halbesleben et al., 2014).

This study's findings also reveal that FOC mediates the relationship between EL and employee absenteeism. In circumstances where employees observe that their leader takes all the credit for their hard work, manipulates them, and does not show much care about the development of their followers, then followers may hesitate to share new ideas, which means they masked their true self and portray behavior according to leader demand/requirement. This will lead to employee absenteeism at the workplace. According to the COR theory, individuals try to protect their resources from further loss when they have or perceive the theft of loss (Hobfoll, 2001, 2011).

Findings also reveal that depression mediates the relationship between EL and employee absenteeism. When followers continuously encounter the exploitative leader, who is focused on his personal goal achievement based on followers' efforts and not cares about the growth of followers, then the followers may experience depressive systems, which will ultimately dampen their interest at job and organization, so they are more inclined toward absenteeism. As per the assumptions of COR, under stressful conditions (i.e., exploitative leaders), followers may engage in the protection of their resources so they may experience cognitive disorder (i.e., depression), which will lead them to absenteeism at the workplace.

Overall, we found good support for all our proposed hypotheses. Interestingly, this study's insights are in line with the earlier studies in domain and verdicts that destructive leadership behaviors bring negative consequences for individuals (Neves and Schyns, 2018). Notably, such findings validate previous studies suggesting that leadership influences follower outcomes through different underlying processes (Zhang and Bartol, 2010; Zhang et al., 2012).

Theoretical Implications

This study embeds several contributions to theory. First, this study contributes to nascent domain in the EL literature by identifying its new outcome, i.e., absenteeism. Recently, studies paid their attention to determine the outcomes of EL (Schmid et al., 2018, 2019b; Guo et al., 2020; Majeed and Fatima, 2020). Perhaps, Schmid et al. (2018) stated that EL positively related to turnover intentions. Schmid et al. (2019b) appraised that EL brings gradual loss in followers' satisfaction with job and affective commitment. Majeed and Fatima (2020) stated that EL increased psychological stress *via* negative affectivity. Syed et al. (2021) concluded that EL decreased employee performance and creativity *via* knowledge hiding. In fact, this emerging area predicting EL on absenteeism has often fallen in backburner and overlooked in organizational behavior studies. Therefore,

this study broadens the EL literature by substantially relating it with absenteeism.

Second, the mediating role of FOC and depression in such underlying mechanism further advances and broadens the literature regarding EL with its subsequent outcomes. Earlier studies found a substantiated relationship for direct effects of EL (Schmid et al., 2018, 2019b), but relatively failed to scrutinize the EL mechanism in such depth and detail (Syed et al., 2021). Based on the COR theory contentions, this study indicates that FOC and depression are important mediating mechanisms between EL and absenteeism. Findings reveal that EL, a distinctive resource-draining leadership style, increases followers' FOC and depression and subsequently leads to absenteeism. Akhtar et al. (2020b) found similar results and further corroborated that FOC mediates the influence of supervisor ostracism and unethical work behavior. In addition, this study considered theoretical assumptions of COR as useful to comprehend EL and its effects, thereby highlighting such psychological processes by which EL affects negative outcomes.

Managerial Implication

This study offers several practical implications. First, the results reveal that under EL, subordinates/followers are more likely to engage in FOC (just to suppress their feeling), which will lead to employee absenteeism. However, previous studies reported that followers engage in surface acting under dark leaders just to avoid the conflict (Tepper, 2007). That is why, we suggested that, to deal with the absenteeism issue, employees need cognitive effort in dealing with difficult situations such as EL and attend organizations-arranged training programs on emotional regulation skills in the leader-follower relationship.

Employees should be keen and be able to learn emotional regulation strategies to engage with exploitative leaders; by doing so, they might be less susceptible to experience resource-depleted symptoms, i.e., FOC (Rupp and Spencer, 2006). Keeping the study results in view, managers must ensure the positive leadership style and build high-quality leader-member exchange (LMX) to avoid the FOC because a high-quality LMX relationship stimulates employees to express their true selves (Bowen, 1982). Third, human resource development (HRD) department should arrange training programs for managers to enhance their supportive and effective management style by which subordinates freely discuss and share their ideas with the supervisor without any threat.

Limitations and Future Direction

This study has several limitations. First of all, as the data collected were self-reported, this might account for CMB in the study. Previous studies state their concern to mitigate the potential effect of CMB in such studies (Akhtar et al., 2020a; Javed et al., 2020), thereby it is advisable to obtain other reported data, i.e., supervisor and peer reported. Second, this study draws on the reasoning of COR theory to examine EL roles on employee absenteeism *via* FOC and depression. Where employees perceive exploitative leader as a threat (i.e., egoistic, undermine, taking credit, exerting pressure, and manipulating) to their resources and make it a scarce resource to meet job

demand, then subordinates may be engaged in creating facades and depression, which will lead to employee absenteeism. When individuals are experiencing the exploitation situation, they are less likely to increase their resources and use coping strategies to compensate for the previous resource loss or depletion of further resources (Hobfoll, 2011). Hence, in future studies, it is suggested to undertake some different theoretical assumptions to underpin EL and its subsequent outcomes. Third, this research is carried out in developing context of Pakistan with data obtained from education sector employees. Based on the Hofstede's insight (1983), uncertainty avoidance and high power distance are the main facets of country's culture. Such high power distance accounts for severe situations between supervisor and subordinate to exploit as leader/supervisor usually tends to dictate what need to do. High uncertainty avoidance creates situations where people avoid taking risks. Therefore, when subordinates experience an exploitative leader who is egoistic, undermine, take credit, exert pressure, and manipulate, the followers usually adopt silence (i.e., facades) against leader misuse or exploitation. Therefore, the future studies may be conducted in other cultural contexts to unveil the effect of EL.

Conclusion

This study concludes that EL is found to be a main reason to propagate absenteeism. Also, EL has an indirect effect on absenteeism, which passes through FOC and depression. COR theory offers a crucial role in validating these aforementioned relationships.

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DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by COMSATS University Islamabad (CUI), Sahiwal Campus constitutes Campus Ethics Approval Committee. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

MWA suggested the idea of this research and wrote the initial protocol of this study. CH developed the conceptual framework. FS and MAS performed the statistical analysis of data. AR, MH, MA, and MSS collected the data of the study, interpreted the data, and wrote the manuscript. All authors reviewed the manuscript and approved its final version.

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Impact of fine arts education on psychological wellbeing of higher education students through moderating role of creativity and self-efficacy

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The purpose of our research was to explore the impact of fine arts education on psychological wellbeing among undergraduate students through moderating role of creativity and self-efficacy. Art is the most effective medium for expressing human ideals, culture, identity, lifestyles, emotions, and societal experiences. Cross-sectional research was carried out on 376 undergraduates in the 2022–2023 academic year at the public and private Chinese universities, and those students who are currently enrolled in fine arts courses. A link to the Google Doc survey was sent through email and social media channels (i.e., WeChat). The time frame of the data collection was 3 months, from February 2022 to April 2022. While analyzing the obtained data, we used IBM SPSS version 25, which includes both descriptive and inferential statistics. The overall results of the study indicate that the fine arts education positively and significantly influences psychological wellbeing. Moreover, findings also indicate that the creativity and self-efficacy positively and significantly moderate the relationship between fine arts education and psychological wellbeing. The study highlighted the significance of fine arts education in Chinese students. Through this study, students studying in this field should be made more aware of the importance of fine arts education and its link with psychological wellbeing. Further, art courses should be added to the curriculum at different levels of education to boost the creativity and self-efficacy of higher education students in China. Implications for parents, students, and teachers are also discussed.

KEYWORDS

fine arts education, psychological wellbeing, creativity, self-efficacy, China

Introduction

Education is one of the effective processes for individual development. In this regard, art is one of the most important building blocks of developed societies as part of education. Art education is fundamental to the human experience. Since art is a vital part of science and technology, it is the only way to raise people who can see clearly,

perceive reality clearly, think analytically, question, break free from rigid conventions, create novel patterns geared toward development, and significantly contribute to the advancement of societies (Yeniasır and Gökbulut, 2018). The success of an educational institution is highly dependent on student motivation, educational fulfillment, and joy at their educational institution (Yafi et al., 2021). To increase the standards of education, it is crucial to maintain a high level of educational quality and assess the educational satisfaction of students (Demirbatir, 2020). Besides, university education causes psychological difficulties for students due to a variety of reasons, including moving to a new city, living apart from their families, and increasing responsibilities for their own decisions. Also, it is possible that factors such as encountering a different environment than the student expected, making the program harder than expected, or not being suitable for him/her may be effective in the student's burnout, vitality, and education satisfaction (Demirbatir, 2020). Despite the strong promotion of aesthetic education to knowledge in China, the subject of visual arts is still neglected by the general public (Yue, 2022).

While the arts have always been difficult to define conceptually, there are a number of cross-cultural characteristics that are recognized as fundamental to art. These include the art object (physical or experiential) being valued in its own right rather than merely as a utility; providing imaginative experiences for both the producer and the audience; and containing or provoking an emotional response. Also, the production of art is distinguished by the need for novelty, creativity, or uniqueness; the need for specialized skills; and adherence to the rules of form, composition, or expression (Fancourt and Finn, 2019).

In terms of health research, engagement with the arts has been classified into five broad categories: performing arts like activities in the genres of music, dance, theater, singing, and film; visual arts, design, and craft such as crafts, design, painting, photography, sculpture, and textiles; literature like writing, reading, and attending literary festivals; culture, including going to museums, galleries, art exhibitions, concerts, the theater, and community events (Davies et al., 2012). Arts activities are complex or multimodal interventions because they combine multiple components that are all known to be health promoting (Craig et al., 2008).

People inhabit a world that is physical, emotional, mental, and spiritual and can acquire cognitive skills from various courses. However, students cannot satisfy their emotional and spiritual demands with classes such as mathematics, chemistry, and foreign languages. In this view, it is possible to claim that art is the most significant source of the sensitivity that influences the development of humans (Mercin and Alaku, 2007). For instance, fine arts education has numerous advantages for students of all ages. Learning through the fine arts in all of their forms, such as dance, music, theater, and visual arts, encourages students to think creatively, imaginatively, and innovatively (Arts Education Partnership, 2016). Likewise, as they participate

in learning activities that include the fine arts, students develop instrumental skills such as critical thinking, problem-solving, communication, and collaboration. Prior research studies have found that learning through the fine arts improves academic performance and student engagement in school, social, and community activities (Luftig, 2000; Ingram and Riedel, 2003; Snyder and Cooper, 2015).

The purpose of our research was to explore the impact of fine arts education on psychological wellbeing among higher education Chinese students through moderating role of creativity and self-efficacy. In the education sector, art is one of the most effective media for expressing human ideals, culture, identity, lifestyles, emotions, and societal experiences (Zeb et al., 2021). In the course of history, art was strengthened by humans and, consequently, civilizations, and passed from one person to the next. Therefore, education is the most effective means of shaping, raising, developing, leading, and preparing for the future healthy persons and their communities. This expectation, however, is closely related to the quality of education designed and implemented. Individuals and societies both require artistic and cultural education. Besides, painting, sculpture, architecture, visual communication, photography, cinema, music, dance, theater, literature, design, and other areas of the fine arts are all taught and trained in general educational institutions. University is a time when young people face a variety of issues, including academic, personal, financial, peer pressure, and parental conflicts. Because these issues have an impact on an individual's psychological wellbeing, the role of fine arts education in dealing with them is important. Furthermore, an individual's ability to learn arts-related skills and the role of creativity are important factors. However, few research studies were previously conducted in relation to these variables in China. Therefore, this study was conducted on Chinese students to explore the impact of fine arts education on psychological wellbeing and how the role of creativity and self-efficacy acts as moderators among higher education Chinese students.

Research literature

Psychological wellbeing theory

Ryff (1995) developed a theory and model of psychological wellbeing and identified six interconnected but distinct aspects related to the eudaimonic aspect, namely, self-acceptance, positive relationships, environmental mastery, personal growth, autonomy, and life meaning (Snyder and Lopez, 2007). These factors were used in this study because they are the most commonly used measures of positive psychological functioning (Ryff, 1995). According to an existing literature review, psychological wellbeing is a unified theoretical framework. It has long been hypothesized that mental health includes high levels

of emotional, psychological, and social wellbeing, as well as the absence of mental illness (Ryff and Keyes, 1995).

Investment theory of creativity

Sternberg and Lubart (1999) proposed the investment theory of creativity, which states that intellectual abilities, adequate knowledge, the ability to think creatively, personality traits, intrinsic motivation, and a supportive environment are all aspects of creativity. Sternberg and Lubart (1992) distinguished two types of approaches to studying creativity, namely, person-centered approaches and context-centered approaches. Person-centered approaches emphasize internal, contextual aspects of creative performance, whereas context-centered approaches emphasize the individual's interaction with the external context in which he or she lives. Arshad and Rafique (2016) believes that environmental variables interact with cognitive variables to produce creative behavior, and that the availability of materials and resources facilitates creative behavior.

The Four P framework, which focuses on the four Ps, namely, person, product, process, and press, is one of the most important fundamental theoretical frameworks on creativity. Based on the previous theory, the Four C framework was developed in 2007. Beghetto and Kaufman (2007) proposed this theory, distinguishing the little C from the big C, with the former referring to everyday creativity and the latter referring to exceptional creativity (Paul and Elder, 2009). Amabile and Pratt (2016) highlighted the componential model of creativity, which includes three interconnected variables, namely, domain-relevant skills, creativity-related process, and intrinsic and extrinsic motivation. Others have investigated the driving force for people to become creative, in addition to studying the key components of creativity. According to Csikszentmihalyi (1988), one of the most important motivators for creativity is flow, which refers to achieving a sense of fulfillment simply by doing the things one enjoys doing (Hu and Han, 2021).

Impact of fine arts education on psychological wellbeing

Psychological wellbeing is defined as a state of health, happiness, and prosperity. It entails feeling good and performing well in our daily lives (Elliott and Gramling, 1990). Elements such as positive and negative affect, happiness, life satisfaction, creative thinking, prosocial behavior, and good physical health are all associated with psychological wellbeing (Sheldon and Kasser, 1998; Diener and Biswas-Diener, 2008). For instance, greater psychological wellbeing is linked to a variety of physical and mental health benefits, including a stronger immune system, better sleep patterns, lower blood pressure, and even longer life (Carr, 2004). The concept of wellbeing

contains personal, emotional, social, psychological, and spiritual dimensions, as well as health-related behaviors (Snyder and Lopez, 2007). Besides, it is based on two main types of wellbeing, namely, hedonistic (subjective and emotional) and eudaimonic (psychological and social) (Snyder and Lopez, 2006). Subjective wellbeing is another name for hedonistic wellbeing, which focuses more on how people feel and what makes them happy in life. It has both an emotional (high positive affect and low negative affect) and a mental (thinking) part (satisfaction with life). The focus of eudaimonic wellbeing is on the psychological and social parts of human functioning that show and help people work toward important life goals. This is usually called as "psychological wellbeing" (Snyder and Lopez, 2006).

Aesthetic experience involves the perception of aesthetic objects and the pleasure that results. This pleasure is not gained from the goods' practical features, but rather from the intrinsic qualities of the aesthetic objects themselves. Aesthetic experiences can result from the appreciation of attractive human artifacts, such as artworks (e.g., poetry, sculpture, music, visual arts), or aesthetic nature objects, such as sunsets or mountain views (Mastandrea et al., 2019). Recent research indicates that the arts can boost health and psychological wellbeing and serve as a therapeutic aid for many, including teenagers, the elderly, and those who are vulnerable (Daykin et al., 2008; Todd et al., 2017; Thomson et al., 2018). Higher education uses the fine arts as its medium. It educates and cultivates students in the areas of emotions, thinking, morals, values, innovation, practical skills, and aesthetics. It is also for this reason that fine arts education in higher normal institutions should emphasize training students' professional knowledge and abilities in fine arts, and take it seriously in order to improve their artistic and cultural achievements, as well as innovation and practice. In this approach, universities can assist students in enhancing their character and morality, as well as their moral, intellectual, physical, aesthetic, and professional growth (Jing, 2014).

As a starting point in the art education approach, the student should accept the cultures to which he belongs. This is the best possible outlet for establishing the trust that comes from a deep appreciation of one's own culture, as well as for exploring the cultures of others and then respecting and appreciating them. Accepting the constant evolution of culture and its value in both historical and contemporary contexts is central to this. In this context, art should be gradually introduced to students through artistic practices and experiences, while also preserving the value of the process itself. Additionally, as many art forms cannot be confined to a single discipline, more emphasis should be placed on the interdisciplinary aspect of art and its commonalities (UNESCO, 2006). Heise (2004) stated that "the merging of art education and visual culture can provide learning experiences that prepare pupils to participate in a democratic society." Based on the abovementioned literature, Hypothesis 1 was formulated as follows:

H1: Fine arts education has a positive influence on psychological wellbeing.

Role of creativity as a moderator between fine arts education and psychological wellbeing

Creative thought is characterized by Goldenberg and Mazursky (2002) as "a process that may be channeled, diagnosed, and reconstructed using analytical procedures." Sternberg and Lubart (1999) also described creativity as "the development of novel, i.e., original and surprising; appropriate, i.e., valuable things." To enhance the quality of undergraduate education, students must engage in research and creative endeavors. The value of creativity in learning and accomplishment, according to Jackson et al. (2006), is recognized in the field of higher education, despite the fact that creative aptitude and inventiveness are the greatest human assets and achievements (Hilala et al., 2013).

Creativity plays a role as a moderator between fine arts education and psychological wellbeing among undergraduate Chinese students. Art education, which includes visual arts activities such as drawing, painting, sculpting, designing, and collage, is at best peripheral and must be defended within the regular school curriculum. It is increasingly recognized that the arts contribute significantly to students' academic achievement, and that art education contributes to students' aesthetic development, as well as the development of thinking and creativity. For instance, King and Pope (as cited in Carr, 2004) found a link between creativity and various psychological traits such as autonomy, introversion, and openness to new experiences. Gingantesco et al. (2011) also discovered that some creative people are predisposed to depression and anxiety symptoms, and thus report lower psychological wellbeing. Thus, recent education reform has initiated efforts to promote art education as a part of a balanced education aimed at students' whole-person development, which is essential to youths' intellectual, emotional, and creative growth (Chan and Chan, 2007). Therefore, we developed the following hypothesis:

H2: Creativity plays a moderating role between fine arts education and psychological wellbeing.

Role of self-efficacy as a moderator between fine arts education and psychological wellbeing

Albert Bandura introduced the concept of self-efficacy into social cognitive theory (1977). The belief of self-efficacy is that an individual can perform the behavior required for a specific outcome, resulting in an increase in an individual's high self-efficacy (Bandura, 1977). Fine arts education is extremely useful in terms of the expected impact on the individual's personality because it allows the individual to realize his/her own abilities, and gain and develop a sense of self-confidence between the individual and social goals. As a result, fine arts education is both necessary and mandatory in terms of learning the art of social rise, application, and intellectual dimension (Romanescu and Özlem, 2020). For example, individuals who have a positive physical assessment of themselves are safer in their interpersonal relationships and more successful in their professions, whereas those who dislike themselves and believe they have many flaws experience uneasy, unsafe, and worthless feelings throughout their lives (Ermis and Imamoglu, 2019).

Self-efficacy is neither a purpose, a demand for control, a psychological feature, nor a result expectation (Ran et al., 2022). Rather, it is the capacity to integrate desired goals with one's potential, abilities, and skills in specific situations. It plays a major part in a variety of common psychological disorders. Low self-efficacy is directly correlated with avoidant behavior, sadness, and dysfunctional anxiety (Kausar and Ahmad, 2021). Besides, psychological wellbeing represents a person's affiliation with others and self-referent attitudes, i.e., growth-oriented, mastery-oriented individuals. It is related to intra- and inter-individual positive and affective functioning. It illustrates dimensions of affective life satisfaction evaluations. Psychological wellbeing reflects a multidimensional perspective, which is comprised of six unique areas, namely, personal growth, autonomy, life purpose, environmental mastery, positive relatedness with others, and self-acceptance (Burns, 2016). Self-efficacy is associated with a variety of psychological problems. People with depressive mood tendencies believe they are completely incapable and a failure. It is widely acknowledged that performing arts are an extracurricular activity that contributes to the psychological wellbeing of students by fostering increased self-esteem and social skills (Kausar and Ahmad, 2021). Therefore, self-efficacy plays a role as a moderator between fine arts education and psychological wellbeing among undergraduate Chinese students (see Figure 1). Based on the abovementioned literature, we developed the following hypothesis:

H3: Self-efficacy plays a moderating role between fine arts education and psychological wellbeing.

Research methodology

Cross-sectional research was carried out on undergraduates in the 2022–2023 academic year at the public and private Chinese universities, and those students who are currently enrolled in fine arts courses. A link to the Google Doc survey was sent through email and social media channels (i.e., WeChat). All respondents were educated about anonymity, participation, and

withdrawal rules on the first page of the survey. The time frame of the data collection was 3 months, from February 2022 to April 2022. At the end of the data collecting period, 405 replies were collected; however, 29 responses were estimated insufficient, leaving a total of 376 valid responses. The demographics information of the respondents is shown in Table 1. Briefly stated, 49.7% of the respondents were females and 50.3% were males. Between the ages of 17 and 23 years, 78.2% participated in the study, followed by those between the ages of 24 and 29 years with 19.1%. Chinese made up the majority of the participants (64.1%), with Malay, Indian, and other ethnic groups making up the remainder. There were 67.3% of participants from private universities, and only 32.7% from public universities. An aggregate of 450 surveys were sent and 376 responses were received. It was encouraging to see a response rate of 83.55% in such a challenging COVID-19 time period.

There were both Chinese and English versions of all the scales used in this research. The independent variable fine arts education was measured using a 19-item scale developed by Maus (1938). The dependent variable psychological wellbeing was adapted from Ryff and Keyes (1995), based on an 18-item scale. Finally, two moderating variables, namely, creativity, based on a 50-item scale developed by Kaufman (2012), and self-efficacy, based on the 50-item scale adapted from Schwarzer and Jerusalem (1995), were used. A five-point Likert scale was used: 1—definitely not; 2—somewhat not; 3—neither yes or no; 4—somewhat yes; and 5—definitely yes. An initial pilot study was undertaken to ensure that the scales used for data collecting were consistent. There were no significant differences in reliability between the Chinese and English versions of the measures used in the pilot research.

Results

While analyzing the obtained data, we used IBM SPSS version 25 (Morgan et al., 2019), which includes both descriptive and inferential statistics. The analysis was performed in two major stages: Cronbach's alpha, skewness, kurtosis, Kaiser–Meyer–Olkin (KMO), and Bartlett's test of sphericity were applied in the first stage to analyze the gathered data, and in the second stage, a regression analysis was used to examine the impact of fine arts education on students psychological wellbeing through moderating role of creativity and self-efficacy. The reliability of a research instrument is characterized by its accuracy. Cronbach's alpha values range between 0 and 1, and a value of 0.70 or above demonstrates the instrument's reliability for the research under consideration (Bonett and Wright, 2015). As demonstrated in Table 2, the Cronbach's alpha values of all the variables were adequate and over the 0.70 threshold limit. The degree of reliability used to measure a parameter or concept in quantitative research is referred to as the degree of data

TABLE 1 Descriptive statistics.

Demographics	Frequency	Percent	One-way ANOVA
Gender			0.381
Female	187	49.7	
Male	189	50.3	
Age			0.001
17–23	294	78.2	
24–29	72	19.1	
30–33	10	2.7	
Ethnicity			0.006
Chinese	241	64.1	
Malay	83	22.1	
Indian	44	11.7	
Others	8	2.1	
University			0.447
Public	123	32.7	
Private	253	67.3	

validity (Bonett and Wright, 2015). The factor loading values were determined to be greater than the minimal threshold value of 0.4 (Field, 2013), indicating that the items were legitimate for this research and no item was needed to be deleted.

The analysis of the data reveals that both the skewness and kurtosis values fall within the acceptable ranges, indicating that the data collected for this research are normally distributed. As the values of skewness are between -1 and $+1$ and those of kurtosis are between -3 and $+3$, the study's data are acceptable (Groeneveld and Meeden, 1984). In addition, Bartlett's test of sphericity was statistically significant ($p = 0.000$) and the KMO values for all variables were more than 0.5, indicating that the obtained data are useful for further analysis (Williams et al., 2010).

Pearson's correlation coefficient ($\underline{R}$) was used for correlation analysis, with values ranging between -1 and $+1$ (Adler and Parmryd, 2010). The negative and positive signs indicate an inverse or direct relationship, respectively. For a strong relationship between latent variables, Pearson's coefficient should be more than 0.5, between 0.3 and 0.5 for a moderate relationship, and <0.2 for a weak relationship. Table 3 shows that the correlation between fine arts education and control variable is not significant with age ($R = -0.058$, $p > 0.01$) and ethnicity ($R = -0.023$, $p > 0.01$), and the correlation between fine arts education and psychological wellbeing ($R = 0.743$, $p < 0.01$), creativity ($R = 0.860$, $p < 0.01$), and self-efficacy ($R = 0.436$, $p < 0.01$) is shown to be significant and positive. Similarly, the correlation between psychological wellbeing and control variable is not significant with age ($R = -0.046$, $p > 0.01$); however, it is negatively significant with ethnicity ($R = -0.135$, $p > 0.01$). Moreover, the correlation between psychological
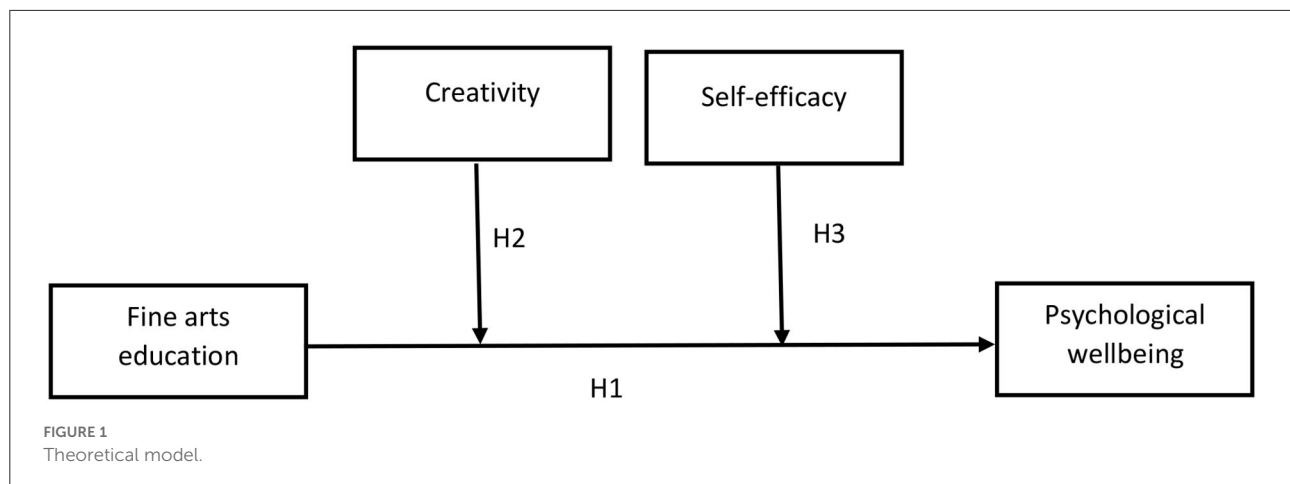
FIGURE 1
Theoretical model.

TABLE 2 Reliability, validity, and normality analysis.

Variable	Items	Skewness	Kurtosis	α	KMO	Bartlette's Test of Spehericity	References
Fine arts education	19	−0.463	−0.363	0.892	0.896	1296.05	Maus, 1938
Psychological wellbeing	18	−0.364	−0.742	0.910	0.732	2364.71	Ryff and Keyes, 1995
Creativity	50	−0.306	−0.936	0.923	0.894	1346.65	Kaufman, 2012
Self-efficacy	10	−0.420	−0.486	0.885	0.881	951.01	Schwarzer and Jerusalem, 1995

wellbeing and creativity ($R = 0.747$, $p < 0.01$) and self-efficacy ($R = 0.317$, $p < 0.01$) was also positive and significant (Table 3).

For the purpose of validating the existence of the relationship between the variables, correlation analysis has been employed, which demonstrates that variables are interrelated. However, correlation analysis alone is insufficient because it merely demonstrates the existence of the relationship between the studied variables and does not provide sufficient evidence to clarify the underlying relationship between the variables (Abadie et al., 2020). To test direct effect of fine arts education (FAE) on psychological wellbeing (PW) and indirect effect through moderating variables creativity (CR) and self-efficacy (SE), we used model 2 of PROCESS macros using SPSS version 25 (Hayes, 2017).

Table 4 displays the results of testing hypotheses. First, the hypothesis "Fine arts education has a positive influence on psychological wellbeing" was investigated (see Figure 1). The results demonstrate a positive and statistically significant association between fine arts education and psychological wellbeing ($β = 0.3819$, $p < 0.000$). The value of β indicates the percentage change, indicating that a one-unit change in fine arts education results in a 0.3819 unit change in psychological wellbeing. The findings suggest that >38.19% of change is detected in psychological wellbeing, and the p-value of 0.000 indicates a high degree of significance, providing solid grounds for accepting H1. Furthermore, the moderating effect of

creativity ($β = 0.3512$, $p < 0.000$) and self-efficacy ($β = 0.4010$, $p < 0.000$) was also positive and significant. The lower limit confidence interval (LLC) and upper limit confidence interval (ULCI) values have no zero between both limits, which clarifies that the results are significant. Hence, H2 and H3 are also accepted.

Discussion

The aim of this study was to find out the impact of fine arts education on psychological wellbeing among undergraduate students: moderating role of creativity and self-efficacy. Art fosters individuals in a multifaceted manner; it is also crucial for socialization or the process of integrating an individual into the society to which they belong. In a study, Sahin and Bagc (2012) stated that through art, individuals may easily communicate, acquire the ability to think critically, internalize the values in works of art and accumulate values, and develop into persons who contribute to social progress. Through art education, individuals develop artistic sensibility, demonstrate respect for differing viewpoints, safeguard their own culture, and accord other cultures the necessary importance. Additionally, art education serves as a tool for young people and adults to capture those experiences and perceptions that are significant for human development and one's engagement with the world

TABLE 3 Correlation analysis.

Variables	Age	Ethnicity	Fine arts education	Psychological wellbeing	Creativity	Self-efficacy
Age	1					
Ethnicity	0.093	1				
Fine arts education	−0.058	−0.023	1			
Psychological wellbeing	−0.046	−0.135**	0.743**	1		
Creativity	−0.072	−0.025	0.860**	0.747**	1	
Self-efficacy	−0.100	−0.021	0.436**	0.317**	0.464**	1

** Correlation is significant at the 0.01 level (two-tailed).

TABLE 4 Regression analysis.

Hypotheses	Constructs	β	se	T	p	LLCI	ULCI
	Control variable						
	AGE->PW	0.0295	0.053	0.546	0.584	−0.076	0.1355
	Ethnicity->PW	−0.1202	0.034	−3.52	0.005	−0.187	−0.053
	Direct effect						
H1	FAE->PW	0.3819	0.056	6.812	0.0000	0.2716	0.4921
	Indirect moderating effect						
H2	FAE*CR->PW	0.3512	0.064	5.422	0.0000	0.2243	0.4796
H3	FAE*SE->PW	0.4010	0.056	6.916	0.0000	0.2798	0.5021

FAE, fine arts education; PW, psychological wellbeing; CR, creativity; SE, self-efficacy; LLC, lower limit confidence interval; ULCI, upper limit confidence interval.

in general. Through art education, individuals become more self-aware, acquire moral principles, and get a broader view on various subjects (Yeniasır and Gökbulut, 2018).

Following were the hypotheses of this study. First, fine arts education is positively associated with psychological wellbeing. The study's findings were consistent with the hypotheses. Previous research has found that visiting art museums reduces stress, which may promote health and wellbeing. The elements of the museum setting that facilitate treatment goals, including psychological, social, and environmental aspects, have been studied. Empirical evidence suggests that art improves people's health and wellbeing (Mastandrea et al., 2019). Similarly, art-based pedagogy is concerned with integrating an art form (e.g., theater, visual art-painting, music) with another subject matter in order to improve learning processes (Rieger and Chernomas, 2013). Moreover, previous research found that students could create creative tools, artwork, or campaigns that reflect how artists promote healthy work lifestyles and manage mental health issues (Siddins, 2021).

Secondly, creativity plays a moderating role between fine arts education and psychological wellbeing. The findings of this study were in line with previous literature. Prior research revealed that art education contributes to a model of education that offers individuals possibilities for free expression, integrates physical, intellectual, and creative talents, and facilitates dynamic and successful linkages between education, culture,

and the arts. Art disciplines and practices are crucial to the intellectual, scholastic, cultural, social, and personal growth of adolescents. Therefore, art and art education are essential components of fundamental education (Romanescu and Özlem, 2020). Likewise, art education is crucial to the fulfilling of such demands since it permits the development of flexible and diverse thinking patterns, helps emotional development, and promotes learning and skill acquisition through cooperation (Romanescu and Özlem, 2020). Through imagination and creativity, we discover our identity and our source of healing. The more we comprehend the connection between creative expression and healing, the more we will recognize the healing power of the arts (Stuckey and Nobel, 2010). Participation in art education may not directly result in greater achievement; however, art education improves students' mental health, self-confidence, and life skills in several crucial ways. Additionally, art education fosters and sustains the innate creativity of young people (Roege and Kim, 2013).

Thirdly, self-efficacy plays a moderating role between fine arts education and psychological wellbeing. The results were consistent with the hypotheses. According to previous research, arts activities can involve aesthetic engagement, imaginative participation, sensory activation, emotional evocation, and cognitive stimulation. Depending on the nature of the art activity, it may also incorporate social interaction, physical activity, engagement with health-related topics,

and involvement with healthcare facilities (Fancourt, 2017). Each component of arts activities can elicit psychological, physiological, social, and behavioral reactions that are in turn directly connected to health consequences (Fancourt and Finn, 2019). Significant positive correlations were found between self-efficacy and characteristics of psychological wellbeing, including autonomy, environmental mastery, personal progress, positive relationships, meaning in life, and self-acceptance. All aspects of psychological wellbeing were discovered to be positively connected (Kausar and Ahmad, 2021).

Conclusion

The aim of this study was to explore the impact of fine arts education on psychological wellbeing of higher education students through moderating role of creativity and self-efficacy. The findings of this study supported the hypothesis, and the results of the study were in accordance with prior research. Results revealed that fine arts education is positively associated with psychological wellbeing. The findings of this study also affirm that the creativity and self-efficacy positively and significantly moderate the relationship between fine arts education and psychological wellbeing. Fine arts education is an important tool for developing human resources and contributes to the development of skills that countries require to profit from their cultural wealth. In this regard, countries that wish to build robust and sustained creative sectors are increasingly realizing that these capital and resources are critical to raising the country's socioeconomic level. Moreover, education in the fine arts is a long-term investment in people, and therefore, fine arts education should be carefully planned and its objectives should be well-defined.

This research will raise awareness among parents, students, and teachers in the future. As a result, parents and teachers in China's higher education sector have a better understanding of the value of fine arts education and how it affects students' psychological wellbeing. Similarly, creativity and self-efficacy play an important role in moderating the relationship between fine arts education and psychological wellbeing. Furthermore, the study's cross-sectional design is a limitation. In future studies, mixed methods will be used to investigate these variables in greater depth.

Theoretical implications

This study makes an important contribution to the body of literature. This study was based on the significance of fine arts education on psychological wellbeing among undergraduate Chinese students and role of self-efficacy and creativity as a moderator. Previous literature supported the study hypothesis that fine arts education has a positive association with psychological wellbeing among Chinese

students. Further, this study employs psychological wellbeing theory and theories of creativity to examine the conceptualized path.

Practical implications

Following are the practical implications of this study. Students studying in this field should be made more aware of the importance of art education. More theoretical information should be provided in art schools, colleges, and universities, and students should be given more opportunities for practice in the field they are studying. Art courses should be added to the curricula of various stages under the Ministry of National Education, and students' sensitivity to art should be increased. Parents, particularly those without a higher education degree, should be advised to consider their children's opinions when making career choices. Expert educators/school guidance services should assist students in making career decisions.

The relationship between teaching and learning and how they work together is very important in traditional Chinese education. Teachers who are very good at what they do lay the groundwork for their students to learn and understand what they have learned easily. Teachers are the ones who teach their students what they know. They should not only tell people what to do, but also show them how to do it. Through what they do, they serve as an example and a guide. In addition to teaching, they will keep an attitude of active learning, improve their skills, and learn more. Teachers should be encouraged and helped to teach and do research by the higher education system. The goal of the study is to develop technical, practical, and theoretical abilities at the intersection of fine and decorative arts theory and practice. Furthermore, the directions and principles of artistic pedagogy and art therapy are followed in order to meet the new needs and take advantage of new opportunities as the creative and educational fields change in today's society.

Limitations and future recommendations

Following are the limitations of the study. To ensure the generalizability of the results, it will be necessary to conduct additional study with a diverse population in the future. Due to the inclusion of a self-report questionnaire in the study, the sample could be skewed if students responded in a manner that made them appear socially acceptable. Prior research on study variables was limited. For future studies, qualitative research will be conducted on fine arts students through detailed interviews. A cross-cultural study should be conducted to investigate the norms influencing the psychological wellbeing of performing arts students. Moreover, future researchers should also study different moderators with

fine arts education and psychological wellbeing for further relationship of these variables.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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 from the patients/participants or patients/participants legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements..

Author contributions

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

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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Principals' leadership styles and its impact on teachers' performance at college level

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In this study, we examined the impact of principals' leadership style on the performance of teachers at the college level. For this purpose, we collect data from 300 college teachers *via* a random sampling approach. A self-administrated questionnaire (five-point Likert Scale) was used to collect data. For detecting relationships and differences among the opinions of the study's participants, correlation and the *t*-test were used. This study has revealed that the majority of college principals practice a democratic style of leadership at a higher level, Laissez-faire at a moderate level, and autocratic at a low level in their colleges. Moreover, it has been also revealed that when principals increase the use of a democratic leadership style, teacher performance may progress as well. The findings revealed that principals' leadership style had a positive impact on the performance of teachers. The study exposed a strong statistically positive relationship between college principals' leadership style and teacher performance. Thus, the results of this study suggest that college principals' should adopt the leadership style according to the level of teachers. The leadership style should be changed with specific situations in the colleges.

Introduction

Effective leadership is necessary for the advancement of teachers as well as society. In the technological advancement of the 21st century, there are many challenges to compete including worldwide teachers' networks which demand a great educational leader for educational institutions. There are three main aspects of a principal's leadership in dealing with educational and cultural reforms such as increasing participation, transferring vision, and producing change. The effectiveness of leaders in the educational sector is valued by their competencies to contribute to improving the quality of education in the era of technological advancement (Sungtong, 2007; Abbas et al., 2020).

The main job of a principal is to assist in leading, directing, and coordinating various activities inside the college. The primary responsibility of the principal is to create and sustain an excellent teaching-learning environment for the educational programs running in the college. The principal is also responsible to support the teachers in their teaching practices. Principals have a critical role to play in achieving the institution's goals and objectives. Among these responsibilities, principals must give genuine and

effective leadership, resulting in improved professional presentation among teachers. The principal is responsible to give highly valued visions that are focused on their day-to-day methods and that serve to foster a good culture that is supportive of exceptional teacher performance (Nanson, 2010; Saleem et al., 2020).

In various locations and circumstances, a lot of researchers explained leadership such as Okumbe (1998) describes leadership as "a specific attitude adopted by a leader toward his or her subordinates to motivate them to achieve the organization's objectives and goals." Western (2013) states that leadership is recognized as the abilities and practical skills of the persons, groups, or organizations to lead, influence, or provide guidance to other persons, teams, or the whole organization. Chin (2015) explains leadership in the context of the American academic environment as a process of social influence through which an individual can enlist the aid and support of others in the attainment of common as well as ethical tasks. Northouse (2018) and Wu et al. (2020) highlight that leadership is a prominent power relationship in which one party (leader) promotes movements or changes in others (followers).

Furthermore, Phuc et al. (2021) also found that a leadership style refers to a leader's style of giving directions, implementing plans, and motivating followers. Among others Bhoomireddy (2004), Goel (2005), and Crum and Sherman (2008) a leader uses a different style of leadership considering the situation. In situations of emergency, an autocratic style of leadership is considered more effective while for a highly motivated and aligned team democratic or laissez-faire styles are recognized as more effective (Department of the Army, 2006).

Problem statement

Besides, this study is proposed to measure the impact of different principal leadership styles on the teacher's performance currently serving in colleges in the major with the highest rate of population province Punjab, Pakistan. Although wide research has been conducted to report this phenomenon from different perspectives and in different contexts, leftovers anonymous has not yet adequately resulted. The linkage between principal leadership styles and teacher performance is still mostly unmapped in the context of Pakistan (Quraishi and Aziz, 2018; Maqbool et al., 2019; Yasmin et al., 2019; Saleem et al., 2020). Especially, the govt. college teachers in many Pakistani cities for example Faisalabad, Punjab. Therefore, concerning education in Pakistan, more clarification is imperative to determine how and what style of leadership for principals positively or negatively affects teacher performance at the college level in Faisalabad.

Research objectives

These objectives were developed for this study:

1. To explore the leadership styles of principals practiced at the college level.
2. To examine the relationship between a principal's leadership style and the performance of teachers at the college level.

Research questions

1. Whether the style of leadership matter in the case of a college principal?
2. Whether a principal's leadership style effects the performance of teachers at the college level?

Hypotheses

Based on prior studies and extant literature review, the following are the hypotheses of the study:

H1: There is a significant role of principal leadership style at the college level.

H2: There is a significant relationship between principal leadership style and the performance of teachers at the college level.

Literature review

Literature has many shreds of evidence about the leadership and the styles used by various leaders in their organizations for increasing the performance of their workers. While there are various leadership theories and psychology, few of them are more well-known. For example, the behavioral theory of leadership focuses on how leaders behave and assumes that these traits can be copied by other leaders. Sometimes this theory is called the style theory, it suggests that leaders are not born successful, but can be created based on learnable behavior. This theory of leadership is focused heavily on the leader's action.

The second type of leadership theory is contingency leadership, also called situational theory which focuses on the context of a leader. The function of this theory is to look at the situational effects of success or failure. A leader's effectiveness is directly determined by the situational context. While the personality of a leader is a small factor in the success of a leader and the most important factor is the context and situation. This theory suggests that good leaders can adjust their leadership style according to the situation. A contingency theory includes Hershey and Blanchard's Situational Theory, the Evans and House Path-Goal Theory, and Fiedler's Contingency Theory.

Another leadership theory is the great man theory which is also called the trait theory which suggests good leaders are born. They have innate traits and skills that make them great and these are things that cannot be taught or learned. The trait theory

suggests that leaders deserve to be in their position because of their special traits.

Among others, management theory is a leadership theory called transactional leadership and focuses on supervision, organization, and group performance of the employees. Transactional leadership is a system of rewards and punishments. Transactional leadership is regularly used in businesses, when employees do something successfully, managers reward them and vice versa. Transactional rewards and punishments are given based on the idea that people only do things for the reward.

Additionally, the following are the leadership styles used by educational leaders: Autocratic, Democratic, and Laissez-Faire. The participative leadership theory is not as common in all types of business. It's called democratic leadership and suggests that employees be directly involved in decision-making in their organization. The leader simply facilitates a conversation and then takes all the suggestions and comes up with the best possible action. In this theory, everyone is very involved with decisions for the team and organization with the leader simply helping direct the charge. Autocratic styles of leadership are known for being authoritative and having the most power in the decision-making process. These types of leaders are known for employing an autocratic leadership style in their leadership style in organization. This type of leader merely gives instructions to group members on how to execute tasks in a given manner, and they avoid establishing obvious lines of communication between employees and followers. Furthermore, these executives never enable employees or other types of workers to participate in the development of organizational policies (Smylie and Jack, 1990; Hoy and Miskel, 1992; John, 2002). Leaders exercising the autocratic style do not ask for any suggestions or initiative from followers. Because it provides great motivation to the leaders, the autocratic leadership style has been successful. It allows for speedy decision-making because only one person makes decisions for the entire group and keeps each conclusion to themselves until he or she deems it is necessary to share it with the rest of the group (Lewin et al., 1939).

Democratic leadership style refers to a situation in which the leader and followers are doing the same amount of labor. This style consists of the leader sharing the decision-making abilities with followers through promoting the interest of the followers and by practicing social equality. Participative leadership or shared leadership are terms used to describe this type of leadership. Any business, including educational institutions, can benefit from this sort of leadership. This approach emphasizes the importance of all members of the group participating in the decision-making process (Research Gate, 2018).

A laissez-faire leadership styles give complete rights and powers to their followers to make decisions to establish goals and work out the problems and hurdles. In this style, decision-making is passed on to the followers. This style focuses on no interference in the affairs of others (Research Gate,

2018). When a leader is hands-off and allows followers to make decisions, this is known as the Laissez-Faire style of administration. Independences are entirely indestructible in Laissez-faire due to group objectives, processes, and operational techniques. These administrators don't intervene too often. This style was identified by Hackman and Johnson (2009) as having the most realistic style, especially when employees are mature and enthusiastic about their work. The laissez-faire leadership style allows for complete autonomy in group decision-making without the involvement of the leaders.

The directive leadership style of principle is similar to the assignment-based method, in which the leader provides teachers with specific rules, standards, and directions for organizing, sorting, as well as completing tasks. When the subordinates' capacity is low and the task at hand is mind-boggling or ambiguous, these techniques are thought to be appropriate. When the boss delivers more directions, the workers are more satisfied (Hoy and Miskel, 2001).

Leaders (Principals) who practice a supportive style of leadership are known for their relationship-oriented style of leadership, which includes the leaders' camaraderie and availability to all employees in the business. This type of leader is continuously concerned about the challenges and concerns of their employees and coworkers. These leaders create a friendly environment for their subordinates and work to improve their employees' lives. It's a powerful technique for assistants who require self-assurance, who want to chip away at unpleasant or upsetting duties, or who don't feel fulfilled at work (Hoy and Miskel, 2001).

Leaders (Principals) that use a consultative style of leadership in their administration have a lot of confidence. These leaders are generous, but they lack confidence and optimism in their employees. Most of the time, these leaders make their final decisions on their own, but they do include their subordinates and seek their input on the problem before establishing any policy inside the college. Workers have positive attitudes toward their employers, administrations, and their jobs. When the workers believe that enough interviews have not been conducted, they freely accept the chief's commands, but they occasionally secretly oppose the request through opposition, particularly when the director decides on a bigger part of the runs guideline (Owens, 1981). The top of the organization is in charge. The majority of the time, center administration assigns tasks to lower-level employees to keep them under control. Examining, evaluating, and administering are all completed. Control is viewed by subordinates as a means of maintaining a high standard (Ukeje, 1998).

Leaders (Principals) who use an achievement-oriented approach to administration are very intelligent, and they present their employees with a variety of challenges that they can meet. These principles involve teachers in achieving the organization's goals and objectives and give rewards for the successful completion of a task. These leaders have

strong directive and supporting personalities. They help their followers with their problems and help them in discovering a solution. When achievement-oriented employees are available in the organization, this approach becomes very successful. The administrator who incorporates this method into their leadership style will be able to effortlessly attain their specified goals and objectives (Lussier and Achua, 2001).

Leaders' way of communication and manners with their followers (teachers) are extremely important for the success of any educational institution. According to Oxford (2005), communication is a specific technique for sending any type of information from one person to another. According to Hannagan (2002), communication is a process of passing on information about the feasibility of specific work methods, and it is regarded to take on several aspects. It can be mandated, for example, by defining certain practices that must be completed; motivational, in that it encourages more significant exertion; and mistake-correcting, in that it provides information about the degree of blunder being completed. Whatever the case may be, the importance of communication in educational institutions has been undervalued for a long time, particularly at colleges. Hannagan (2002) went on to say that if we want to achieve a greater level of performance, we can do it with the support of improved and proper communication.

The involvement of the followers (teachers) in the decision-making process by its leader (principal) can boost confidence and improves performance. According to Okumbe (1998), the principal and teachers collaborate on a specific topic or problem and explore strategies to regulate the organization's functioning to enhance the involvement of teachers in the decision-making. Involvement in decision-making is a common occurrence for people who take initiative, but lack of insertion in leadership is associated with autocratic administrations, open innovation is represented, and leaders may hesitantly incorporate personnel in decision-making.

According to The United Nations Educational, Scientific and Cultural Organization (UNESCO), teachers' performance is negatively impacted by their lack of engagement in decision-making processes. "There are significant sensations of remoteness from regional and national-level judgments that are finally joined to educators as unchallengeable decisions, frequently separated as of their everyday state" (UNESCO, 2006). Educators lose confidence in their ability to achieve good and even particular sense alienated and more incompetent in their personalities due to a lack of adequate interactions or conversations. On the other hand, Ndu and Anagbogu (2007) claimed that if educators are not connected in administration, they become outsiders in the college setting. As a result, most professors do not give it their all to have a complete sense of responsibility and loyalty to the college.

Yasmin et al. (2019) found that the impact of transactional and transformational guidance styles has been contrary to teachers' performance. They argued that both leadership styles, for example, transformational and transactional styles of principles of the schools/colleges have not supported improvement in teacher's performance in the short-run.

Saleem et al. (2020) found that the directive leadership style had a significant effect on teacher job performance in the studied schools, followed by the supportive and achievement-oriented leadership styles. Contrariwise, though participative leadership was identified as a significant predictor, it was not considered a favorable predictor of teacher job performance.

Lee et al. (2019) found a link between transformational (but not transactional) leadership and higher levels of supervisory coaching and performance feedback, and that these job resources mediate the relationship between transformational leadership and work engagement. Moreover, the results showed that work engagement mediates the relationships of both supervisory coaching and performance feedback to turnover intention. Generally, Asian leaders can effectively facilitate some aspects of HRD through development-focused behaviors which serve as job resources to boost work engagement and reduce turnover intention.

Teachers' performance improves as principals assign equitably varied responsibilities to teachers. According to Oxford (2005) delegation is the process of delegating rights, power, and responsibility to subordinates. According to Webster (2002) the procedure of cooperating with authorities to accomplish another. Similarly, Okumu (2006) discovered that compelling assignments affect teachers' performance. The findings were fascinating and instructive, they did not reveal how the assignment of responsibilities can improve educator performance at all colleges. Healthfield (2004) examined that for an assignment to be fruitful, the principal must establish designated destinations, determine expert errands, and select who will do them. Chapman (2005) discovered that leaders' involving their followers in the decision-making process, and the equal delegation of duties improved followers' performance. McNamara (2010) stated that for the assigned task to be completed successfully, the boss and the subordinate must agree on when the job is to be completed or if it is a continuing obligation when the survey dates are when the reports are due, and if the project is unpredictable, what assistance the manager can provide. McNamara (2010) found leaders' assigning their subordinates to responsible tasks improved subordinates' performance.

Data and methodology

The nature of the study is descriptive and data was collected using a survey method through a questionnaire. According to Creswell (2008), descriptive research is the process of examining multiple steps such as quantitative data collecting and analysis to increase prior knowledge about a certain problem or subject. The study's population consisted of all teachers employed in

Faisalabad District Government Degree Colleges. A sample of 300 teachers was selected from the sampled colleges in the Faisalabad Division using a simple random selection technique. The data was collected using a self-administered questionnaire on three leadership styles (Autocratic, Democratic, and Laissez-faire) which comprised 30 items about leadership styles and teacher performance[1]. The tool's reliability was calculated to be 0.79. A five-point Likert scale was used in the questionnaire. SPSS was used to analyze the data collected from the respondents (version-20). To explore the differences in the demographic of teachers' perspectives, descriptive and inferential statistics were used (Table 1).

Data analysis

The results demonstrated in Table 1 shows the demographics statistics of the responded. The demographic variables includes: gender, locality, qualification, professional qualification, teaching subjects and their teaching experience. The results shows that most of our responded in this study are male, living in the urban areas and having BS qualifications. As the professional quantification is compulsory for the teaching, our most of the responded have done B.Ed to fulfill the requirement. As for as our most of the college teachers are teaching arts subjects which are common in the multiple classes and they have teaching experience up to 10 years. Results demonstrated in Table 2 indicate that majority of the college teachers agreed that their principals use a democratic leadership style at a higher level (Mean = 4.52, SD = 1.212), and Laissez-faire at a moderate level (Mean = 3.55, SD = 1.053), and autocratic at a low level (Mean = 3.16, SD = 1.013). Based on said outcomes, this study has discovered that the majority of college principals practice a democratic style of leadership in their colleges. The below graphs also shows the leadership styles practiced by college principals in their colleges.

A Pearson R correlation test was used to investigate the relationship between principals' leadership style and teachers' performance at the college level.

The results of Table 3 discovered that principals' leadership style had a positive relationship with teacher performance (r = 0.209). The result of p-value occurred as ($p = 0.000 < 0.000$ and 0.05 levels). Based on said outcomes, it has been discovered that there had a significant and strong positive relationship between the independent variable (Leadership styles) and the dependent variable (Performance of the teachers). As a result, it has been discovered that when principals increase the use of a democratic leadership style, teacher performance may improve as well. Furthermore, when the principal includes teachers in the decision-making process, communicates well

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1 See Appendix-I.

TABLE 1 Demographic statistics of all respondents.

Items	Percentage
Gender	
Male	68%
Female	32%
Locality	
Urban	53%
Rural	47%
Qualification	
BS	44%
MA/MSc	27%
M.Phil.	19%
Ph.D.	10%
Professional qualification	
B.Ed	69%
M.Ed	22%
Other	11%
Teaching subjects	
Arts	60%
Science	40%
Teaching experience	
1–10 year	55%
11–20 year	36%
Above 20 years	9%

TABLE 2 Overall mean scores and standard deviation of college teachers' responses toward leadership style used by college principals ($N = 300$).

S. no.	Leadership style	Teachers' responses		Rank
		Mean	SDs	
1.	Autocratic	3.16	1.013	3
2.	Democratic	4.52	1.212	1
3.	Laissez-faire	3.55	1.053	2

with them, and distributes work evenly, teachers' performance may also improve.

Discussion and summary

This study has discovered that the majority of college principals practice a democratic style of leadership in their colleges. The research discovered a strong positive relationship between college principals' leadership styles and teacher performance. The majority of the teachers agreed that democratic leadership is used by principals in their administration. Teachers' performance improves when principals involve them in decision-making, courteously

TABLE 3 Relationship with Principals' leadership style and teachers' performance.

	ACL	DCL	LFL	TP	Leadership style
Correlations					
ACL (autocratic leadership)	1				
DCL (democratic leadership)	0.086	1			
	0.136				
LFL (lazier-faire leadership)	0.208**	0.162**	1		
	0.000	0.005			
Teacher performance (TP)	0.142*	0.145*	0.131*	1	
	0.014	0.012	0.024		
Leadership style (overall)	0.552**	0.786**	0.592**	0.209**	1
	0.000	0.000	0.000	0.000	

**Correlation is significant at the 0.05 level (2-tailed). This symbol shows the significant values in the results. ACL, autocratic leadership; DCL, democratic leadership; LFL, lazier-faire leadership; TP, teacher performance; leadership style (overall).

communicate with them, and properly delegate their responsibilities (Tables 2, 3).

College administration is crucial because colleges give education, which is critical for the country builders' financial, sociological, and ethical development. Any college with a bad administration will have a bad education, which will lead to the country's backwardness. Education is deemed to be important for the development of a country, as Panda (2001) has correctly stated that education empowers a country to achieve growth and respect for its citizens. This study's findings are consistent with Nanson's (2010) findings, which found that the democratic leadership style of college administrators has a positive impact on teachers' performance. These findings, as summarized by Okumu (2006) and Nanson (2010), backed up the findings of this study, which found a positive association between college principals' leadership style and teacher performance. The findings of this study are also in line with the findings of Imhangbe et al. (2019) as they also discovered that democratic leadership style had a positive relationship with teachers' job performance. The results of our study also show that the principal democratic leadership style was the most frequent practice of leadership as perceived by the teachers, followed by the autocratic leadership style at the college level. Therefore, both styles of leadership exerted a statistically significant effect on the performance of teachers in college. Unsurprisingly, the practice of these two principals' leadership styles was found to be positive at the college level. On the other hand, the laissez-fair leadership style of the college principal was identified as unhelpful to the performance of teachers. Henceforth, the leadership style of college principals should be autocratic and/or democratic leadership styles in colleges to optimize the performance of teachers. Additionally, the findings of the study

also suggest that college principals should encourage teachers to participate in their administration and decision-making.

Conclusion

This study has discovered that the majority of college principals practice a democratic style of leadership at a higher level, Laissez-faire at a moderate level, and autocratic at a low level in their colleges. Moreover, it has been also discovered that when principals increase the use of a democratic leadership style, teacher performance may improve as well. Furthermore, when the principal includes teachers in the decision-making process, communicates well with them, and distributes work evenly, teachers' performance may also improve. This study recommends that principals working in government colleges should increase their practice of the autocratic style of leadership for enhancing the performance of the teachers at the maximum level.

Limitations and study forward

This research study is limited to investigating the three leadership styles, autocratic, democratic, and laissez-faire practiced by the Principles in Pakistani colleges located in Punjab only. A comprehensive research study can be conducted by exploring other leadership styles in other provinces of Pakistan.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Shaanxi Normal University, Xi'an, China. The patients/participants provided their written informed consent to participate in this study.

Author contributions

US: conceptualization, data curation, validation, and writing—original draft. QY: funding acquisition. RT: investigation and resources. US and QY: methodology. US and RT: writing—review and editing. All authors contributed to the article and approved the submitted version.

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Conflict of interest

Publisher's note

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.919693/full#supplementary-material

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Knowledge hiding in teachers of moral education degree programs in Pakistan: The role of servant leadership, psychological ownership, and perceived coworker support

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The purpose of this research is to examine the influence of servant leadership on teachers of moral education degree programs in Pakistan. By utilizing social learning, we propose that servant leadership and perceived coworker support can reduce the knowledge hiding by enhancing the sense of organization-based psychological ownership. The findings of time-lagged and multi-source data indicate that servant leadership has a negative relationship with knowledge hiding. Our results also indicate that psychological ownership mediates the effects of servant leadership on knowledge hiding. Moreover, a higher level of perceived coworker support enhances the sense of psychological ownership which helps to reduce knowledge hiding. This research extends strong support for the proposition that servant leaders who adopt an employee-centered management approach, stressing personal integrity and care for employees significantly affect employee attitudes and behaviors. Moreover, this study suggests that managers should demonstrate care toward their subordinates which helps them to reduce negative behaviors (e.g., knowledge hiding).

Introduction

Knowledge management as a competitive advantage has recently gained the attention of researchers in academic studies (Adhikari, 2010; Latilla et al., 2018). Organizations are now well aware of the importance of knowledge in organizational success and they are adopting strategies that include leaders behaving as leader-cum-colleague (Amin et al., 2019), task-oriented activities (Abbas et al., 2020), creativity facilitating work environment, openness, safety, trust, and autonomy (Moll and Kretzschmar, 2017) to enhance knowledge sharing among employees. They are creating ways for organizing knowledge effectively so that a sustainable competitive advantage can be

acquired (Hila and Shobaki, 2017; Jit et al., 2017; Amin et al., 2019; Abbas et al., 2020; Aboramadan et al., 2021). Given the above, institutions are trying their best to enhance the knowledge exchange behavior among employees by minimizing knowledge hiding intentions of the employees because they understand that knowledge sharing (Srivastava et al., 2006; Ansari and Malik, 2017; Amin et al., 2019; Gagné et al., 2019) is a key component in knowledge management system (Abdillah et al., 2020). Knowledge hiding attitudes of employees (Connelly et al., 2012; Bogilović et al., 2017; Ghani et al., 2020; Zutshi et al., 2021) can sabotage all the efforts of an organization toward knowledge management. This is a serious concern in recent managerial practices that despite investing a huge amount of resources to discourage knowledge-hiding behaviors, employees are still unwilling to share knowledge. Harmful consequences of knowledge hiding have been studied extensively (Bogilović et al., 2017; Butt and Ahmad, 2019; Arain et al., 2020; Butt, 2021). When institutions pursue knowledge-sharing practices, they discourage knowledge-hiding behaviors among employees. One of the major challenges in knowledge management is to design strategies for enhancing knowledge-sharing attitudes in employees by minimizing knowledge-hiding tendencies (Demirkasimoglu, 2015; Boz Semerci, 2019; Zutshi et al., 2021).

Knowledge hiding is "an intentional attempt by an individual to withhold or conceal knowledge that has been requested by another person" (Connelly et al., 2012). A survey carried out in the US reported that 76% of participants admitted that they had hidden knowledge at least once in some form or other (Connelly et al., 2012). According to Babcock (2004), knowledge-hiding incurs losses to the tune of US$ 31.5 billion in Fortune 500 companies (Wang and Noe, 2010). The negative outcomes as a consequence of the counterproductive behavior cost US$ 1 trillion; comparatively, it is US$ 120 billion for theft, US$ 4.2 billion as a result of workplace violence, and more than US$ 900 billion in income loss due to fraudulent activities (Banks et al., 2014). Knowledge hiding not only motivates employees toward counterproductive work behavior (CWB) but also prevents them from being creative. Despite efforts to enhance knowledge sharing in organizations, success has been elusive. It is becoming clear that in many instances employees are unwilling to share their knowledge even when organizational practices are designed for this. Knowledge hiding (KH) has also been reported as a serious concern in higher education institutes (Demirkasimoglu, 2015; Ghani et al., 2020; Zutshi et al., 2021) where knowledge sharing should be the core value of academia. Previous literature on knowledge hiding explored the several contextual factors that can prevent or encourage employee's engagement in KH behaviors (Bogilović et al., 2017; Khalid et al., 2018; Pradhan et al., 2019; Zhao et al., 2019; Guo et al., 2020; Koay and Lim, 2021; Syed et al., 2021).

Given the outlined KH phenomenon, we argue that leadership can play a vital role in developing the right attitudes among employees to hide knowledge less. Prior studies have pointed to abusive supervision as an antecedent to knowledge hiding (Khalid et al., 2018; Pradhan et al., 2019), but certain leadership styles that can prevent hiding knowledge are relatively less explored. Similarly, several studies have explored the psychological mechanisms to explain the relationship between organizational factors and knowledge hiding behaviors of employees. In the same vein, Jiang et al. (2019) explored the mediating role of psychological safety in knowledge hiding as a barrier to thriving, and Holten et al. (2016) reported the mediating effects of trust and justice on knowledge hiding. In the work of Riaz et al. (2019) the mediating role of job stress and occurrences of knowledge hiding and workplace ostracism was highlighted. Despite these several studies on different mediating factors in knowledge hiding, its prevalence in the context of higher education institutions in Pakistan still needs to be explored.

Drawing on the social learning theory, this research bridges the gap in the literature by exploring the mediating role of organization-based psychological ownership (PO) in servant leadership (SL) and knowledge hiding (KH) relationships. We argue that SL is positively linked with PO which further leads to the negative association with KH. Following the social learning theory, we point out that individuals learn from the behaviors of others and respond accordingly in a specific environment as they perceive others' behavior. We then connect this notion with our premise that 'when leaders serve their followers in a very polite way and work with them as leader-cum-colleague, then they stimulate the prosocial behavior of their subordinates and help them out in enhancing their sense of psychological ownership. We propose that psychological ownership can play a role as a mediator between SL and KH.

Consistent with the outlined arguments and considering PO as an intervening variable between SL and KH, it is also essential for a thorough investigation of the boundary condition (moderator) in the proposed relation. Because it would be interesting to consider the boundary condition (circumstances) in which the relation of outlined variables may be affected in the presence of a moderator. Previous studies also focused (Malik et al., 2019; Syed et al., 2021) on different moderators on organizational factors and KH relationships. One recent study explored the moderating effect of individualistic and collectivistic values in perceived task conflict and KH behaviors (Boz Semerci, 2019). In this study, we propose that SL coworker support can interactively enhance the sense of psychological ownership which in turn can help organizations to reduce employees' KH behaviors. This study contributes to the current understanding of SL and negative employee behaviors and suggests ideas for managers and organizations to address this problem (e.g., KH). Based on social learning theory, we used organization-based psychological ownership (PO) as a mediator between SL and employees' KH. Our approach to examining the moderating role of coworker support as a boundary condition to

the outlined relationship will also be a considerable addition to the literature related to educational institutions in Pakistan.

Literature review and hypotheses development

Servant leadership

In the current era, successful leaders are those that serve as role models for their followers, taking care of their subordinates, serving them with politeness, and creating a friendly environment. By coining the term "servant leadership," Greenleaf made a purposeful attempt to change the direction of the organizational pyramid in the leader-follower relationship. He described it as "the servant leader is servant first. It begins with a natural feeling that one wants to serve, to serve first". Despite several positive and negative reactions, servant leadership is a widely accepted approach in current management practices (Kumar, 2018). It guarantees a bright future in modern organizational practices being useful for the success of individual leaders as well as very purposeful for the organizations (Kumar, 2018). Servant leadership is becoming very useful in knowledge management (Andreeva and Kianto, 2012) where knowledge sharing plays an important role in managing the employees' skills and competencies (Cabrera and Cabrera, 2005; Bordia et al., 2006; Wang and Noe, 2010; Sharifkhani et al., 2016; Ansari and Malik, 2017; Gagné et al., 2019).

In addition, there are several specific instances where SL has emerged as an important means for institutions and organizations to counter knowledge hiding attempts of the employees. Several previous studies (Serenko and Bontis, 2016; Bogilović et al., 2017; Connelly et al., 2019; Zhao et al., 2019) have identified three major factors (organizational relations, individual traits, and knowledge contents) that influence the knowledge hiding behavior of employees. With regard to organizational relations, we considered SL as an influencing variable (predictor) for overcoming the negative outcomes of KH; previous research (van Dierendonck et al., 2014; Hila and Shobaki, 2017; Jit et al., 2017; Arain et al., 2020; Aboramadan et al., 2021) also endorse this. In this study, we propose that SL can be very useful in higher educational institutions to decrease employee KH behaviors. Drawing on the social learning theory (SLT) (Nabavi, 2012), we argue that when followers succeed in finding a leader who deals with great care and respect, then they try their best to respond in the same way. Because SLT suggests that behaviors of an individual are developed by observing the behaviors and actions of others. Therefore, when followers experience positive behavior from their leader then they respond in the same way and emulate the same level of care, love, and emotions. Studies have reported the positive outcomes of servant leadership. We argue that when servant leaders prioritize their subordinates and share their experience and knowledge with

them, the subordinates also reciprocate in the same manner and avoid hiding knowledge. It implies that servant leadership can be an effective driver to minimize knowledge hiding in employees of higher education institutions given that KH can severely affect the overall organizational performance including the well-being of the individuals.

Servant leadership and knowledge hiding

To the best of our knowledge, studies on servant leadership and knowledge hiding are limited, though KH has been studied along with other leadership styles (Abdillah et al., 2020; Guo et al., 2020; Koay and Lim, 2021; Syed et al., 2021). Yukl (2013) elaborated leadership as "the process by which a person exerts influence over others and inspires, motivates and directs their activities to help in achieving the organizational goals". The study also indicated that leaders could influence their followers toward increasing their performance for the overall success of the organization. Similarly, the servant leadership style is very successful in earning followers' trust (Lee et al., 2018), since SLs also focus their efforts on ensuring the well-being of their followers (Connelly et al., 2019). They encourage, appreciate, support, praise, coach, and mentor their followers to enhance their performance. These kinds of leaders continuously gauge the performance of their followers so that it can be aligned with the organizational goals. In addition, servant leaders prioritize the needs of their followers and consider them while making decisions. This enhances employees' knowledge-sharing behavior and weans them away from potential knowledge-hiding attitudes.

Knowledge hiding discourages honesty, prioritizing and caring for others, ethical behaviors, and participation in the collaborative activities of the organization (Connelly and Zweig, 2015; Škerlavaj et al., 2018; Peng et al., 2020). It has a negative effect on individuals and organizations. Knowledge hiding is an intentional attempt by an individual to conceal or withhold knowledge that has been requested by another person (Connelly et al., 2012). It not only encourages counterproductive work behavior (CWB) but also prevents them from being creative. It may also negatively impact the creativity of the offender (Cerne et al., 2017). Knowledge hiding is not only harmful from an organizational perspective, but it also affects team performances along with individual performances (Arshad and Ismail, 2018).

Based on social learning theory, it can be proposed that servant leaders could be an efficient means of minimizing knowledge-hiding intentions among followers. Thus, we can argue that when servant leaders are polite, friendly, and calm, then followers learn from their behavior and respond in the same way. Likewise, when servant leaders treat their followers as colleagues and understand their needs, then the chances of negative attitudes (e.g., knowledge hiding) from the

follower would be less. Thus, based on the above discussion we hypothesized:-

Hypothesis 1: Servant leadership is negatively related to knowledge hiding.

Servant leadership, psychological ownership, and knowledge hiding

Servant leaders can build a very healthy, cooperative, and sound organizational culture (Sarkus, 1996). They earn employees' support on account of their reliability and commitment (Green et al., 2015). We argue that SLs can develop a striving-oriented environment by creating a sense of personal integrity and care for the followers, which in turn enhances their positive attitudes. In their study, Liden et al. (2008) reported the consistent efforts of servant leaders to empower, display accountability, create trust and establish ethical behavior while serving their followers. Consequently, such efforts influence employees and create a sense of ownership for their organizations. Organization-based PO means employees consider the organization as their own/personal organization and work for the organization in the same way. We argue that when leaders interact as sincere colleagues instead of reinforcing hierarchy and authority, then they can associate with their subordinates better by minimizing the power distance (Lin et al., 2018). Consequently, when employees have a sense of psychological ownership they display citizenship behavior toward the organization (O'driscoll et al., 2006). Similarly, leaders with a servant leadership style (Aboramadan et al., 2021) focus on the needs of their subordinates to stimulate positive employee behaviors. When employees receive support from their supervisors, it enhances their sense of organization-based psychological ownership. In addition, it is natural for people to be inspired by their role models and emulate their behavior. It is, therefore, asserted that when employees perceive that their leader is serving their needs their sense of psychological ownership will be improved.

Again, based on SLT, we postulate that the service attitude of servant leaders can motivate employees to be committed to the well-being of the organization by increasing their sense of organization-based PO. Because PO is an employee's positive attitude that is developed in the employees first by using best organizational practices, this PO can later play a vital in enhancing positive organizational outcomes (such as knowledge sharing) (Hameed et al., 2019). We argue that leaders as an actor can influence the employee's sense of organization-based PO. In this regard, SL is the best leadership style that can create a sense of PO among the employees. Although PO is a construct that has been widely studied in organizational contexts (Van Dyne and Pierce, 2004; Mayhew et al., 2007; Md-Sidin et al., 2009;

Avey et al., 2012; Asatryan et al., 2013; Park et al., 2015; Dawkins et al., 2017; Kim and Beehr, 2017; Khatri and Dutta, 2018; Ali and Sagsan, 2021; Dahleez et al., 2021; Degbey et al., 2021), its implications and usefulness in the context of educational institutions and teachers have not been explored yet. In addition, its mediating role in servant leadership and knowledge hiding with special reference to teachers from higher educational institutions in Pakistan remains to be studied. Accordingly, we propose that when a servant leader is caring, loving, and friendly and prioritizes followers' needs, takes them into cognizance while making decisions, and addresses their problems and issues, then organization-based psychological ownership is developed among employees which can be used later for the betterment of the organization. When leaders respect their followers, then the followers reciprocate likewise as suggested by social learning theory. A feeling of ownership is developed in the employees because of servant leadership which is later used for prioritizing the organization's goals over personal goals. In line with this argument, we hypothesized: -

Hypothesis 2: Servant leadership is positively related to psychological ownership.

In the literature on servant leadership, several studies examine the relationship between servant leadership and employee behaviors and attitudes. Some studies have explored the antecedents of servant leadership such as conscientiousness (Krekeler, 2010; Hunter et al., 2013), agreeableness (Krekeler, 2010), and extraversion (Hunter et al., 2013), while others (Yildiz and Yildiz, 2015; Hila and Shobaki, 2017; Amin et al., 2019; Aboramadan et al., 2021) have investigated the consequences and outcomes of SL i.e., organizational citizenship behaviors, lead-member exchange, quality of service, employees satisfaction, job engagement, organizational commitment, organizational effectiveness, and organizational identification. In addition, some studies (Hunter et al., 2013) also explored the relationship between servant leadership and several negative variables i.e., disengagement and turnover intentions.

Using social learning theory (Bandura, 1985; Nabavi, 2012) as a theoretical construct to understand the functioning of servant leadership, we aim to explain the relation between SL, PO, and KH. Social learning theory (Bandura, 1985) provides an understanding of individual characteristics and behaviors that can create and influence the perceptions of the followers in a leader-follower relation. According to the theory, individuals learn from the behavior and attitudes of their role models and act accordingly as per the perceived relationship. Therefore, we argued that PO could be the possible antecedent of SL that consequently mitigates the effect of knowledge hiding by mediating the relation between SL and KH. Consistent with these arguments, leaning on the social learning theory and based on empirical studies discussed above, we hypothesized: -

Hypothesis 3: Psychological ownership is negatively related to knowledge hiding.

Several studies have explored the psychological constructs that explain the decrease in knowledge hiding behaviors in employees. For instance, Jiang et al. (2019) explored the mediating role of psychological safety in knowledge hiding as a mechanism to thrive. Holten et al. (2016) reported the mediating role of trust and justice in KH using a research model. Riaz et al. (2019) found the mediating role of job tension and sustainability in knowledge hiding and workplace ostracism. Reviewing other literature, we further proposed that PO can mediate the relationship between servant leadership and knowledge hiding. But more specifically, when servant leadership is high then it increases the feelings of psychological ownership in employees and this influences positive attitude in employees that further mitigates knowledge-hiding behavior of employees. Therefore, we hypothesized:-

Hypothesis 4: Psychological ownership mediates the effect of servant leadership on knowledge hiding.

Moderating role of coworker support

Emotional support is a person's belief in their value, esteem, and care before someone else's (Amarneh et al., 2010). Social support may increase the well-being of an individual by influencing the relationship between the two constructs (Hamaideh et al., 2008). Studies revealed that social support can increase an individual's health and well-being (Hamaideh et al., 2008). Support from a loving person can minimize the level of stress and motivate an employee toward accomplishing any desired task (Hobfoll and Vaux, 1993). Previous studies have (Connelly et al., 2019; Anand et al., 2020) investigated (Malik et al., 2019; Syed et al., 2021) different moderators in leadership and KH relations. Boz Semerci (2019) explored the moderating effect of individualistic and collectivistic values in perceived task conflicts and KH behaviors while (Ghani et al., 2020) highlighted the moderating role of professional commitment in perceived interactional justice and playing dumb (type of KH) behavior.

Pursuing social learning theory (Bandura, 1985), we considered coworker support as a boundary condition and propose that coworker support can moderate the relationship between SL and PO positively. Various studies have investigated the positive and negative effects of social relations in organizations (Hamaideh et al., 2008; Amarneh et al., 2010; Onderwater, 2017; Yoo et al., 2018). We added that the relationship between SL and followers' PO can be influenced by the moderating effect of coworker support and when coworker support is high/low then the relationship between SL and PO will be stronger/weaker. In organizational contexts,

coworkers influence the relationship between the supervisor and subordinate or leader and follower. In the current scenario, we investigated the moderating role of coworker support in servant leadership and psychological ownership. We suggest that when individuals experience social support from their coworkers, their PO level increases. In particular, we hypothesize that coworker support may have a moderating effect on the positive relationship between servant leadership and organization-based psychological ownership of employees. The relationship between SL and PO will become strong in the presence of coworker support, and will be weakened in the absence of the same (see Figure 1): -

Hypothesis 5: Coworker support moderates the relationship between servant leadership and psychological ownership, such that the relationship becomes stronger when coworker support is high.

Methods and procedures

After determining the suitable sample size and choosing appropriate measures, we proceeded toward quantitative data collection using the survey method. For data collection, we used the survey method as it constitutes a quantitative approach that allows researchers to witness the behavior (Rossi et al., 2013) and examine the association between variables. Using convenient sampling, we collected three rounds of data from teachers of moral education degree programs in higher educational institutions in Pakistan. The authors contacted sources in their targeted higher education institutions and requested permission to obtain data. We fixed an appointment with each source and request their help to ensure the availability of the colleagues. Using this procedure, we administered paper-pencil surveys to 38% of the full-time employees (N = 460) as our potential participants. During the process, voluntary participation and confidentiality were ensured. At the first round (T1), the respondents were requested to rate their servant leadership, coworker support, and their demographic information. In the second round (T2), 6 weeks after T1, the respondents were asked to rate their organization-based PO. In the third round (T3), 6 weeks after T2, the employees' level of knowledge hiding was rated by their coworkers. The respondents filled up the surveys anonymously. Each employee and supervisor were provided with a unique ID number randomly at the very beginning of the data collection process and they were requested to provide the ID number each time they participated in the survey, we could file it along with their responses from the previous rounds. Later, the researchers organized a set of two surveys, i.e., one for the subordinates and one for the supervisors using similar IDs for the pairing of received responses. Questionnaires were first administered to 460 respondents during work time of which 356 responded to the T1 survey, yielding a response

FIGURE 1
Research framework.
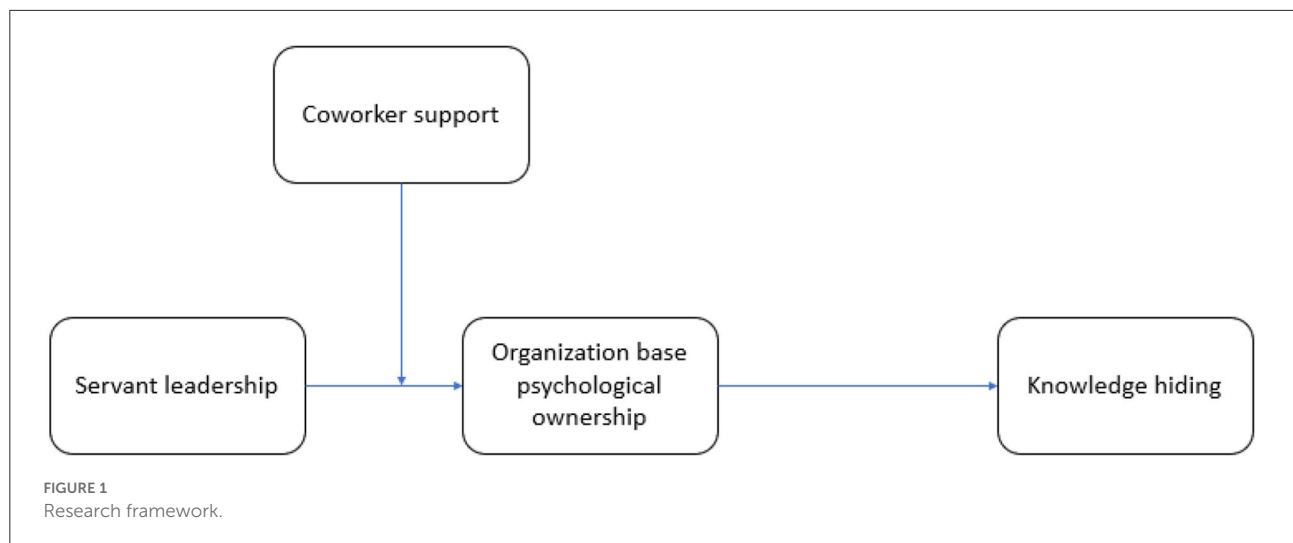
rate of 77.4%. Of these 356 respondents, 324 responded to the T2 questionnaire yielding a 91% response rate, and at T3 we obtained knowledge hiding ratings from the supervisors of 286 employees, yielding a response rate of 88.2%. Our results show that the final sample consisted of 62% of male respondents. The average age of the respondents was 38.2 years with 7.4 years of job experience and average educational qualification of postgraduation.

Measures

All scales used in this research were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Servant leadership: To measure servant leadership, we used a seven-item scale developed by (Liden et al., 2015). We requested participants to rate the servant leadership of their immediate supervisor. Sample item: "My supervisor puts my best interests ahead of his/her own." The Cronbach alpha value for this scale was 0.86.

Psychological ownership: This variable was measured using a six-item scale developed by Van Dyne and Pierce (2004). Sample item: "This is my organization." The Cronbach alpha value for this scale was 0.74.

Perceived coworker support (PCS): To measure participants' level of PCS, we employed a three-item scale developed by Susskind et al. (2003) and used by Yang et al., 2020. Sample item: "When performing my job, I rely heavily on my coworkers". The PCS scale's Cronbach alpha value was 0.72.

Knowledge hiding: A 12-item scale was adopted from Connelly et al. (2012), to measure KH. This scale measured employees' subjective judgment of their coworkers' knowledge hiding from them, the scale consisted of four items each for

evasive hiding, playing dumb, and rationalized hiding. The scale opened with the following explanation: "For a moment, visualize in your mind your coworker; how does he/she behave upon receiving a request from you for any specific knowledge?" A sample item for determining playing dumb: "He/she pretends that he/she did not understand my request." A sample item for determining evasive hiding: "I offered him/her some other information instead of what he/she wanted." A sample item for determining rationalized hiding: "I told him/her that top management would not let anyone share this knowledge." Following previous studies (e.g., Arain et al., 2019, 2021), we treated HK as a single construct. The model fit scores for this second-order confirmatory factor analysis was (χ^2/df = 1.74, CFI = 0.94, TLI = 0.93, RMSEA = 0.05) and the Cronbach alpha score for this second order scale was (0.76).

Control variables: The demographic variables were included in the survey to statistically control their influences on the dependent constructs to rule out the clarifications for significant relationships. Following previous studies, such as Lam et al. (2009), Raja and Johns (2010), and Hameed et al. (2017), four demographic variables, i.e., gender, education, age, and experience (in the current organization) were included in the survey.

Results

To assess the goodness of the model fit of the data, we used the following indices (Byrne, 2013): χ^2/df, the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root-mean-square error of approximation (RMSEA). Hair et al. (2010) suggests an acceptable model should have CFI and TLI scores above 0.90 and an RMSEA value below 0.08. Following Bentler and Bonett (1980) we performed a series of CFA to compare the fit indices

TABLE 1 Comparisons of the CFA Results.

Variables	χ^2	df	CFI	TLI	RMSEA
Model-1: the hypothesized four-factor model (i.e., servant leadership, psychological leadership, PCS, and knowledge hiding)	789.85	428	0.93	0.94	0.05
Model-2: the alternative three-factor model (psychological ownership and knowledge hiding were combined)	984.10	492	0.83	0.79	0.08
Model-3: the alternative one-factor model (all items were loaded onto a single factor)	1,343.63	319	0.67	0.63	0.12

N = 318; CFI, Comparative Fit Index; TLI, Tucker–Lewis index; RMSEA, root mean square.
The error of approximation.

TABLE 2 Descriptive statistics, Cronbach alpha, and correlations.

Variables	M	SD	1	2	3	4	5	6	7
1. Gender	1.44	0.49	–						
2. Age	2.73	1.37	−0.035	–					
3. Education	1.56	0.73	−0.106	0.104	–				
4. Experience	2.55	0.88	−0.079	0.023	0.242**	–			
5. Servant Leadership	1.98	0.51	0.158	−0.027	−0.180	−0.114	(0.86)		
6. Psychological Ownership	2.20	0.81	0.115	0.029	−0.030	−0.018	0.475**	(0.74)	
7. Perceived coworker support	3.86	0.55	−0.031	−0.017	0.103	−0.030	0.447**	0.429**	(0.72)
8. Knowledge hiding	3.14	0.74	−0.119	−0.006	0.143*	0.108	−0.554**	−0.594**	−0.457**	(0.76)

N = 318, *p < 0.05; **p < 0.01.

of the retained four-factor model with alternative models. Specifically, we compared the fit indices of the retained four-factor model (i.e., Model-1) with the two-factor (i.e., Model-2), and single-factor alternative model (i.e., Model-3). The results are provided in Table 1 and reveal that the retained four-factor model had a better fit to the data than the alternative models. Thus, these results (see Table 1) established the factorial validity of the hypothesized four-factor model, which we carried forward to conduct the hypothesis testing in SPSS.

Table 2 presents the means, standard deviations (SDs), and bivariate correlations of all the constructs. The results showed that most of the study's constructs were significantly correlated with each other.

Common method bias (CMB)

In the current research, CMB was analyzed through Harman's single factor test. After categorizing all the items into four factors, the results illustrated that the first factor explained only 28.2% of the variance. Thus, CMB was not a serious problem.

Hypotheses testing

To test our hypotheses we used the PROCESS macro for SPSS (Hayes, 2013) with 5000 bootstrap samples (MacKinnon et al., 2012). According to Hayes (2013), this macro was both appropriate and useful for computing interaction effects. The results in Table 3 show that SL was negatively related to KH (β = −0.18, SE = 0.06, p < 0.01), supporting hypothesis 1. Our results illustrated that SL was positively related to employees' PO (β = 0.60, SE = 0.05, p < 0.01), these results support hypothesis 2. The results also showed that PO was negatively related to KH (β = −0.45, SE = 0.05, p < 0.01), thus hypothesis 3 was supported. For mediation the indirect effect was significant with the 95% CI excluding zero, that is β = −0.12, with CI (−0.10, −0.08). Our hypothesis 5 indicated that PCS moderates the relationship between SL and PO. The results in Table 3 exhibited a significant interaction (SL × PCS) in the mediator model, which indicates that PCS moderated the relationship between SL and PO. These findings supported hypothesis 5. Figure 2 illustrates this relationship.

Discussion

This study aimed to examine how servant leadership could help organizations reduce knowledge hiding by

TABLE 3 Moderated mediation analysis for coworker support moderation, po mediation of servant leadership, and knowledge hiding.

Predictors	Mediator variable PO model			Dependent variable KH model		
	B	SE	t	B	SE	t
Servant leadership-Time1	0.32**	0.05	5.89	−0.18**	0.06	−3.20
Coworker support-Time1	0.14**	0.04	3.26			
SL × coworker support	0.16**	0.04	3.79			
PO-Time2				−0.45**	0.05	−8.17
Gender	0.08	0.08	1.05	−0.03	0.08	−0.32
Age	0.02	0.03	0.78	−0.02	0.03	−0.70
Education	0.12	0.05	2.25	0.38	0.06	6.51
Experience	0.06	0.04	1.28	0.07	0.04	1.52
R^2		0.51			0.48	

Conditional indirect effects at specific value of moderator coworker support and independent variable (servant leadership): ±1 SD

Dependent variable	Coworker support	Conditional indirect effect		SE	Lower	95% Upper
Knowledge Hiding-Time3	−1 SD (2.68)	−0.14		0.04	−0.20	−0.10
	+1 SD (3.80)	−0.08		0.04	−0.04	−0.08
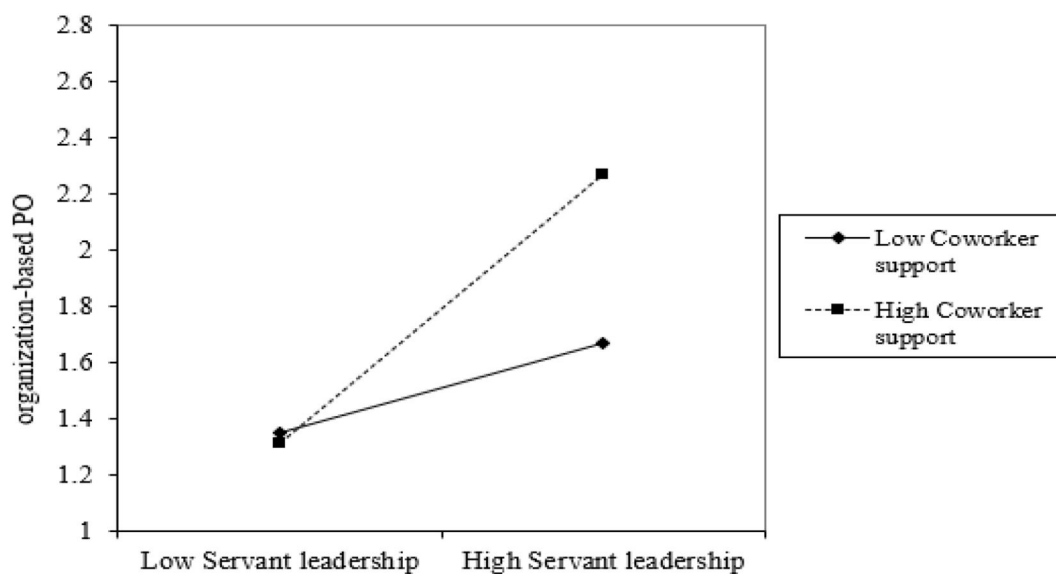
FIGURE 2
Interaction of SL and coworker support on organization-based PO.

enhancing the sense of organization-based psychological ownership in employees. We also investigated coworker support as an important resource that can help organizations to create psychological ownership in their employees which, in turn, can help them to overcome the intention to hide knowledge. Our results indicated that servant leadership positively influences psychological ownership. We also found that psychological ownership mediates the effect of servant leadership on knowledge hiding. Moreover, coworker support

moderates the relationship between servant leadership and psychological ownership.

Theoretical implications

The current research contributes to the leadership and knowledge management literature in several ways. First, this research adds to the understanding of the impact of positive

leaders' behaviors in minimizing KH in the workplace. The existing studies on leadership and knowledge management have focused on studying positive knowledge behaviors (e.g., knowledge sharing) (Trong Tuan, 2017; Le and Lei, 2018). In the current study, we found that SL was negatively related to employee KH hiding, which has never been studied, except by Men et al. (2020) where ethical leadership was found to be negatively correlated to employee KH. Second, our findings indicate that SL positively influenced employees' sense of psychological ownership, which helps to minimize KH. The empirical results of this research extend strong support for the proposition that servant leaders who adopt an employee-centered management approach, stressing personal integrity and care for employees significantly affect employee attitudes and behaviors. Consistent with SLT, we argue that when subordinates think that they are working with servant leaders who not only display normatively appropriate behavior but also inspire and motivate their subordinates by demonstrating attractive characteristics (Mayer et al., 2012), then the subordinates are likely to develop a sense of psychological ownership, which leads to a reduction in KH. These findings are consistent with previous studies which highlighted that positive leadership could reduce employees' negative workplace outcomes by enhancing their sense of PO (Kim and Beehr, 2017). Furthermore, by examining the PO as a mediating mechanism between leadership and employee KH, this study responded to the call for more research by Men et al. (2020) who suggested that organization-based PO may help to reduce KH. Finally, we found that coworker support moderated the positive relationship between SL and employee organization-based PO. Our results demonstrated that a higher perception of coworker support strengthened the SL-employee PO relationship. We argue that employees will have more sense of PO if they believe that their work environment is supported by their colleagues. These findings are also consistent with previous research by Yang et al. (2020) which reported that when workers perceive adequate support from their coworkers, they generated positive emotional belongingness with the organization.

Practical implications

The current research also offers some implications for managers and organizations. First, this study suggests that when managers demonstrate caring and selfless behavior toward their subordinates, it helps to reduce their negative behaviors (e.g., KH). Moreover, managers can perform a significant role in discouraging their subordinates' KH behaviors by promoting service-oriented behaviors (Liden et al., 2014) and serving as good role models. Managers could do so by accentuating personal integrity and care for their subordinates (Liden et al., 2008). Second, we suggest that by using the SL style in educational institutes, managers can develop a sense of PO

in their subordinates as a result they may be less likely to hide knowledge from their colleagues. This indicates that organizations should select and recruit individuals for leadership positions who possess a set of skills that includes integrity and selflessness. Additionally, organizations should provide training to managers to use SL supportive behaviors to create a service-oriented environment that can help them to discourage employees' negative workplace behaviors. Lastly, organizations should promote SL behaviors through performance evaluation and rewarding programs to encourage managers to practice positive behaviors, which in turn reduce workers' KH behaviors.

Limitations and future research directions

Like other studies, this research also has several limitations. First, the use of single-source data may raise concerns about common method bias. We think that coworker support and a sense of psychological ownership are perceptual measures that should best be taken by self-assessments. In the present research, the immediate supervisors rated employees' knowledge hiding, which allows using an additional source of data to strengthen our results. Second, we acknowledge that this research is conducted in the Pakistani context, which may limit the generalizability of the findings to other contexts. Future studies can collect data from other countries, which may provide greater validity through a generalization of the findings. Third, this study used a cross-sectional research design to obtain the data for hypothesis testing, which may impede us from exploring the causal relationships among variables. Therefore, it is suggested that future studies should validate the findings using a longitudinal research design because according to Li et al. (2015) longitudinal designs are considered more accurate for empirical data collection. This research employed a quantitative design to test the relationship between the hypotheses where future studies can employ qualitative attributes. This approach may provide a better opportunity for an in-depth and richer understanding of how servant leadership and support from colleagues and a sense of psychological ownership can help organizations to overcome the prevalence of knowledge hiding.

The findings of this research provide several directions for future research in the field of leadership and knowledge hiding. Among these, we suggest two interesting opportunities: first, this study recommends that future research should investigate other leadership styles (such as shared leadership) of psychological ownership which help managers and organizations to minimize knowledge hiding. Second, future studies can use other mediating mechanisms (e.g., person organization-fit) to explain the relationship between leadership and negative workplace outcomes.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed 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 from the patients/participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

SA: conceptualization, data collection, methodology, analysis, writup, review, and editing final draft. LJ: supervision, review, and editing. All authors contributed to the article and approved the submitted version.

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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Teaching research group leaders' perceptions of their engagement in curriculum leadership

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Understanding how teacher leaders are engaged in curriculum affairs is critical with the implementation of instructional decentralization. The current study adopts a qualitative approach to investigate Teaching Research Group (TRG) leaders' involvement in curriculum leadership (CL) in the Chinese context. It explores the conceptions of TRG leaders by interviewing 20 of them, observing four meetings held by TRG leaders, and collecting 10 extracts from appraisal summaries of TRG leaders in secondary schools in China. Drawing on the findings, this paper examines the characteristics of TRG leader's engagement in CL. More importantly, data highlighted significant problems the participants perceived and faced in their work as TRG leaders, which consisted of amplifying the necessity for empowering TRG leaders and identifying the phenomenon that said leaders are less empowered and less motivated to undertake the CL role. The results add to the international body of knowledge on the teachers' engagement in CL.

KEYWORDS

curriculum leadership, teaching research group leader, decentralization, qualitative, China

Introduction

In recent decades, much educational reform has shone a focus onto the implementation of decentralization which transfers authority, responsibilities and tasks from the top down (Koh et al., 2014). This phenomenon enables schools and teachers to have more power and autonomy in curriculum issues and curriculum decision-making processes (Law et al., 2010). Meanwhile, much research attention has been paid to understanding curriculum leadership (CL) with the implementation of decentralization (Stark et al., 2002). However, research evidence related to issues of the teacher as leader in CL has just begun to emerge in the past 20 years, since a large body of the literature has focused on exploring the principal's role in CL (Cummings, 2011; Jenkins and Pfeifer, 2012). Jorgensen (2016) noted that enacting CL is not only within the ambit of the principal but also within that of teachers. In recent years, teachers carry much more responsibility for curriculum matters (Wiles, 2009). However, studies related to teachers' engagement in CL remain scant (Cummings, 2011; Ylimaki, 2011). According to the findings extracted from Hu and Gu's (2012) commentary study, it is noted that few empirical studies of CL occurring in

secondary schools in Asian contexts have been reported since Chinese literature mainly makes critical evaluation and commentary on western studies.

In China, the new curriculum reform (NCR) undertaken in 2001 engendered "major curriculum and instructional change" (Walker and Qian, 2012, p. 164). It involved efforts invested into conducting a policy of three-level (e.g., national, provincial, and school) curriculum management, which makes curriculum decentralization essential (Guo, 2013; Zeng and Zhou, 2013). Specifically, it is stipulated that the schools execute the national curriculum under the authoritative directive made by MoE and they are entitled to develop a school-based curriculum in accordance with their educational context (MoE, 2001). Such decentralization provides policy space for teachers to be granted more autonomy in curriculum matters (Wang and Zheng, 2013; Fu and Yu, 2014) and teachers' roles to gradually change from followers to leaders in curriculum decision-making (Zhang, 2012; Zhong, 2013). As described by Wang and Zheng (2013), under the implementation of the NCR, it is the first time that teachers have assumed the roles of designers, developers, and leaders in curriculum development. However, it has been identified that teachers achieve only a low level of empowerment and have little influence on curriculum issues in Chinese schools (Chang and Li, 2007; Hu and Gu, 2012). Under such circumstances, examining CL in the Chinese context becomes a salient concern (Lu, 2011). Unfortunately, nonempirical studies still dominate the Chinese literature (Walker et al., 2012), and similar to the Western literature, the most relevant Chinese literature on CL has focused on identifying principals' CL (Hu and Gu, 2012; Wang and Kang, 2013). Empirical studies investigating teacher leaders' CL are scant (Long and Chen, 2010; Hu and Gu, 2012).

The Chinese Ministry of Education (MoE) defined the role of TRG leader as the one positioned between the principal, the director of studies, and teachers, and it emphasized that a TRG leader is not the director of administrative affairs (Price, 2005). Particularly, according to Guo's (2007) statement, TRG leaders have never been recognized as the middle-level leaders although the responsibilities they assumed are quite related to the administrative affairs, such as arranging refresher courses for teachers, holding teaching competition and etc. On the other hand, it is identified that TRG leaders are backbone (*gugan*) teachers who possess management and leadership skills (Zhang, 2007). In the existing Chinese literature, it has been identified that teachers' involvement in CL plays a pivotal role in improving teaching quality (Chen, 2014) and academic achievement (Xiong and Lim, 2015) and can also make up for limitations in the principal's leadership (Dong, 2008; Mao, 2009). Thus, in light of these findings, a deeper understanding of how TRG leaders are empowered and enact CL is obviously significant. Most crucially, a need exists to develop and reconceptualize the knowledge base of teachers' engagement in China to fill the research gap.

The focus of this research was on exploring how TRG leaders conceptualize their CL roles and analyzing challenges they encountered, thereby contributing to the literature related to

teacher leaders' engagement in CL. By analyzing the data, this study was able to identify key factors and difficulties in helping to empower teacher leaders, which can enable the development of a more cooperative school culture for the devolution of authority in curriculum matters.

Literature review

School leadership and CL

No authoritative definition of school leadership exists because it is a loosely defined term with various descriptions (Day and Antonakis, 2012). School leadership is regarded as a process that guides and influences individuals' behavior (Yukl, 2006). Harris (2003) defines leadership as dynamic relations among stakeholders in learning organizations. According to the descriptions of Elliott et al. (1999, p. 174), leadership reflects the "role definition, power relationships and behavior of those who may be characterized as leaders." In addition, Nashashibi and Watters (2003) depict leadership in detail as follows: (1) "leadership is a process of influencing others"; (2) "leadership can be exercised by people without formal authority or designation"; (3) "leadership implies that there are followers"; and (4) "leadership involves moving forward to achieve goals or objectives" (p. 48). In general, it appears that Elliot et al.'s (1999) definition reflects the functional traits and influential ability of school leadership that it is "a dynamic interplay of school-related factors and personal factors" that assists the achievement of school goals (Elliott et al., 1999, p. 171).

The exercise of leadership plays a key role in school development because it affects the success or failure of school development (Hallinger and Heck, 2010; Day and Sammons, 2013) and also the school culture (Harris, 2003). Leadership has been confirmed to directly affect students' academic achievement, thereby facilitating students' learning (Lee et al., 2012; Walker et al., 2014). Furthermore, the enactment of leadership contributes to building staff capacity and instructional ability, such as motivations, values, commitments, competence, and a knowledge base in teaching (Day and Sammons, 2013; Whitworth and Chiu, 2015).

In the field of leadership, CL has been given increasing attention since some studies began to explore schooling issues through reviewing curriculum implementation and curriculum development (Macpherson et al., 1998; Ylimaki, 2012). According to Bush and Glover's (2014) description, CL is viewed as a type, an alternative or a model of school leadership which is used to denote a focus on leadership concerned with managing teaching and learning activities.

No commonly agreed definition of CL exists (Tsui, 2014). It is regarded as "an amorphous role" that falls to "a person or group of people who assume responsibility for curriculum" (Jorgensen, 2016, p. 370), such as principals, administrators, and teachers (Macpherson and Brooker, 2000). It is also defined by its functions,

which include taking administrative duties (Nashashibi and Watters, 2003), instructional responsibilities, or any initiative related to "the sociocultural and political aspects of educational content" (Ylimaki, 2012, p. 305). Furthermore, the exercise of CL is described as the interplay between the leader and other stakeholders in schools, community, and society (Ylimaki, 2011). In addition, some researchers have presented that the enactment of CL means taking initiatives in a specific context, namely at "macro- (e.g., starting a new school) and micro-levels (e.g., implementation of curriculum policy in a single class)" (Macpherson et al., 1998, p. 76). Moreover, the enactment of CL also reflects personal qualities and professional identities, such as the knowledge, beliefs, self-awareness, values, and experiences that the individual brings to the organizational context (Ylimaki, 2011). In general, through integrating the aforementioned descriptions, it seems logical to define CL from four perspectives: building vision for curriculum development at the school level, coordinating curriculum at the classroom level, communicating curriculum issues at the social relationship level, and reflecting individual's professionalism and qualities at the personal level.

The enactment of CL plays a pivotal role in creating "positive learning and safe, orderly schools" (Ylimaki and Brunner, 2011, p. 1264). In classroom settings, exercising CL provides positive reinforcement for students learning (Handler, 2010) and influences students' learning experiences (Xiong and Lim, 2015). As for the social relationship level, CL has been assumed to prompt teacher collaborations, and thus ultimately prompt staff development and the formation of cooperative school climate (e.g., Copland and Knapp, 2006; Law and Wan, 2006). Studies have also identified that individuals who are equipped to enact CL are required to have professional skills, specialized knowledge, competencies in curriculum, communicative ability, and even an understanding of psychology, thereby further enhancing personal development (e.g., Chval et al., 2010; Cummings, 2011).

Role of teacher leaders in CL

Teacher leaders are the type of leaders who exercise "strong professional-oriented leadership practices" (Chen and Zhang, 2022, p. 1). According to Gao and Hu's (2016) statement, backbone teachers, subject heads, and TRG leaders are all belongs to teacher leaders. TRG leaders are appointed to take charge of curriculum matters in their subject area. The MoE first named the role of TRG leader (*jiaoyan zuzhang*) in the Secondary School Teaching Research Group Rulebook (draft) in 1957.

Some scholars have described TRG leaders as TRG heads (Qian et al., 2016) or the head of TRG (Yuan et al., 2018). To some extent, a TRG leader is equivalent to various terminologies such as the head of department (HoD) in the British context (Li and Edwards, 2014), subject leader (also in the United Kingdom), or chair (in the United States). However, in the Western context, the HoD is regarded as an academic middle manager (Mercer and Ri, 2006; Dinham, 2007), whereas in China, TRG leaders are not

middle-level leaders in schools (Guo, 2007; Li, 2013). Notably, the HoD in the Western context is a middle manager who has formal responsibilities and roles such as teaching, learning, and the curriculum; monitoring, evaluating, and improving people and relationships; and managing resources and accountability (Adey, 2000). In Chinese secondary schools, however, these discrete roles are split up (Mercer and Ri, 2006). As Mercer and Ri (2006, p. 107) indicated, the HoD is "a different creature" in the Western context, whereas "there is not the same level of interest in the role of the HoD in Chinese secondary schools." The obvious difference between a TRG leader and a HoD was identified as being that a TRG leader is not the director responsible for all administrative affairs in the school's management system (Price, 2005).Although no authoritative definition exists of TRG leader, Chinese researchers have defined the role and responsibilities of a TRG leader. It has been noted that TRG leaders are outstanding frontline teachers (Gao and Hu, 2016), organizers (Chen, 2014), or subject leaders (Du, 2013). Furthermore, Zhang (2012) articulated that a TRG leader is the core leader of a TRG building, a demonstrator of teaching, the backbone of the improvement of teaching quality, the bellwether of research, and the implementer of teacher development programs. Furthermore, other researchers have outlined TRG leaders' responsibilities, such as building a shared vision, promoting the organizational culture, sharing teaching experiences, developing teaching beliefs, guiding research, organizing group activities, and promoting group members' continual professional development (Chen, 2014).

In conclusion, TRG leaders are curriculum leaders who assumed to undertake pedagogical considerations for teaching and research matters, and lead teachers of the same subject to collaborate. They are the frontline teachers and backbone (*gugan*) teachers who retain power on the part of middle managers but are not middle managers.

Teachers' involvement in CL

With the implementation of educational decentralization, teacher involvement in the decision-making process for curriculum matters has "long" been the focus of research interest (Ho, 2010, p. 613).

At the school level, teachers are empowered with autonomy in making administrative and instructional decisions, such as cultivating school culture and climate (Macpherson et al., 1996; Wang, 2013); building a shared vision and setting goals for curriculum development (DeMatthews, 2014); allocating teaching sources (Lin and Lee, 2013; Wang and Kang, 2013); and providing instructional suggestions (Luo and Xia, 2011). Researchers have identified that teacher involvement in CL improves a school's security and stability (Ylimaki and Brunner, 2011); enhances a democratic, open, and collaborative school culture (Luo and Xia, 2011); and thus finally prompts school development (Dong, 2008; Campbell and Malkus, 2011). However, teachers are not fully involved in taking on the CL role in the authentic context because

of the rigid organizational structure and undemocratic schooling (Wang and Zheng, 2013; Moreeng and Tshelane, 2014).

At the classroom level, teachers who assume CL are responsible for setting curriculum goals and spearheading teaching resources for ensuring compliance with curriculum standards (Cummings, 2011; Fu and Yu, 2014), and also devoting to classroom initiatives such as solving teaching and learning problems as well as organizing classroom activities for effective teaching and learning (Macpherson and Brooker, 2000; Law et al., 2007). Furthermore, these teacher leaders are in charge of making assessments of teaching and evaluating learning, and also monitoring the curriculum implementation (Huang and Zhu, 2015; Xiong and Lim, 2015). The literature also confirms that teachers who served in CL positions have an effect on enhancing teaching quality (Cummings, 2011; Luo and Xia, 2011) and improving academic achievement (Law and Wan, 2006; DeMatthews, 2014), thereby ultimately prompting school improvement (Wiles, 2009) as well as the implementation of curriculum reform (Wang and Zheng, 2013). However, teacher leaders' autonomy in curriculum decision making is low because it is normally constrained by curriculum standards (Macpherson and Brooker, 2000; Zheng and Guo, 2010).

At the social relationship level, teachers' involvement in CL mainly involves three aspects. That is, sustaining relations with superiors (e.g., principals and deputy principals) to convey problems or obtain strategic direction for school-wide programs (Wu, 2003; Chval et al., 2010); with subordinates to prompt collaboration and solve problems on teaching and research (Ye and Zhu, 2013; Albashiry et al., 2016); and with external stakeholders (e.g., other schools or district administrators) to communicate and share information and experiences (Wang and Kang, 2013; Albashiry et al., 2016). Maintaining relations with stakeholders plays a crucial role in school development (e.g., Gabriel and Farmer, 2009). Teacher involvement in CL can compensate for deficiencies in the principal's leadership (Mao, 2009). By contrast, collaboration among teachers and between schools prompts experience-sharing and individual professional development, which builds a positive school culture (Nashashibi and Watters, 2003; Li and Duan, 2004). In the real context, however, maintaining relationships with stakeholders entails challenges, such as insufficient support from principals (Dong, 2008; Chval et al., 2010), an uncooperative atmosphere among peers (Fu and Yu, 2014), and less communication with stakeholders outside schools (Zhang and Xie, 2012).

At the individual level, CL has been assumed to involve maintaining awareness of being empowered to be leaders (Macpherson et al., 1996; Xiong et al., 2011); being equipped with knowledge and skills such as curriculum design, curriculum implementation, curriculum evaluation, and educational theories and policy (e.g., Handler, 2010; Ye and Zhu, 2013); and possessing professional ethics such as devotion (Wang and Zheng, 2013), risk taking (Li, 2004), sharing (Ye and

Zhu, 2013), and trustworthiness (Zheng, 2007). Evidence from a relevant study identified that teacher leaders who possess awareness, knowledge, skills, as well as professional ethics affect the success of individuals and organizations (Nashashibi and Watters, 2003). Nevertheless, teacher leaders demonstrate little desire and even less ambition to take on the CL role (Handler, 2010), and some teachers' professionalism is relatively limited (Mabry and Ettinger, 1999; Wang, 2013). In particular, some teachers in the Chinese context still lack a sense of responsibility (Lin and Feng, 2007), and they are selfish and utilitarian (Ye and Zhu, 2013), which results in their inactiveness toward taking on the CL role.

In conclusion, although research on CL in the Chinese context exists, there is a dearth of research on TRG leaders' CL role, especially research with empirical data (e.g., Wang and Kang, 2013). Furthermore, most earlier studies are structured to critically evaluate findings emanating from Western studies, and thus their arguments are based on insufficient Chinese empirical data (Hu and Gu, 2012). Thus, an in-depth understanding of TRG leaders' engagement in CL in the Chinese context may still be required. A qualitative study was deployed to explore TRG leaders' perceptions of said leaders' engagement in CL in secondary schools in mainland China. This study intended to answer two main research questions (RQs):

(RQ1) What are the characteristics of TRG leaders' engagement in CL?

(RQ2) What challenges arise when empowering TRG leaders?

Materials and methods

In order to examine TRG leaders' in-depth perceptions of how TRG leaders are engaged in enacting CL roles, the intepretivism approach was adopted in a bid to extract a rich set of data "based on people's experiences and their understanding of them" (Gemma, 2018, p. 8).

Participants

In this research, a purposive sampling technique was used for data collection. This deliberated choice of participants enables the researcher to identify and obtain rich information related to the research topic (Elo et al., 2014). Because few empirical studies on teachers' CL have been conducted in secondary schools in Asian contexts (Hu and Gu, 2012), and the implementation of NCR has mainly targeted the secondary school context (Tang et al., 2011), the researcher thus attempted to collect data in secondary schools, China. Under the policy of instructional decentralization, schools are entitled to autonomy in curriculum matters. Thus, with the aim of enhancing the representativeness of the results, the researched schools were selected on the basis of the current pattern of education facilities in China and all school types were covered (see Table 1).

A researcher identified that samples of 12 should be adequate for exploring participants' perceptions (Boddy and Boddy, 2016). In this research, to ensure representative balance, 20 participants were TRG leaders who taught different subjects and held various lengths of work experience in the role of TRG leader. In particular, their gender, experience of being TRG leader, and teaching subject were collected (see Table 2). For respecting the rights and dignity of participants (Oates et al., 2010), the ethical approval of this study was obtained through sending the consent form to the schools and participants before its commencement.

Data collection

Three data collection techniques were deployed in this study to buttress one another. First, the semistructured interview

TABLE 1 School type.

School characteristics			n
State-run schools	Key schools	Provincial key school	1
		City/Local key schools	4
	Non-key schools	Ordinary schools	4
Private school			1

S, School.

technique was adopted to explore more hidden and in-depth information from respondents (Kvale and Brinkmann, 2009). Each interview lasted approximately 40 min, was audio-recorded, and was then transcribed verbatim for content analysis. Questions were designed based on a theoretical framework related to TRG leaders' engagement in CL and were revised based on the pilot study. Issues explored with TRG leaders included participants' demographic information, perceptions of TRG leaders' engagement in CL as characteristics of enacting CL, significance of enacting CL, and challenges of enacting CL. For eliciting more insights and understanding in interviews (Emerson et al., 2011), field notes were taken after interviews to help memorize key points that emerged in interviews.

Second, observations of meetings were taken to obtain access to the authentic context and uncover relations and interactions among participants (Rubin and Rubin, 2012). In particular, four types of meetings held by TRG leaders were observed and video-recorded, which included the one held at the beginning of the semester for making the work arrangement and three monthly meetings for routine issues, team building issues, and teacher development issues, respectively.

For data triangulation, documents containing 10 extracts of TRG leaders' performance summaries were obtained and studied to verify information that could not be observed (Patton, 2015).

TABLE 2 TRG leaders' demographic information.

Code	Gender		Experience of being a TRG leader			Teaching subject	
	Male	Female	>10 years	5–10 years	<5 years	Science	Humanities
TRGL1		√	√			√	
TRGL2		√		√		√	
TRGL3		√			√	√	
TRGL4		√		√			√
TRGL5		√			√	√	
TRGL6	√		√				√
TRGL7		√		√			√
TRGL8		√			√		√
TRGL9	√		√			√	
TRGL10	√		√			√	
TRGL11		√		√			√
TRGL12		√	√			√	
TRGL13	√		√				√
TRGL14		√		√			√
TRGL15		√		√		√	
TRGL16		√		√			√
TRGL17		√		√		√	
TRGL18		√	√				√
TRGL19	√				√	√	
TRGL20		√			√		√
n	5	15	7	8	5	10	10

TRGL, TRG leader.

Data analysis

Qualitative data from the interviews, meeting observations, and documents were systematically analyzed. To obtain in-depth meanings, content analysis of data was employed for various sorts of data (Schreier, 2012). The data analysis process involved three phases. First, coding categories were established based on the literature and RQs. The categories and samples of quotes are displayed in Table 3.

Subsequently, to ensure coding reliability, a peer review was conducted by an individual possessing a doctoral degree in educational leadership for testing the accuracy of the coding categories and the coding scheme, who then met with the author to compare codes. When there was no agreement on codes, data were reread and discussed until clarity and consistency were reached. As a result, a Kappa value of 0.85 was achieved through comparisons of coded transcripts, which can be regarded as satisfactory because Krippendorff's alpha (Kalpha >0.70) shows the standard reliability statistic for content analysis (Krippendorff, 2013).

Data were then systematically coded and analyzed using the NVivo 11, which was employed to facilitate qualitative data analysis through browsing, manipulating, coding, and interpreting (Azeem et al., 2012).

Findings

General conceptions: Being unfamiliar with the term CL

Notably, 13 TRG leaders (65%) did not know or had not heard of the concept of CL unless the term CL was paraphrased into curriculum matters that they could provide some descriptions of. Evidence from the interviews indicated that CL refers to taking initiatives related to educational concerns such as designing course construction (TRGL9), taking in-class initiatives (TRGL2), and leading research projects on curriculum issues (TRGL8). In

particular, enacting CL involves taking instructional initiatives for both the national curriculum and school-based curriculum. TRGL9 stated the following:

> We follow the national curriculum standards when taking the national curriculum. Meanwhile, we develop our own characteristics for the school-based curriculum. I think implementing CL is a combination of particularity and universality. (TRGL9)

In general, although TRG leaders depicted curriculum issues in various manners, they were not entirely familiar with the expression of CL.

The CL practices of TRG leaders

Taking instructional initiatives at school and classroom level

Findings of TRG leaders' engagement in CL for the national curriculum and school-based curriculum were quite different.

Concerning TRG leaders' involvement in CL for the national curriculum, all TRG leaders acknowledged that they cannot make any autonomous decision for instructional issues such as teaching hours, teaching contents, and plan of instruction, because these initiatives are restricted by the policy of the national curriculum standards. TRGL7 noted that,

> Although we are appointed as the TRG leaders to be in charge of curriculum matters, we have no power in making decisions or any changes to the national curriculum. All the instructional decisions must be strictly in accordance with the guidance and requirements stipulated in the national curriculum. (TRGL7)

In particular, 15 TRG leaders (75%) emphasized that there is no autonomy over textbook selection. TRGL15 stated the process of textbook selection as follows:

TABLE 3 Sample of data coding outputs.

Category	Subcategories	Sample quotes
Enact CL at the School Level	Characteristics	*We make adjustment under the macro-control of the schooling system. (TRGL6)*
	Difficulties	*There exists a hierarchy in the school's management system. TRG leaders cannot make autonomous decisions in that they must follow the guidance of the three-level curriculum management system. (TRGL16)*
Enact CL at the Classroom Level	Characteristics	*TRG leaders arranged teachers to observe a 45-min class and then make a weekly class evaluation. (MO3)*
	Difficulties	*We cannot make autonomous decisions for the national curriculum. (TRGL16)*
Enact CL at the Social Relationship Level	Characteristics	*TRG leaders coached and mentored young teachers for making preparations for Teaching Competition. (MO4)*
	Difficulties	*I feel tired to communicate and assign tasks to teachers. Young teachers have procrastination. Elderly teachers are inactive. (TRGL 5)*
Enact CL at the Personal Level	Characteristics	*TRG leaders are required to be responsible for taking on the CL role. (DPS7)*
	Difficulties	*I do not want to waste the time and energy in structuring how to implement the leadership practices. (TRGL 15)*

MO, meeting observation; DPS, document of performance summary; TRGL, TRG leader.

> There is a booklist specified by the MoE that strictly requires the local bureau of education to select the textbook from the list. Textbooks listed by the MoE are in conformity with the national curriculum requirements and approved by the State Textbook Examination and Approval Committee. Thus, schools have no autonomy to choose the textbooks, let alone teachers themselves. (TRGL15)

Participants ascribed this phenomenon to the High School Entrance Examination and College Entrance Examination. TRGL6 explained,

> All the teaching content in the textbooks recommended by the MoE is involved in the examination scope. Teaching serves the examinations. It is necessary to use the appointed teaching materials, since most students take the national entrance examination. (TRGL6)

Different from the situations at school level, 13 TRG leaders (65%) acknowledged that TRG leaders can make some decisions in classroom teaching for the national curriculum. Evidence from the documents of, for example, TRG leaders' performance summaries revealed that TRG leaders can make decisions when choosing what teaching approach to employ and adjusting their teaching schedule according to students' learning effectiveness and teachers' reflection on teaching (e.g., DPS2, DPS8). In addition, for obtaining enhanced teaching performance and learning outcomes, TRG leaders take responsibilities for conducting teaching and researching activities such as holding seminars on curriculum reform (e.g., TRGL2, TRGL3), analyzing the policy of curriculum standards or examinations (e.g., TRGL1, TRGL4), sharing teaching experiences (e.g., TRGL11, TRGL15), organizing peer class observation, and making reflections for teaching (e.g., TRGL9, TRGL17). Although TRG leaders have limited and restricted power in taking on the CL role for the national curriculum, seven TRG leaders (35%) indicated that teachers who participate in CL played a significant role in school development. TRGL17 explained as follows:

> Teaching and researching are the core of the foundation of school development. TRG leaders' engagement in CL is the mainstay of teaching and researching. Therefore, the development of a school has a close relationship with the implementation of CL. (TRGL17)

In general, the findings indicated that TRG leaders have less autonomy in the national curriculum because the initiatives are restricted by the national curriculum standards.

On the other hand, in terms of TRG leaders' involvement in CL for the school-based curriculum, all TRG leaders indicated that they took more responsibility for curriculum matters because there were no unified curriculum standards for the school-based curriculum. As TRGL5 described,

> We can take macro control over issues related to goal setting and goal planning on teaching issues or curriculum issues at the school level. (TRGL5)

Moreover, evidence from observations at, for instance, the monthly meeting for organizing routine issues (MO2) indicated that TRG leaders can make autonomous decisions for the school-based curriculum at the school level, such as discussing the course setting and working out a plan for the collective lesson preparation.

Furthermore, all TRG leaders acknowledged that they had relatively more autonomy in decision-making in classroom settings, which involves choosing the teaching content, making and adjusting instruction plans, and tailoring teaching materials. TRGL10 added that,

> We can make decisions on what to teach and how to teach according to the students' needs and ability. It is flexible to adjust the teaching schedule and there is no need to follow the unified curriculum standards for the school-based curriculum. (TRGL10)

TRGL6 offered an example of how a teacher leader enacts the CL role:

> When the teachers decided to open the Literary Appreciation course, we discussed the feasibility of opening this course within the TRG. For the teaching content, for example, we added classical literature such as Tao Te Ching to this course since it could broaden students' knowledge base of Chinese literature. And the added teaching content is not illustrated in the national curriculum teaching materials. (TRGL6)

In the same vein, TRG leaders, who are also the frontline teachers, undertake more responsibilities and are empowered with much autonomy in classroom teaching. Evidence from the interviews demonstrated that TRG leaders can decide many instructional issues, such as what knowledge point should be taught first and what should be second (TRGL8), what contents should be added or deleted to suit students' needs (TRGL 16), and how to control the pace of teaching (TRGL7). In addition, TRG leaders are responsible for conducting teaching and research activities after their class teaching. Furthermore, evidence from the performance summary documents (DPS7, DPS10) and meeting observations (MO3) revealed that TRG leaders are responsible for arranging teachers from the TRG to observe peers' classes and hold weekly post-evaluation meetings for reflecting, sharing teaching experiences, and solving problems in teaching. However, a key challenge facing TRG leaders when enacting CL for both the national curriculum and school-based curriculum is—as 14 TRG leaders (70%) noted—that no unified criteria exist for them to use as a reference when making curriculum evaluations. TRGL7 indicated,

> The criteria for evaluation are based on our knowledge and experiences. There are no specific or unified criteria for curriculum evaluation. (TRGL7)

Although the TRG leaders still had to face difficulties, six of them (30%) emphasized that being empowered with the autonomy to organize and conduct teaching and researching activities would hold the key for school and individual development, and ultimately promote students' learning.

It could be concluded from the TRG leaders' perceptions that TRG leaders have extensive autonomy in making decisions for the school-based curriculum.

Nurturing relationships at the social relationship level

This study identified from the data that nurturing and maintaining relationships with superiors, subordinates, as well as stakeholders outside the school are crucial.

First, as evidenced from the interviews, 13 TRG leaders (65%) showed that TRG leaders always communicate with the deputy principals who are in charge of teaching affairs. TRG leaders not only communicate on teaching issues but also on unrelated teaching issues. The following excerpt is from TRGL10:

> I usually communicate with the deputy principal rather than the principal, since deputy principals are responsible for teaching matters. We always get orders from the deputy principal at the beginning and the end of the semester, and before the mid-term examination and final examination for making arrangements and preparations in advance. Besides, we discuss the issue of awarding teachers who have excellent teaching performance at the end of the semester. (TRGL10)

In addition, 10 TRG leaders (50%) stated that they have close connections with the school's Office of Academic Affairs on curriculum matters and with the school's Teaching and Research Center on teaching on research issues. As TRGL3 reflected, TRGL5 also described the connections with the Teaching and Research Center as follows:

> The Teaching and Research Center conveys information to TRG leaders, such as information about teacher training and seminars, or the educational documents and requirements made by the local Teaching and Research Center. At the beginning of the semester, the Teaching and Research Center gives us the teaching and research objectives. Also, we give a summary report of the accomplishment of objectives at the end of the semester. (TRGL5)

Second, TRG leaders are engaged in cultivating collaborative relations with subordinates through providing guidance on teaching and research, such as organizing collective lesson preparation (TRGL12), arranging lesson demonstration and class observation (TRGL11), and designing examination papers (TRGL8). Furthermore, 14 TRG leaders (70%) reflected that TRG leaders are in charge of organizing professional-development initiatives with teachers. Evidence from the meeting observations (MO3) demonstrated that the TRG leaders hold post-evaluation meetings to reflect and solve problems that emerged during class observation, and also arrange experienced teachers to share teaching experiences, new teaching approaches, and teaching sources with peers. Furthermore, in MO4, the TRG leader also encouraged teachers to participate in the Teaching Competition and promised to offer supportive assistance. TRGL14 mentioned,

> TRG leaders learn new things (e.g., flipped classroom, microlectures) in the middle-level training first, then share with teachers in the teaching and research activities. (TRGL14)

Moreover, TRG leaders are responsible for nurturing relations within the groups. Evidence from the performance summary documents (DPS5) showed that the TRG leaders have been engaging in coordinating and building positive and collaborative relationships between the leaders of the lesson preparation group and teachers, with the aim of building a harmonious climate and strengthening rigorous academic attitudes.

Third, findings demonstrated that TRG leaders are also in charge of communicating with stakeholders outside the school; 19 TRG leaders' (95%) acknowledged that the most frequent connecting channel is the local educational bureau, which holds middle-level training sessions every year for TRG leaders. The TRG leaders mentioned that the training is mainly related to teaching topics such as an introduction to flipped classroom teaching and micro-classes. TRGL20 stated,

> There is a chat group set up by the local Teaching and Research Center for announcing issues related to teaching and research activities or middle-level training. Personally, I have no channel and I seldom connect with other learning organizations. (TRGL20)

However, in actual fact, several obstacles are encountered by the TRG leaders when they maintain relations with stakeholders in and outside the school. Half of the TRG leaders (50%) acknowledged that they receive insufficient support from the principals, which makes them dissatisfied and inactive when enacting CL. TRGL2 complained,

> Being the TRG leader is a thankless job and we seldom get inspired or even any verbal praise from superiors. (TRGL2)

The findings led to the inference that the TRG leaders were dissatisfied with the status quo. Furthermore, eight of them (40%) complained that they received pressure from their principals. TRGL17 expressed her tensions as follows:

> Because of the bureaucratic hierarchy, we mostly follow the principal's orders rather than reflect issues to him. We seldom get inspired from superiors. Interestingly, if you report too much, the principal will question your competence. (TRGL17)

On the other hand, the climate in groups is rather unmotivated; 14 TRG leaders (70%) noted that some teachers, especially the young and elderly ones, are unmotivated, which brings stress and difficulties in implementing CL. One of the TRG leaders expressed her complaints as indicated in the following quote:

> Millennials are independent and assertive. They do not want to be constrained. Thus, communicating with them makes me feel tired, since when I assign tasks to teachers, they are inactive. Also, young teachers procrastinate if you do not push them. (TRGL3)

Moreover, some TRG leaders acknowledged that leading elderly teachers to take part in the teaching and research activities is not easy. TRGL5 explained,

> Some elderly teachers do not want to undertake duties since they are not interested in new things and want to be stable. (TRGL5)

Moreover, three TRG leaders (15%) complained that they get pressured. TRGL20 stated the following:

> The local Teaching and Research Center holds middle-level training for TRG leaders. This should be a good action, but the organizers of the Teaching and Research Center strictly control the attendance records, and give us assignments such as writing teacher reports of continual professional development or giving suggestions on classroom teaching reform. These requirements bring pressures and increase our burden. (TRGL20)

In summary, the aforementioned results indicated that TRG leaders are involved in sustaining relationships with stakeholders when undertaking the CL role. However, they rather struggle with the uncooperative climate within the TRG.

Demonstrating capacity of enacting CL at The personal level

In identifying TRG leaders' capacity, there are two aspects that are in accordance with said leaders' different roles in enacting CL. On the one hand, regarding being the leader in the TRG, some TRG leaders (three, 15%) were identified as having an awareness of taking on the CL role and recognizing the importance and necessity for TRG leaders to build up awareness in taking on the CL role. For example, TRGL9 addressed this as follows:

> Being a TRG leader of the PE Group, I always actively lead and organize the group to participate in competitions to broaden teachers' knowledge of teaching and practice. Meanwhile, I have been pursuing professional development, which enables me to lead my group and my teachers. (TRGL9)

On the other hand, being the frontline teachers, TRG leaders are always experienced in teaching and are the backbones of team development. TRG leaders recognize the need to provide role models for teachers, as described by TRGL5:

> Being the TRG leader, I must set a good example for peer teachers. I must push myself to learn new thing since knowledge is infinite. The premise of taking on the CL role is to be equipped with the foresight for curriculum development and with extensive knowledge and experience in teaching. (TRGL5)

In the findings, 16 TRG leaders (80%) acknowledged that TRG leaders' professionalism must be sufficiently strong enough to convince other teachers and provide support for them. The TRG leaders indicated that they should be capable of rich teaching experiences (TRGL6, TRGL13), outstanding research ability (TRGL15), or foresight for the subject area (TRGL8).

Furthermore, evidence from both the interviews and documents demonstrated that TRG leaders should possess professional ethics, such as persistence when facing difficulties (TRGL9, TRGL11, TRGL13, TRGL17), responsibleness for taking on the CL role (TRGL19, TRGL20), patience when facing misunderstandings from superiors or subordinates (TRGL8, TRGL20), enthusiasm about enacting CL (TRGL18), and fairness when evaluating teachers' performance (TRGL1, TRGL15). Furthermore, as shown in the performance summary documents, TRG leaders were required to be responsible (DPS2, DPS7).

However, TRG leaders are faced with two major obstacles when they enact CL. First, all TRG leaders interviewed acknowledged that TRG leaders had a lack of awareness in taking on the CL role. 12 TRG leaders (60%) admitted that they are inactive in taking initiatives for enacting CL. Furthermore, TRGL7 said that,

> I seldom take initiatives actively without getting orders from the superior department. For one thing, I do not want to bother the superiors, for another I do not want to bring trouble to myself. (TRGL7)

Particularly, nine TRG leaders (45%) expressed confusion about the role of CL. TRG leaders face several problems, such as being unclear about their autonomy and power when enacting CL (e.g., TRGL6, TRGL19, TRGL20), being unsure of their leadership roles (e.g., TRGL4, TRGL18), or not believing in the importance of their engagement in CL (e.g., TRGL5, TRGL12).

In addition, five TRG leaders (25%) expressed unwillingness to be given more power. Participants indicated that they prefer following orders assigned by their superiors. TRGL15 said,

> I like being led rather than leading. I just want to put all my energy and efforts into teaching and do not want to waste energy in structuring how to lead. (TRGL15)

Second, seven TRG leaders (35%) acknowledged that most TRG leaders do not possess management and communication skills relating to how to enact CL, although they are empowered with some autonomy in taking initiatives. TRGL9 stated,

> I experience difficulty and feel helpless when taking on CL since I was not trained to be a leader and I lack related skills and experiences of how to enact CL. (TRGL9)

Some participants provided explanations that TRG leaders seldom or never take training related to cultivating management skills or communication skills. As noted by TRGL17,

> Training for TRG leaders is organized by the local Teaching and Research Center. However, this training focuses on cultivating teachers' ability in teaching rather than skills or knowledge related to taking on the leadership role. (TRGL17)

The aforementioned results revealed that enacting CL requires TRG leaders to be aware of taking on the CL role, possessing skills and knowledge of teaching and management and also professional ethics. In fact, a need exists to improve TRG leaders' capacity related to enacting the CL role because they are not equipped professionally.

Table 4 summarizes the major findings in relation to TRG leaders' engagement in CL. With the implementation of the curriculum decentralization, the locus of CL extended to teacher leaders which enables teachers to have more autonomy in taking initiatives at the school level, the classroom level, the social

relationship level, and the individual level. However, they still face challenges such as less power in decision making for the national curriculum, less awareness in taking on the leadership role, uncooperative climate among teacher, and lack of knowledge and skills to effectively manage the curriculum.

Discussion

According to the entire data source extracted from the TRG leaders' interviews, meeting observations, as well as TRG leaders' performance summary documents, some insights were confirmed regarding the fulfillment of the CL role.

In terms of the key features, the results fell into three domains. Firstly, it seemed to confirm that no unified definition exists of CL. Evidence from the interviews demonstrated that CL refers to taking instructional initiatives at the classroom level, to the functions and responsibilities for enacting CL, and to the interplay among a set of stakeholders. These findings add to existing evidence about the definitions of CL, that it reflects the conceptions of being responsible for curriculum issues (Wang and Zheng, 2013; Jorgensen, 2016), the functions for school development (Wiles, 2009), and the interrelationships with stakeholders at the social relationship level (Wiles, 2008; Hu and Gu, 2012). However, it is striking to notice that only seven TRG leaders (35%) indicated that they had heard the term. In actual fact, this finding was identified Zhang (2012) in that TRG leaders lacked relevant knowledge of CL and even had not heard of the term. It seems highly reasonable to believe that only since the NCR was implemented in 2001 has research attention been paid to the understanding of CL (Zhang et al., 2014). Moreover, TRG leaders' unfamiliarity with the term CL is presumably because they have seldom been trained or taught knowledge related to CL role fulfillment. Comparatively, CL is not a new concept in Western studies. This divergence could be explained by the fact the term CL was first presented by Passow in his dissertation "Group-Centered Curriculum Leadership" in 1952, and then

TABLE 4 Summary of findings related to TRG Leaders' engagement in CL.

Layer	Major initiatives	Characteristics	Difficulties
School level Classroom level	Take instructional initiatives	Have more autonomy in classroom teaching for both national curriculum and school-based curriculum (i.e., make teaching arrangement, choose teaching approach, conduct teaching and researching activities)	Cannot make any instructional decision for the national curriculum (i.e., teaching hour, teaching content, textbook selection) No criteria for curriculum evaluations
Social relationship level	Nurture relations	Communicate with principal, Office of Academic Affairs, and Teaching and Research Center mainly on teaching issues; Nourish peer collaboration; Communicate with stakeholders outside the school	Receive insufficient support from the principals; Get pressure; Face unmotivated climate
Personal level	Promoting individual development	Be experienced in teaching Have ability to perform/lead research; Have future foresight for curriculum development; Have extensive knowledge and experience in teaching.	Lack awareness of taking on the CL role; Be without related knowledge and skills of exercising CL

became widely recognized by researchers from 1990s (Tsui, 2010; Yin, 2012).

Secondly, a great deal of the commentary revolved around reflections that TRG leaders assume responsibility for curriculum matters, especially regarding the school-based curriculum. In particular, TRG leaders were found to be in charge of formulating the instruction plans, designing teaching schedules and teaching approaches, tailoring teaching materials, and arranging quizzes or exams at the macro-level. Hence, there was evidence in this context at least to support both the Chinese and Western literature's comments on TRG leaders' autonomy in the school-based curriculum, that TRG leaders can make decisions for building a holistic view of the curriculum (Macpherson et al., 1996), formulating teaching plans (Handler, 2010; Wang and Zheng, 2013), and selecting instructional materials (Cummings, 2011; Yang, 2012). Moreover, TRG leaders have much autonomy in adjusting the sequence of teaching knowledge points, maintaining an appropriate learning pace for students, and choosing the effective teaching approaches for specific knowledge at the classroom level. This was the first time TRG leaders have described their initiatives in detail, which is disparate from the Chinese literature, in which explanations or descriptions rarely go into any depth about what teachers do during classroom teaching. This result might imply that most Chinese studies focus on exploring the challenges faced by teachers who enact CL (Chang and Li, 2007; Zhang and Fu, 2013), rather than on examining what powers or authorities that they have when empowered. Additionally, the results add to existing evidence about the significance of empowering TRG leaders with autonomy in making decisions for classroom teaching, because it was helpful for improving teaching quality and increasing academic achievements. This resonates with the findings of Luo and Xia (2011) and (Ho, 2010) regarding teachers' engagement in CL ensuring effective learning and teaching. More speculatively, these TRG leaders are also normal teachers who work in an authentic teaching context, are familiar with students' diverse learning needs (Huang and Zhu, 2015), and most importantly are "ethically obliged to do whatever is best for their students" (Ho, 2010, p. 614).

Thirdly, all TRG leaders were identified as being in charge of taking teaching and research initiatives after class, such as assessing teaching performance after peer class observations, evaluating students' learning achievements after tests or examinations, and holding workshops for colleagues to reflect on teaching practice. This result echoes Zheng and Guo's (2010) claim that enacting CL includes making assessments and evaluations of curriculum and teaching quality. In the same vein, Western researchers have indicated that evaluation initiatives involve conducting regular reviews of students' learning achievements (Wiles, 2009), writing assessments or reviews of curriculum implementation (Cummings, 2011), or evaluating curriculum activities (Henderson and Hawthorne, 2000).

Although teacher leaders are empowered with decentralized autonomy in taking the CL roles, they encountered challenges in demonstrating CL behaviors. On the one hand, findings revealed that there were two environmental constraints which affect teacher leaders' initiatives. One, that TRG leaders' autonomy of taking instructional initiatives was restricted by certain policy regulations (i.e., the national curriculum standards), which leads to the low level of engagement in curriculum matters. This result supports the statement that the initiatives taken for teaching must follow the curriculum standards (Qi, 2011). One reason was that the policy of three-level curriculum management requires the curriculum to be controlled by the central government, local authorities, and schools, respectively, and to be developed in accordance with the national curriculum standards (Feng, 2006). This also resonates with the findings of Western researchers that teachers assume the responsibilities of reviewing and monitoring curriculum policies (Cummings, 2011). Nevertheless, the problems of scant power over the selection of textbooks differ from Western scholars' claim that teachers are expected to have autonomy in developing teaching resources. Speculatively, the different educational contexts and different educational systems result in dissimilar results, because the social context has effects on teachers' perceptions and teaching initiatives (Cummings, 2011).

The other is that the environment is uncooperative for TRG leaders to enact the CL role. First, TRG leaders cannot obtain sufficient support from superiors. The results indicated that pressures from principals decreased TRG leaders' motivation to assume the CL role. This finding is congruent with the statement that there is scant support from principals, although they play a pivotal role in supporting teachers' initiatives (Chval et al., 2010; Hu and Gu, 2012). Speculatively, the hierarchical schooling system in China results in a particular situation under which teachers enact the leadership role but with less support from their superiors (Lin and Feng, 2007). Moreover, this result echoes the findings of another study (Dong, 2008) regarding the tension between principals and teachers, such as TRG leaders having to follow the principals' orders, which do not always satisfy teachers' intentions. Second, the findings revealed that the uncooperative climate and atmosphere among teachers brought difficulties in enacting CL. This is because elderly teachers lack enthusiasm for participating in any activities and young teachers were lazy and procrastinated when taking activities. This result confirms the statement regarding there being little collaboration between leaders and teachers (Xiong and Zhong, 2010). It is striking to notice that the rationales behind the phenomenon of the uncooperative climate are different. This result is disparate from previous research, which found that the teacher performance evaluation system leads to severe competition and an uncooperative climate (Li and Wang, 2010; Fu and Yu, 2014). Unlike the findings of an uncooperative atmosphere among peers in this research,

Western research confirmed that teacher leaders are found to be active in interaction and collaboration with peers (Elliott et al., 1999). As Ritchie et al. (2007, p. 151) described, there is a "centrality of successful interactions" among teachers. It is possible that the research contexts in these studies differed from the present research context, which leads to dissimilarities. As Macpherson and Brooker (2000) stated, contextual factors have an influence on enacting CL.

On the other hand, concerning personal situations, this study raises the problem of unmotivated and inactive attitudes held by TRG leaders toward taking on the CL role. In this study, some TRG leaders did not want to take responsibility for curriculum matters, some were unclear about their responsibilities, and some did not want to be empowered. This result provided empirical support for the contention in both Chinese and Western studies that most teacher leaders do not have strong ambitions or desires for assuming the CL role and lack awareness of how to enact CL (Handler, 2010; Ye and Zhu, 2013). This could be explained by teachers having already become used to being followers rather than decision makers (Lu, 2011). As Ho (2010) noted, some teachers are less enthusiastic about making decisions when tasks are imposed by their superiors.

Furthermore, this study indicated that TRG leaders lack the related knowledge, skills, and experience of how to enact the CL role, which caused difficulties for them in managing teachers. The respondents (30%) explained that there is little training related to improving their management skills or communication skills regarding how to enact CL. This result is in line with similar contentions regarding teacher leaders' insufficient professional knowledge of how to enact CL raised by researchers in this aspect (Xiong and Zhong, 2010). In contrast to this result, teacher leaders in the Western context have been identified as having substantial knowledge and skills of management and communication (Nashashibi and Watters, 2003; Wiles, 2009). This might be because much research attention has been given to understanding CL since the 1990s (Elliott et al., 1999); thus, teachers do not lack knowledge related to CL.

Moreover, it was striking to notice that although 18 TRG leaders (90%) confirmed the importance of possessing professional ethics for engaging in CL, TRG leaders were found to lack professional ethics when taking on the CL role. For example, they were identified as being irresponsible, aggressive, selfish, and not persistent when facing difficulties. This point is quite similar to that of Lin and Feng (2007) as well as Ye and Zhu (2013), who asserted that teachers leaders lack a sense of responsibility, and are also selfish. Unlike Chinese studies, such low levels of professional ethics cannot be found in Western literature. This divergence of having moral literacy could be explained by such issues as professional ethics having been discussed and criticized by theorists and practitioners since 1915 in the Western educational context (Campbell, 2000). This could partly explain why professional ethics is an immature area in Chinese research.

Conclusion

This study explored the conceptions of how TRG leaders engage in CL in the Chinese context. Overall, the results demonstrated that the curriculum decentralization empowered teacher leaders with more autonomy in taking instructional initiatives, echoing studies suggesting that decentralization enables teachers to have more democratic participation in making decisions for school and curriculum matters (Ho, 2005; Law et al., 2010). Thus, this result is in accord with the international trend toward curriculum decentralization, and highlights the importance of empowering TRG leaders with the autonomy to make curriculum decisions.

More importantly, the current research provides empirical data for further understanding how TRG leaders take initiatives to enact the CL role. As addressed in the literature, few studies have investigated CL using empirical data, and the majority of these are commentary studies that have drawn conclusions and arguments without any concrete empirical data (Hu and Gu, 2012). Thus, this study also adds to those Chinese studies that provide solutions to problems emanating from Western studies and to the growing body of literature on teachers' engagement in CL. Last but not the least, the results may be of great use to principals for realizing to what extent autonomy should be devolved to teacher leaders and how to support teacher leaders to exercise leadership, and to teacher leaders' for being resilience in performing their CL leadership role.

Although these findings are encouraging for CL research, the present study has some limitations. The sample comprised only 10 secondary schools, making it an unrepresentative sample of secondary schools in the Chinese context. Future research may aim to conduct similar research in other contexts with large-scale samples and obtain an enhanced understanding of its multi-faceted nature, which will ultimately contribute to enhancing the current understanding of CL in the international domain.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Faculty Human Research Ethics Committee, The Education University of Hong Kong. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

YS conceived the original idea of this paper. This was also discussed with JC. The manuscript was written by YS which involves collecting and analyzing the data. JC gave a significant help in drafting the manuscript with many helpful suggestion. All authors contributed to the article and approved the submitted 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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How servant leadership motivates young university teachers' workplace well-being: The role of occupational commitment and risk perception

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Drawing on the integration of social exchange theory and situational power theory, this paper explores the effect of servant leadership on young university teachers' workplace well-being and explores the mediating effect of occupational commitment and the moderating effect of risk perception on the indirect effects of servant leadership on workplace well-being. A questionnaire was distributed using the Questionnaire Star online questionnaire platform and a two-wave time-lagged design was used to collect 215 survey samples of young teachers from Chinese higher education institutions. SPSS 23.0 was used to test the hypothesized relationship between the variables. Results revealed that servant leadership was positively related to young university teachers' workplace well-being. Occupational commitment plays a partial mediating role in linking servant leadership and young university teachers' workplace well-being. Risk perception plays a moderating role in the indirect relationship between servant leadership, occupational commitment, and workplace well-being. When risk perception has a low level, the mediating effect of occupational commitment is stronger.

Introduction

Workplace well-being is a form of well-being, which is an individual's positive evaluation and emotional experience of the current work (Sun et al., 2016). In recent years, employees' workplace well-being has been increasingly emphasized as the basis of organizational performance (Choi et al., 2017), because it can bring positive outcomes to employees and organizations (Wright and Cropanzano, 2004), such as job performance (Russell and Ea, 2008; Wang, 2015), engagement (Rasool et al., 2021), knowledge sharing, and individual innovation behavior (Wang et al., 2017; Liu et al., 2020). However, in the field of higher education in China, due to the central and local government vigorously

constructing "double first-class" and "high level" universities, teachers, especially the young teachers, as the main undertaker and backbone of teaching and scientific research tasks in colleges and universities, are burdened with heavy workloads. Thus, they are subject to tremendous work stress and job burnout (Teles et al., 2020). Compared with other occupations, their workplace well-being is significantly lower (Grenville-Cleave and Boniwell, 2012). Young teachers with higher workplace well-being are more willing to invest time and energy in teaching and scientific research and are more willing to stay in school, help students grow and shape their values and belief systems (Yang et al., 2021; Ran et al., 2022), which may promote the development of universities (Wang, 2015). Therefore, it is of great significance to explore ways to improve young university teachers' workplace well-being.

The existing literature shows that leadership, such as humble leadership (Zhong et al., 2020), inclusive leadership (Choi et al., 2017), and ethical leadership (Chughtai et al., 2015), is a key predictor of employee workplace well-being. However, incredibly, as far as we know, not many effects of servant leadership on employees' workplace well-being have been specifically studied, especially in the field of higher education (Turner, 2022). Scholars have focused on task performance, employee creativity, knowledge hoarding, and other outcome variables of servant leadership (Chen et al., 2022; Zada et al., 2022a,b). Existing studies show that positive leadership behaviors can play a vital role in improving employees' workplace well-being (Nielsen et al., 2008).Servant leadership, as a positive leadership, is honest and upright, selfless, and cares about helping subordinates develop (Eva et al., 2019). This people-oriented attitude helps to establish a harmonious relationship between leaders and subordinates, and creates an encouraging atmosphere for subordinates to realize their potential. This undoubtedly improves the possibility of subordinates' workplace well-being (Ozturk et al., 2021). By exploring the influence of servant leadership on young university teachers' workplace well-being, this study can contribute to servant leadership theory and empirical research. It also responds to Roberts (2020) call to conduct servant leadership research diverse settings, geographically, culturally, employment sector (private, government, and non-profit), and by type of occupation (Roberts, 2020).

In addition, the literature has explored servant leadership and occupational commitment (Long et al., 2014; Elsaied, 2021), and the relationship between occupational commitment and workplace well-being (Xu et al., 2021). However, in the relationship between servant leadership and workplace well-being, the mediating role of occupational commitment is rarely studied, which cannot well explain how servant leadership affects employees' workplace well-being. Moreover, previous studies have shown that leadership style can affect employees' workplace well-being through various mechanisms, calling for further research on different mediating variables in order to deeply understand the relationship between leadership style and employees' workplace well-being (Chughtai et al., 2015; Rahimnia and Sharifirad, 2015). According to the social exchange theory, the employee-organization social exchange relationship is a non-contractual relationship of mutual benefit (Zeng and Ou, 2016). Due to the moral behavior of servant leaders and the priority of subordinates' interests (Ehrhart, 2004), the uncertainty and risk in the employee-organization exchange relationship can be reduced. Occupational commitment is an important characteristic affecting employees and an important source of occupational meaning and continuity (Zhu et al., 2021). It influences employees' response to the working environment (Valeau et al., 2019), which, in turn, affects employees' work attitude or workplace well-being. Therefore, in order to make up for the lack of theoretical research and respond to the call of scholars, based on social exchange theory, this study explores the mediating effect of occupational commitment on the relationship between servant leadership and workplace well-being of young university teachers.

However, the research results of Zhong et al. (2020) show that the formation process of employees' workplace well-being is not only influenced by positive leadership, but also moderated by situational factors. Moreover, leadership behavior is not always effective, and it may need supportive environment to function (Owens and Hekman, 2012). Therefore, from the perspective of servant leadership, we further investigated the effect of risk perception as a contextual variable on the effect of occupational commitment on workplace well-being of young university teachers. As an individual characteristic variable, risk perception is subjective and can reflect the degree to which an individual identifies a certain risk (Afolabi et al., 2021). Previous studies have shown that individual characteristics are important variables affecting employees' workplace well-being (Siu et al., 2015). According to the situational power theory, risk perception, as a situational power, can provide important external cues for individual specific behavioral intentions (workplace well-being), and the strong situation (or weak situation) it creates will significantly hinder (or promote) the formation process of individual specific behavioral intentions (workplace well-being) (Meyer et al., 2010). Compared with high-risk perception, low-risk perception can enhance the workplace well-being of young teachers influenced by servant leadership through occupational commitment. Therefore, based on the situational power theory, it is helpful for us to further understand the formation mechanism of workplace well-being by identifying the boundary conditions of servant leadership affecting the workplace well-being of young university teachers.

The contribution of this study involves the following aspects. First, it explores the influence of servant leadership on young university teachers' workplace well-being. Few previous studies have explored young teachers' workplace well-being as an outcome variable of servant leadership (Eva et al., 2019). The conclusions of this study extend the effectiveness of servant leadership and at the same time enrich the antecedent variables of workplace well-being. Second, this study takes the psychological state of employees as the starting point and takes occupational commitment as an intermediary variable in the relationship between servant leadership and young teachers' workplace

well-being. The results, to a certain extent, reveal the black box of servant leadership affecting workplace well-being. Third, according to situational power theory, this study introduces the moderating variable of risk perception. Theoretically, it explains when and why servant leadership affects workplace well-being through occupational commitment (Meyer et al., 2010). The results show that high-risk perception can weaken the positive effect of occupational commitment and reduce workplace well-being, which enriches the contextual discussion of risk perception. Finally, the existing research objects of workplace well-being are basically limited to enterprise employees, and few scholars pay attention to and analyze the workplace well-being of a specific industry or group, especially the workplace well-being of young university teachers. It also enriches the study of workplace well-being.

Theoretical background and hypotheses

Servant leadership and workplace well-being

The term servant leadership was first proposed by Greenleaf, an American management scientist, in his book "The Servant Leader" published in 1970. He believed that a leader is primarily a servant rather than a leader. With the awareness of active service for employees, servant leaders try to meet the needs of employees, gain their trust of, and form the leadership that influences followers (Greenleaf, 1977). Servant leaders integrate servant and leadership. Leaders put their followers' individual interests and needs above their own and are willing to empower employees by helping them grow and develop. The characteristics of servant leadership were put forward by Dennis and Bocarnea (2005), including humility, trust, empowerment, vision, and love for subordinates. Servant leadership can bring a series of positive results to employees, such as organizational citizenship behavior, employee engagement, performance, and so on (Liden et al., 2014; Panaccio et al., 2015; Canavesi and Minelli, 2021).

Well-being has been the goal pursued by people since ancient times. Well-being is an experience, an attitude, a personality characteristic, and a realm (Sun et al., 2016). Workplace well-being is derived from the study of well-being, which is considered to be an individual's subjective positive experience at work (Chen et al., 2013). It consists of five aspects: interpersonal fit at work, thriving at work, feeling competent at work, perceived recognition at work, and desire for involvement at work (Dagenais-Desmarais and Savoie, 2012). It is of great significance to improve employees' workplace well-being because workplace well-being is critical to the survival and development of any organization in the world (Spreitzer and Porath, 2012). Workplace well-being is considered to be the glue to retain and motivate high-quality employees, especially in an environment where the relationship between employees and organizations is loose (Fisher, 2010).

Servant leaders transcend personal interests and give priority to employees' individual interests. They are not motivated by power but by serving others (Luthans and Avolio, 2003). Drawing on social exchange theory, when the leader, as an organizational agent, is willing to pay the cost of support and help to the employee, the employee will have a positive attitude and behavior to give back to the organization after receiving such help (Little et al., 2016). Thus, servant leadership can enhance employees' workplace well-being. First, servant leaders have the virtue of humility, which reflects the servant leaders' correct understanding of themselves and shows that servant leaders respect employees and recognize their contributions to the organization, which will make employees feel trusted and supported by leaders. Second, servant leaders are willing to empower employees. Employees are encouraged to make self-decisions and share information and innovation (Konczak et al., 2000). The purpose of a servant leader is to cultivate employees' active and confident working attitudes, which indicates that servant leaders value employees and help them grow (Laub, 1999). Finally, servant leadership pays attention to the wishes and needs of employees, which is a remarkable feature, and it is different from other types of leaders. In contrast to transformational leadership, which focuses on the achievement of organizational goals, servant leadership focuses on the aspirations and goals of employees (Van Dierendonck, 2011). Previous studies have shown that leadership behaviors affect employees' workplace well-being (Van Dierendonck et al., 2004; Wang et al., 2022). Thus, we hypothesize the following:

> *Hypothesis 1 (H1)*: Servant leadership is positively related to young teachers' workplace well-being.

Mediating role of occupational commitment

Occupational commitment is an individual's commitment to an occupation or a profession, which reflects the individual's desire to stay in the current occupation and their degree of preference for the current occupation (Blau, 1985). Occupational commitment begins with individual learning and is reinforced throughout the occupational society (Chiang et al., 2016). It helps explain employee work behavior (Meyer and Herscovitch, 2001). Employees with high occupational commitment tend to invest more time and money to reach their occupation goals (Srikanth and Israel, 2012). Compared with teachers who have insufficient occupational commitment, teachers with occupational commitment perform better in their profession and organization, and thus help to improve the overall performance of the organization (Bogler and Somech, 2004). As a result, occupational commitment can improve employees' workplace well-being, skill development, and occupation engagement, and leads to employees' willingness to participate in occupation development programs (Vandenberghe and Ok, 2013).

Social support is an important variable affecting employees' occupational commitment, and it has been empirically supported (Lin, 2020). Social support is a source-specific social variable that enables employees to better cope with the occupational environment they face. Sources of social support in the workplace include leaders, colleagues, and occupation counselors (Wolfgang, 1995). Servant leaders are a new leadership style that focuses on how leaders can help subordinates succeed, develop, and grow (Liden et al., 2014). Therefore, servant leaders are delegated to empower subordinates and encourage them to actively participate in their work, which strengthens their motivation to work in specific occupational roles. According to the reciprocity principle of social exchange theory, the behavior of leadership as an organizational agent will enhance the motivation of subordinates to work in a specific occupational role, and subordinates are willing to stay in the current occupation and invest more time and energy. Moreover, by encouraging the communication process and promoting the participation of subordinates in decision-making, servant leadership can create a pleasant organizational atmosphere and improve employees' occupational commitment. This phenomenon is supported by the related literature, which shows that leadership plays an important role in employees' occupational commitment (Long et al., 2014; Lin, 2020).

Occupational commitment reflects people's motivation to work hard on personal development in their occupation. Employees with a high level of occupational commitment are more willing to invest time and money to participate in vocational training, skill development, and at work. They are more likely to get a better job performance. Based on the social exchange theory, an organization will give high-performance employees better salary, and more opportunities for promotion, so that they can derive more well-being from their work. To be specific, first, employees with high occupational commitment are more likely to identify with the value and purpose of their occupation. They can easily find the meaning and pleasure in their work, and are more likely to achieve career success (Fu, 2011). Career success can bring not only material satisfaction but also spiritual enjoyment, and can improve their workplace well-being. Second, employees with occupational commitment have more career satisfaction in their work, and satisfaction itself is a part of workplace well-being. Compared with employees with low occupational commitment, those with high occupational commitment have a higher level of workplace well-being. Thus, we hypothesize the following:

Hypothesis 2 (H2): Occupational commitment mediates the servant leadership-workplace well-being relationship.

## The moderating role of perceived risks

In the organizational context, risks may be caused by factors internal to the work environment or external to the workplace (Alomari et al., 2018). If the probability of risk is higher and the consequences are more serious, people may think that the risk is greater. Risk perception is the degree to which an individual identifies a certain level of risk (Oppong, 2015). It is generally believed that individual risk perception mainly depends on intuition, emotion, and direct judgment (Slovic and Weber, 2002); thus, risk perception is subjective. Facing the same working environment, different people have different risk perceptions. Hence, what truly affects individual decision-making is not the actual risk but its perception. It is influenced by social, political, and psychological factors (Slovic, 1999).

Situational power theory points out that the formation of individual behavioral intention is affected by both the individual and the situation. External situational factors provide the individual with situational cues about individual behavior intention, which have an impact on the transformation process of individual cognition to specific behavior intention, either promoting or hindering (Meyer et al., 2010; García-Arroyo and Segovia, 2021). Studies have shown that work environment, leadership style, and individual perception are all common situational forces (Huang and Peng, 2015; Zhang et al., 2019). Young teachers perceive situational cues from the school about the fairness of career promotion and performance appraisal, which have an impact on the role of servant leadership on young teachers' workplace well-being through their occupational commitment. As a result, risk perception may play a moderating role between occupational commitment and workplace well-being. Specifically, in the high-risk perception situation, young teachers receive more risks from the school in terms of career stability, career promotion fairness, and so on. This high-risk work environment has become a situational force, which weakens the positive impact of occupational commitment on workplace well-being. However, young teachers with low-risk perception can obtain more support and goodwill from the school and can enhance their trust in the school, thus enhancing the impact of occupational commitment on workplace well-being. Thus, we hypothesize the following:

Hypothesis 3 (H3): Risk perception moderates the relationships between occupational commitment and workplace well-being in such a way that the relationships will be stronger for individuals with low-risk perception than those with high-risk perception.

Based on the above assumptions, we further propose a moderated mediation model; that is, different levels of risk perception moderate the indirect effect of servant leadership on workplace well-being through occupational commitment. Facing of the influence of occupational commitment, teachers with low-risk perception are more likely to identify with their occupation and devote themselves to their work, which leads to a higher sense of workplace well-being. In this case, the influence of servant leadership on young teachers' workplace well-being is enhanced through occupational commitment. Instead, for teachers with high-risk perception, they will worry about the return of occupational investment, and the emotional dependence

FIGURE 1
Theoretical model.
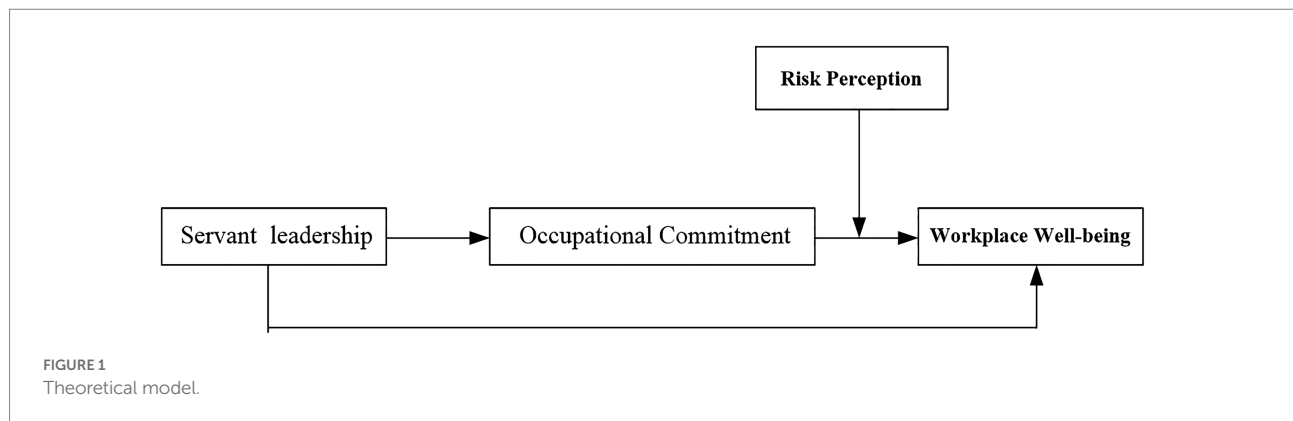
of occupation may also be reduced. According to the social exchange theory, young teachers' workplace well-being tends to decrease, so the influence of servant leadership on young teachers' workplace well-being through occupational commitment is weakened. To sum up, compared with high-risk perception, servant leadership has a greater impact on workplace well-being through occupational commitment in low-risk perception. Thus, we propose the following:

> *Hypothesis 4 (H4)*: Risk perception moderates the indirect effect of servant leadership on young teachers' workplace well-being via occupational commitment, such that the indirect effect is more positive with low rather than high risk perception.

Based on the above arguments, we propose the following theoretical model (Figure 1).

Materials and methods

Participants and procedure

The survey samples for this study mainly come from young teachers in 20 universities in China, including major universities and ordinary universities. The "young teachers" in this study refer to full-time teachers under the age of 45 who are specialized in teaching and scientific research in institutions of higher learning. The data were collected using the Questionnaire Star (a professional online questionnaire platform) and emphasized the anonymity of the questionnaire and the purpose of academic research to eliminate the worries of the participants in filling out the questionnaire. To reduce the influence of homology deviation on the relationship between variables, the questionnaire was issued in two stages, with an interval of 2 weeks. Servant leadership and risk perception were assessed by a young teacher at Time 1. Workplace well-being and occupational commitment were measured by a young teacher at Time 2. Through the abovementioned questionnaire collection method and excluding unqualified questionnaires, such as incomplete and random filling of information, 215 valid questionnaires were finally obtained.

Among the valid samples, in terms of gender, the proportion of women is slightly higher (111 female teachers, accounting for 51.6%; 104 male teachers, accounting for 48.4%). In terms of age, 26 teachers are under 30, accounting for 12.1%; 32 teachers are 31–35, accounting for 14.9%; 75 teachers are 36–40, accounting for 34.9%; and 82 teachers are 41–45, accounting for 38.1%. In terms of education level, 22 teachers have a bachelor's degree or below, 107 have a master's degree, and 86 have a doctoral degree, accounting for 10.2, 49.8, and 40%, respectively. In terms of professional titles, there are 117 lecturers or below, accounting for 54.4%; 85 associate professors, accounting for 39.5%; and 13 professors, accounting for 6%.

Measures

To ensure the validity and reliability of the questionnaire, all measurement items were selected from established scales. On the basis of the pretest, some inappropriate expressions in the questionnaire were further revised. All variables were scored by a seven-point Likert scale.

Servant leadership

Servant leadership was measured by the scale revised by Sun and Wang (2010) based on the earlier work of Barbuto and Wheeler (2006), with a total of 15 items. A sample item is "my leader does everything he or she can to serve me." The Cronbach's α of the scale was 0.95.

Occupational commitment

Occupational commitment was measured by the scale developed by Blau (1989), with a total of 7 items. A sample item is "I love my profession very much and will not give up on it." The Cronbach's α was 0.89.

Risk perception

This construct was assessed using Huang (2009), with a total of 10 items. A sample item is "In school work, I encountered a bottleneck in the promotion of professional titles." The Cronbach's α of the scale was 0.79.

Workplace well-being

This construct was assessed using Zheng et al. (2015), with a total of 6 items. A sample item is "In general, I feel fairly satisfied with my present job." The Cronbach's α of the scale was 0.91.

Results

Common method variance

To avoid the common method deviation of the survey samples, the research group emphasized the anonymity and confidentiality of the information in the questionnaire, as well as the academic purpose of using the information in the questionnaire. In addition, this study adopted the test method recommended by the literature (Podsakoff et al., 2003) and used the Harman single factor method to perform EFA analysis on the research variables. The results showed that the first factor in the unrotated factor accounts for 32.72% of the variance, under the recommended value by 50%. Therefore, the common method deviation of the survey samples in this study was within the acceptable limits.

Reliability and validity

This study adopted SPSS 23.0 statistical software to test the reliability and validity of the data. In terms of reliability, the analysis results of servant leadership, workplace well-being, occupational commitment, and risk perception showed that the Cronbach's α coefficients of these four variables were 0.95, 0.89, 0.79, and 0.91, respectively, which were all greater than the usual standard of 0.7 and indicated that the collected data have good reliability.

In terms of validity, the data were tested for validity using principal component analysis and the maximum variance rotation method. The KMO values of the variables such as servant leadership, workplace well-being, occupational commitment, and risk perception were 0.92, 0.86, 0.80, and 0.87, respectively. The cumulative variance contribution rates were 76.099, 59.764, 59.268, and 69.018. The factor loadings of all items in the 4 scales were greater than 0.6. In summary, the data collected in this study have good reliability and validity.

Descriptive statistics

The mean, standard deviation, and correlation coefficient of each variable are shown in Table 1. Table 1 shows that servant leadership, occupational commitment, and workplace well-being are significantly positively correlated; servant leadership was positively related to occupational commitment; and servant leadership, workplace well-being, and risk perception were negatively related. This laid the foundation for subsequent research.

Hypothesis testing

This study used a hierarchical regression method to examine the effect of servant leadership on young teachers' workplace well-being. First, demographic variables such as gender, age, education, and professional title were introduced into the regression model. Second, we put the servant leadership and control variables into the regression model (see Table 2). It could be seen from Model 1 that, except for gender, age, educational background, and professional title had no significant effect on young teachers' workplace well-being. The research results showed that servant leadership had a significant positive effect on young teachers' workplace well-being ($\beta = 0.26$, $p < 0.01$). Therefore, Hypothesis 1 was supported by the data.

In terms of the mediation effect test, the results in Model 2 met the first condition of the mediation effect test by Baron and Kenny (1986). Models 8, 3, and 4 met the second, third, and fourth conditions of the mediating effect test, respectively. The results of Model 8 ($\beta = 0.21$, $p < 0.01$) indicated that servant leadership had a significant impact on the occupational commitment of young teachers. In Model 3, occupational commitment had a significant impact on young teachers' workplace well-being ($\beta = 0.51$, $p < 0.01$). Model 4 added occupational commitment as an intermediary variable. It can be seen from Model 4 that the coefficient of occupational commitment was significant ($\beta = 0.44$, $p < 0.01$), but the influence of servant leadership on workplace well-being was reduced, with still a significant positive impact ($\beta = 0.34$, $p < 0.01$). Therefore, occupational commitment had a partially mediating role between servant leadership and young teachers' workplace well-being. Therefore, Hypothesis 2 was supported.

Regarding the moderating effect test, Muller et al. (2005) proposed the test method of moderating mediation. The first step was to examine the impact of independent variables and moderating variables on the dependent variable, with the regression coefficient of independent variables being significant; the second step was to examine the impact of independent variables and moderating variables on the mediating variables, with the regression coefficient of independent variables being significant; the third step was to examine the impact of independent variables, moderating variables and mediating variables on the dependent variable, with the coefficient of mediating variables being significant; and the fourth step was to examine the impact of independent variables, moderating

TABLE 1 Correlation coefficients of each variable and Cronbach's α.

Variables	Mean	SD	1	2	3	4
1. SL	3.86	1.26	(0.95)			
2. OC	5.09	1.06	0.18**	(0.89)		
3. PR	4.31	1.17	−0.27**	−0.01	(0.79)	
4. WWB	4.87	1	0.44**	0.50**	−0.17**	(0.91)

**$p < 0.01$. SL, servant leadership; WWB, workplace well-being; OC, occupational commitment; RP, risk perception.

TABLE 2 Results of hierarchical regression analysis.

Variables	Dependent variable: WWB							Mediator: OC	
	M_1	M_2	M_3	M_4	M_5	M_6	M_7	M_8	M_9
Control variables									
Gender	−0.15*	−0.10	−0.17*	−0.12*	−0.09	−0.11*	−0.11*	0.05	0.05
Age	−0.00	0.05	−0.05	−0.00	0.06	0.00	−0.01	0.12*	0.12*
Education	−0.10	−0.04	−0.09	−0.04	−0.04	−0.03	−0.06	−0.00	−0.00
Title	−0.01	0.00	−0.04	−0.03	0.01	−0.02	−0.01	0.07	0.07
Research variables									
SL		0.43**		0.34**	0.42**	0.33**	0.32**	0.21**	0.21**
OC			0.51**	0.44**		0.44**	0.45**		
RP					−0.05	−0.05	−0.04		−0.01
OC×RP							−0.11*		
R^2	0.32	0.21	0.29	0.39	0.21	0.39	0.41	0.06	0.06
$\triangle R^2$	0.13	0.19**	0.27**	0.38**	0.19**	0.37**	0.38**	0.03**	0.03**
F	1.71	11.09**	16.76**	22.39**	9.31**	19.26**	17.54**	2.48**	2.06**

**$p < 0.01$, *$p < 0.05$. SL, servant leadership; WWB, workplace well-being; OC, occupational commitment; RP, risk Perception.

TABLE 3 Bootstrapping analysis results of the moderated mediation.

Mediators	Indirect effect					Moderated mediation effect			
	Moderator	Effect	SE	95% LLCI	95% ULCI	INDEX	SE	95% LLCI	95% ULCI
OC	Low value	0.08	0.03	0.02	0.14	−0.01	0.01	−0.0291	−0.0001
	High value	0.05	0.02	0.01	0.11				

Resampling times = 5,000.

variables, mediating variables, and interaction terms on dependent variables. The regression coefficient of the interaction terms should be significant in this fourth step. The meaning of each variable is the same as above; that is, the independent variable is servant leadership, the dependent variable is workplace well-being, the mediating variable is occupational commitment, the moderating variable is risk perception, and the interaction item is risk perception × occupational commitment.

The mediating role of occupational commitment had been verified. According to the above test steps, the regression coefficient of servant leadership of Model 5 in Table 2 was significant ($\beta = 0.42$, $p < 0.01$), and the regression coefficient of servant leadership in Model 9 was also significant ($\beta = 0.21$, $p < 0.01$). Model 6 showed that the regression coefficient of occupational commitment was significant ($\beta = 0.44$, $p < 0.01$), which again verified that the mediating role of occupational commitment was significant. Finally, Model 7 in Table 2 verified the impact of servant leadership, risk perception, occupational commitment, and interaction on workplace well-being. The regression coefficient of the interaction term was significant ($\beta = 0.11$, $p < 0.05$); that is, the moderating effect of risk perception was significant. These results indicated that both Hypotheses 3 and 4 were supported.

Bootstrapping analysis was used to further examine the moderated mediation effects. From the analysis results of the

conditional indirect effects on the left part of Table 3, it could be seen that when young teachers' risk perception level was low, the indirect effect of servant leaders on workplace well-being through occupational commitment was 0.08, and the confidence interval was [0.02, 0.14]. When the teacher's risk perception level was high, the indirect effect of servant leaders on workplace well-being through occupational commitment was 0.05, and the confidence interval was [0.01, 0.11]. Since the above confidence interval did not contain a zero point, it meant that no matter whether the risk perception modifier took a low or high value, the indirect effect of service leaders on young teachers' workplace well-being through occupational commitment was significant. The right half of Table 3 reported the relevant judgment index value INDEX obtained by SPSS Process calculation. That is, the judgment index of the indirect relationship between servant leadership and the workplace well-being for young teachers through occupational commitment was −0.01, the standard error was 0.01, and the confidence interval was [−0.0291, −0.0001]. Because the above confidence interval did not include the zero point, it indicated that the mediating effect of servant leadership on young teachers' workplace well-being was significant. Hypotheses 3 and 4 were further supported.

To clearly describe the moderating effects of risk perception, we adopted the methods and procedures developed by Aiken and West (1991). The moderating effects of higher ($M + SD$) and lower
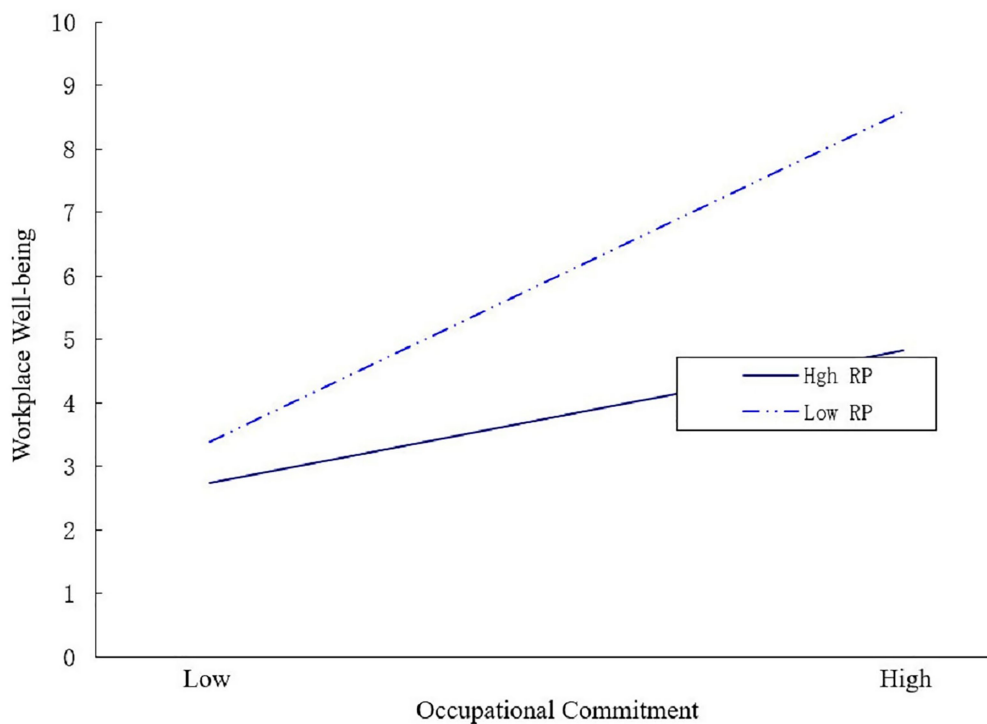
FIGURE 2
Interactive effects of occupational commitment and risk perception on workplace well-being.

($M-SD$) risk perception on workplace well-being were plotted (see Figure 2). From Figure 2, it could be seen that low-risk perception could reinforce the positive impact of workplace well-being compared with high-risk perception.

Discussion

Theoretical implications

The theoretical contributions of this research mainly include the following:

Firstly, the research explains and verifies the effect of servant leadership in the field of higher education on the workplace well-being of young teachers. The findings suggest that this is consistent with many other studies, claiming that employee well-being can be maintained and improved through a certain leadership style (Chughtai et al., 2015; Zhong et al., 2020). This indicates that servant leadership is helpful to maintain and improve the workplace well-being of young teachers. Compared with previous studies, most of which focus on workplace well-being of employees in profit organizations (Miao and Cao, 2019; Fang et al., 2022), this study based on the research on workplace well-being of young university teachers, extends the research on workplace well-being in non-profit organizations to some extent.

Secondly, this study provides a new perspective for understanding the effect of servant leadership on subordinates'

workplace well-being. Although previous studies have paid attention to the importance of employee well-being in non-profit organizations such as higher education and preliminarily discussed it theoretically (Turner, 2022). However, this study not only empirically tested the relationship between servant leadership and young teachers' workplace well-being, but also further explored the influencing mechanism of servant leadership on young teachers' workplace well-being. The results show that servant leadership improves the well-being of young teachers at work by fostering their occupational commitment. In other words, young teachers under servant leadership can continuously enhance their occupational commitment and thus have a higher sense of workplace well-being.

Finally, this study reveals the boundary conditions of the influence of servant leadership on workplace well-being, and enriches the research on the situational factors of the influence mechanism of workplace well-being. A recent review of the research on workplace well-being shows that, in the related research on workplace well-being, scholars pay more attention to the antecedent and outcome variables of workplace well-being, but there are few studies on the boundary conditions of the formation mechanism of workplace well-being (Pang et al., 2018). Therefore, this study introduces risk perception into the influencing mechanism model of servant leadership on workplace well-being, and reveals that the effect of servant leadership on young teachers' workplace well-being is subject to the moderating effect of young teachers' risk perception,

highlighting the contingency mechanism of servant leadership on young teachers' workplace well-being.

Practical implications

The significance of the research conclusions for practice is mainly manifested in the following:

First, school management should raise the awareness of leaders at all levels of the positive impact of servant leadership on young teachers' workplace well-being. In actual work, it promotes a servant leadership style and strengthens practical training on servant leadership. In addition, schools should formulate human resource policies to promote the effectiveness of servant leadership. Second, schools should pay attention to the occupational commitment of young teachers. The school creates a good environment for young teachers in terms of on-the-job training, graduate tutor qualifications, etc., helps young teachers grow professionally, and enhances their occupational commitments. Finally, the moderating role of risk perception is of great significance for improving the effectiveness of servant leadership. In fact, the effectiveness of servant leadership is conditional. At work, given the school's academic performance appraisal, title promotion, salary, and other matters concerning the core interests of young teachers, schools should have a clear system to ensure that young teachers have a stable expectation, reduce the risk perception of young teachers, and improve young teachers' workplace well-being.

Limitations and future research

This study also has some limitations: (1). To reduce the common method bias, although two time points were used to collect the research samples, the cross-sectional design made it difficult to avoid related effects. Future studies can use a longitudinal design to test the causal relationship. (2) The research sample only takes young university teachers as the object. The data source is relatively singular, and the universality of research conclusions may be insufficient. Future research can expand the sample to ordinary employees, especially healthcare workers (Zeb et al., 2021), so as to improve the universality of the research conclusions. (3) The effect size of the moderated mediation is relatively low, which may be related to the sample size. Future studies should appropriately expand the sample size to highlight the moderated mediation effect. (4) The research only examined the effect of the context variable of risk perception on workplace well-being through occupational commitment by service leaders. Future research can focus on the moderating effects of other contextual factors to enrich the extent of contextual variables.

Conclusion

Based on the integration of social exchange theory and situational power theory, this study constructs and verifies the influence mechanism model of servant leadership on young teachers' workplace well-being from the perspective of the Chinese cultural context, and obtains some research conclusions with theoretical and practical value. Specifically, we found that servant leadership has a significant impact on young teachers' workplace well-being, and occupational commitment plays a mediating role between servant leadership and young teachers' workplace well-being. Moreover, risk perception plays a moderating role in the indirect effect of servant leadership on workplace well-being through occupational commitment; that is, compared with young teachers with low-risk perception, this indirect effect is weakened under high-risk perception.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by the School of Medical Business at Guangdong Pharmaceutical University. The participants provided their written informed consent to participate in this study.

Author contributions

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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 impact of E-education and innovation on unemployment reduction among graduates: A way forward for higher educational institutes

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Recently, the use of digital skills as a tool to alleviate unemployment concerns of university graduates has gained considerable attention among governments in developing economies. The present study examines the impact of the E-education program (a digital initiative to train university graduates to get self-employed) on the unemployment reduction of young graduates of higher educational institutes (HEIs). We also explore the mediating influence of innovation in the association between E-education and unemployment reduction. The target population of the study was students who have successfully completed the E-education program. The convenient sampling technique was used for data collection from 416 respondents through a structured questionnaire. Collected data were analyzed using different statistical techniques, such as descriptive statistics (reliability analysis, normality analysis, and correlation) and structural equation modeling for measurement of the structural model. The study findings assert that the E-education program has significant effects on the unemployment reduction of graduates. Furthermore, innovation also significantly mediates the association between E-education and reduce unemployment among students. It implies that the HEIs should also roll out E-education programs, which would eventually help reduce unemployment and promote the growth of the E-education industry in the country. Finally, policy prescriptions are discussed on the role of an E-education-driven innovation to curtail unemployment in developing countries.

KEYWORDS

E-education, youth, innovation, unemployment reduction, HEI's

Introduction

Cross-border e-commerce trade activities have witnessed a remarkable surge around the globe in recent years (Cheng et al., 2019). The internet has now penetrated into the economic and social domains of societies (Guo et al., 2019). The rapid digital advancement of e-commerce has necessitated universities to introduce a collaborative education system that incorporates e-commerce and online skills training to maximize the employment prospects of students (Wang and Tang, 2020). Considering the rapid growth of online businesses, universities are now keen to introduce e-commerce and digital skill-based training as study majors to gain a competitive advantage in this niche. Besides, the use of virtual laboratories to simulate actual job experience is gaining traction in the education industry (Vejačka, 2019).

Against the backdrop of sluggish economic growth, youth unemployment is one of the critical concerns for governments. While a disproportionate share of youth in unemployment and a considerably higher ratio of young people in emerging countries provide an opportunity as well as pose a challenge to the country's future. The opportunity emerges from the fact that youth can serve as an engine of development as they have the energy and will to transform a country's future (UNDP, 2018). Contrarily, failure in the provision of job opportunities to young people as they enter the working age-group may lead to a demographic disaster (Mitra and Verick, 2013). **Figure 1** shows the state of tertiary education in the Asia-Pacific region. China is leading the industry with a clear margin, while in Pakistan, only 1.86 million people are enrolled in tertiary education.

In the past two decades, information technology (IT) has assumed a central role in the emergence of the knowledge-based economy and has emerged as a key indicator of economic growth for many leading economies of the world. It also creates highly skilled jobs (Avom et al., 2021), while changes in youth unemployment are positively related to domestic IT industry production (Dube et al., 2015). **Figure 2** depicts the e-readiness and e-learning rankings of the top nine Asian countries. Pakistan is not a part of the list. Nonetheless, Pakistan's ranking in the business-to-consumer e-commerce index is 114 out of 152 countries.

Given the massive share of youth in Pakistan and their keen interest in the IT field, since 2012, the country's entrepreneurship and digital innovation landscape have grown exponentially. Thus, considering the 2-fold challenge of creating new jobs and, at the same time, bridging the IT skills gap among youth, on 19 May 2017, the government launched the E-Rozgar training program (hereinafter, E-education). This program aims to provide internet-based freelancing training opportunities to youth to curtail unemployment and steer the country's economic growth. E-education is not an entitlement program, but rather a minimum eligibility criterion that must be fulfilled by the potential candidates. The students must have completed 16 years of education and should be in the age group of 22–35 years to be enrolled in this program. The vision of the program is to "reduce unemployment and drive economic growth in the country by boosting inflows of foreign currency."

The skill development program is an essential step in providing training along with employment opportunities. It provides human capital to society and increases the income levels of individuals. King (2009) postulated that skill development and technical training are becoming increasingly powerful policy tools in developing countries to promote economic growth. Khan et al. (2010) asserted that governments should initiate new programs in collaboration with global donors to develop self-employment skills in youth. These training programs can help impoverished students to obtain jobs, increase their earning levels, and fulfill their basic needs to live a decent life. Besides, the governments should also set up various skill development programs for youth to enhance their skills that help reduce rampant unemployment (Audu et al., 2013).

Keeping this in view, several skills development programs have been initiated by the government. However, despite the fact that the government is spending a large amount of funds on such schemes, systematic evaluations of their effects on unemployment reduction and the personal financial management of trainee students are very limited. This article is an attempt to fill this void by exploring the quantitative data, which are collected through a structured questionnaire from the students who have successfully completed the government's E-education program.

Apart from this, it is observed that fundamental skills development and vocational knowledge are imperative for innovation as they promote new abilities to learn, change, and be creative at work (Dalitz et al., 2011). Incessant training ensures access to cutting-edge knowledge and augments the propensity to innovate in a society (Bauernschuster et al., 2009). Similarly, both classroom training and on-the-job training are required to boost the innovation capacity of the students (Dostie, 2018). This evidence sheds light on the value of training programs in enhancing the scale of innovation that has ultimate positive implications on the expansion of employment opportunities for the youth. Therefore, the present study also examines the mediating role of "innovation" between the E-education program and unemployment reduction in youth. The research contributed to the E-education literature by providing empirical evidence of the effects of this type of program in a new dimension (innovation).

Notwithstanding the fact that current research focuses on one program (i.e., E-education) offered by the government of Punjab, Pakistan. It has wider implications for similar programs offered in various parts of the country by educational institutions and the government to curtail unemployment in the youth.

The rest of the article is arranged as follows: Section "Literature review and hypotheses development" presents the relevant literature and develops hypotheses,
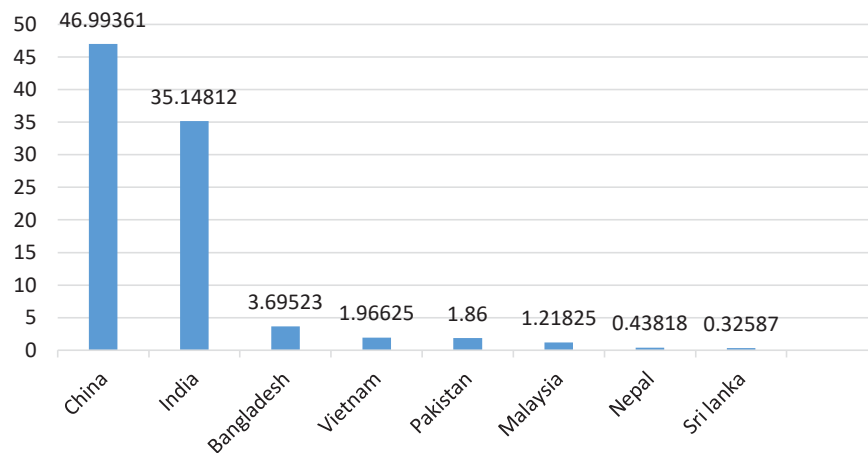
Number of people in Million

FIGURE 1
Number of people enrolled in tertiary education in selected Asia-Pacific economies, 2019.

Country	e-Readiness Rankings		e-Learning Readiness Rankings	
	Score [out of 10]	Overall Ranking [out of 70 countries]	Score [out of 10]	Overall Ranking [out of 70 countries]
Republic of Korea	8.34	15	8.24	5
Malaysia	6.16	34	6.48	25
Thailand	5.22	47	5.11	36
India	4.96	54	4.56	45
Philippines	4.90	55	4.80	43
People's Republic of China	4.85	56	4.52	46
Sri Lanka	4.35	60	3.75	59
Viet Nam	4.03	65	3.32	57
Indonesia	3.59	68	3.67	53

FIGURE 2
Asian E-readiness rankings and E-learning readiness rankings. Source: Adapted from EIU (2003, 2008) as reported in Latchem and Jung (2009).

Section "Materials and methods" presents data and methods, Section "Empirical findings" presents the results and discussions, and the final section "Discussion" concludes the study.

Literature review and hypotheses development

E-education program and unemployment

Unemployment is a situation when people are skilled and willing to do work but are unable to get a suitable job (Fajana, 2000). The menace of persistent unemployment creates a plethora of psychological ailments among graduates (Peterie et al., 2019). Especially the governments in developing countries are facing a serious issue of graduated unemployed youth (Sever and İğdeli, 2018). In the current era of competition in the higher education arena, educational institutions produce thousands of graduates each year but not all of them are securing suitable jobs. Moreover, one of the key reasons for unemployment among youth is the lack of requisite skills required by the employers in today's job market (Epure and Barna, 2021). However, if the government and higher educational institutions effectively equipped these unemployed graduates with enterprise abilities, they would have become job creators rather than job seekers (Okoye, 2017).

Moreover, e-business skills have the potential to generate incredible new capital, generally through entrepreneurial start-ups and commercial ventures. It is also transforming the rules of competition for established businesses in an extraordinary way. Therefore, in the past few decades, several scholars have shifted their focus toward e-business, innovation, and creativity (Amit and Zott, 2001; Amuna et al., 2019; Epure and Barna, 2021). Similarly, electronic commerce encompasses sharing business information, maintaining business relationships, and conducting business transactions through internet-based technology (Maqbool et al., 2013; Mgunda, 2019). A positive association between telecommunications and economic growth is well documented in the literature (Gómez-Barroso and Marbán-Flores, 2020).

Keeping in view the importance of e-skills, many independent organizations and governments have launched training programs to equip youth with new skills. These programs provide cutting-edge E-education to people and create employment opportunities and are thus considered one of the major factors to reduce unemployment (Emeh, 2012).

Noreen (2011) observed that the training program has a significant positive impact on the income, education, and employment level of youth. Nevertheless, only highly skilled and trained workers would be able to deal with the changing business environment as they are capable of creating sustainable development for youth (Wallenborn, 2009). Training and skills development programs help considerably change the employment rate over time (Amjad and Kemal, 1997). Besides, internet based skills development programs not only improve the capabilities of the trainees but also generate new employment avenues (Layard et al., 2005). Moreover, ICT penetration in a society lowers the unemployment rate and helps grow the economy of a country (Hussain et al., 2021; Mossberger et al., 2021). Professional learning and training contribute to accomplishing national development goals as skillful individuals would be more creative in boosting their employment and income (Jones, 2007).

In a similar vein, Fanati and Manfredi (2003) revealed a negative association between skills development and the unemployment rate. They argued that when people get training or skills from any program or educational institution, their knowledge and skills are optimized, which ultimately enables them to secure a good job promptly. Training programs (like E-education) help reduce unemployment among youth (Joshua et al., 2015). All these lines of evidence support the notion that training and skills development programs such as E-education program help reduce the unemployment rate among students. Thus, we hypothesize that;

> H1: E-education program has a positive association with unemployment reduction among students.

E-education program, innovation, and unemployment

Innovation is a process of transforming thoughts into opportunities and putting these opportunities into reality. Innovation is concerned with improving how institutions deliver products or services (Baskaran and Mehta, 2016). Moreover, the term innovation consists of two diverse stages: The first stage is a creative process that grasps the generation of innovative ideas. Whereas, the second stage is implementing the idea that describes the realistic behavior to create new sources of income. Most unemployed people enhance their knowledge and creativity through education and training, which help them availing new employment opportunities (Utsch and Rauch, 2000). Innovation also explodes through proper training in online working, which ultimately helps reduce the unemployment rate in the country (Carbonell and Rodriguez, 2006). ICT-related education and skills are crucial enablers for breeding innovation and competitiveness (Hüsing et al., 2013). Both classroom and on-the-job training of graduates can lead to extensive product and process innovation (Dostie, 2018). Similarly, Børing (2017) posits that although a positive association exists between employee training and innovation activities. However, this association tends to be indirect mainly because of other human resource practices that are mainly associated with innovation strategies.

Solow (1957) was considered the pioneer who contended that persistent growth in per capita income is a function of improvement in productivity, which can be attained through technological advancements. This Solow model (also known as the neo-classical growth model) has opened up a new horizon of research on the outcomes of technological innovation both at the firm and the country level. Moreover, economists such as Blanchard (2009) proposed a production function, whereby the level of technological innovation determines the output level for each unit of labor. The model specifies that in the medium term when the actual output surpasses the expected output, the real wages of the labor increase, decreasing the country's unemployment rate.

Similarly, Harrison et al. (2014) studied the effects of innovation on the employment growth of four European countries: France, Germany, the United Kingdom, and Spain. The results depict that although process innovation dislodges employment, product innovation is positively associated with the employment growth of all the sampled countries. Similar findings were reported by Benavente and Lauterbach (2008), Hall et al. (2008), and Peters (2004). A recent study (Çiftçioğlu and Sokhanvar, 2020) examined the short-run and long-run effects of R&D on the rate of unemployment. The study findings implore that in the long run, R&D tends to lower the unemployment rate; however, in the short run, innovation adversely affects employment creation. Similarly, some earlier

studies (Blechinger et al., 1998; Regev, 1998) have also suggested the positive effects of innovation on employment growth.

On the contrary, Brouwer et al. (1993) and Klette and Førre (1998) reported a negative association between innovation and employment opportunities. In the context of developing economies, Maneejuk and Yamaka (2020) found that high innovation brings higher economic growth. Considering the inconsistencies in the relationship between innovation and employment/unemployment, Acemoglu and Restrepo (2018) developed a conceptual framework that proposes that technological innovation could be of two types: The first type is "automation of existing tasks," which substitutes the labor with the machine and raises the unemployment in the country, and the second type of innovation is "new task creation" in which new skilled labor is required to achieve a competitive advantage and thereby decrease the unemployment.

The aforementioned evidence infers a mediating role of innovation between the E-education program and growth in employment opportunities for students (see **Figure 3**). Therefore, we put forward our second hypothesis:

> H2: Innovation mediates the relationship between the E-education program and the unemployment reduction of students.

Materials and methods

Sample and data collection

The present study follows a quantitative approach to examine the proposed hypotheses. The primary data were collected by using a survey technique. The population of this study is the students of the E-education program who have successfully completed the program. To obtain an adequate number of responses, we distributed 500 questionnaires using the convenience sampling technique to get maximum responses.

FIGURE 3
Conceptual framework.
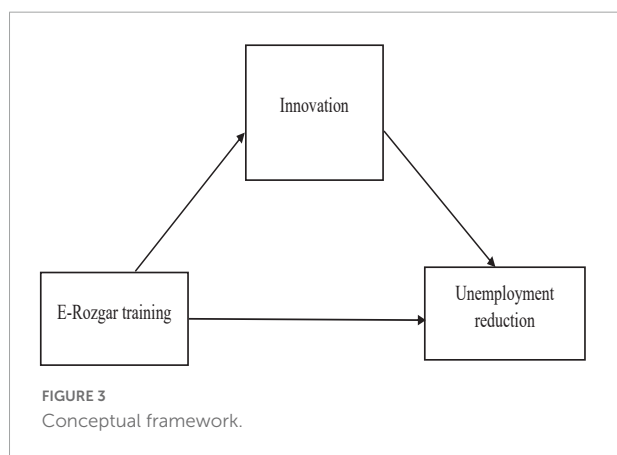
A total of 416 students filled the complete survey questionnaires. The response rate was quite high (83%). Demographically, 56% of the respondents ($N = 233$) were men; 53.8% of the respondents ($N = 224$) were 21–25 years old, 31.7% were 26–30 years old, and 14.4% were 31–35 years old. The majority of the respondents received their education in technical (40.6%) and non-technical (34.1%) course tracks, while 25.2% were trained in creative designing.

Instruments and measures

The instrument of the present research has been adapted from the existing literature with slight modifications to fit the context of the study. The instrument was designed to be completed within 10–12 min to encourage higher participation and completion rates. More precisely, this study employs seven items to measure the quality of the E-education skill development program adapted from Kunche et al. (2011); innovation was measured through four items adapted from Helm et al. (2010) and Burpitt and Bigoness (1997); and the five items that measure unemployment reduction were adapted from Naidoo and Hoque (2017). The response for all 16 items was collected on a 5-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree. We used a 5-point Likert-type scale because it is easier for respondents to complete and thus increases the response rate (Nauman et al., 2019). Moreover, data collected through the 5-point Likert-type scale are more appropriate for confirmatory factor analysis (CFA) and structural equation modeling (SEM) (Deem and Brehony, 2000; Dawes, 2008).

Empirical findings

Confirmatory factor analysis

The results of CFA are presented in **Tables 1**, **2**. AMOS 23 was utilized in this study to conduct CFA of the hypothesized model to verify whether the model fit was good and reliable. The results showed that CMIN = 329.78, DF = 116, and CMIN/DF = 2.87, $p < 0.001$ (i.e., CMIN/DF < 3). The model was evaluated with a composite index of overall fitness. The results showed that CFI = 0.94, TLI = 0.93, and RMSEA = 0.06, indicating a good fit.

First, we performed the inter-correlation and reliability test of study variables (refer to **Table 2**). The result revealed that the E-education program is positively correlated with innovation ($r = 0.44$, $p < 0.01$) and unemployment reduction ($r = 0.44$, $p < 0.01$). Innovation was positively correlated with unemployment reduction ($r = 0.58$, $p < 0.01$). The results of Cronbach's alpha were also reported, and measurement scales

TABLE 1 Measurement model comparison.

	Measurement models	χ^2	Df	χ^2/Df	TLI	CFI	GFI	RMSEA
1	E-education program and innovation (2 factor)	1,614.31	123	13.17	0.56	0.59	0.59	0.17
2	Innovation and unemployment reduction (2 factor)	1,790.55	123	14.57	0.50	0.55	0.57	0.18
3	Full model (4 factor)	**329.78**	**116**	**2.87**	**0.93**	**0.94**	**0.91**	**0.06**
	Full model (1 factor)	1,433.06	119	12.08	0.65	0.59	0.61	0.16

Better fit indices are presented in bold; full model (3-factor) combines E-education programs, innovation, and unemployment reduction.

TABLE 2 Inter-scale correlation analysis.

S. No		Mean	SD	1	2	3
1	E-education program	1.81	0.56	(0.84)		
2	Innovation	1.99	0.85	0.44**	(0.91)	
3	Unemployment reduction	2.06	0.83	0.44**	0.58**	(0.89)

$n = 416$; alpha reliabilities are presented in parentheses. **$p < 0.01$.

TABLE 3 Structural equation model results.

S. No	Variable	B	SE	T	P
1	E-education program → Unemployment reduction	0.23	0.05	4.43	0.000
2	E-education program → Innovation	0.47	0.04	10.32	0.000
3	Innovation → Unemployment reduction	0.52	0.04	11.50	0.000
Indirect effect	E-education program → Innovation → Unemployment reduction	0.24	0.03	7.71	0.000

$n = 416$. Path-1 = IV→DV, Path-2 = IV→MV, Path-3 = MV→DV, Path-4 = IV→MV→DV.

of all the variables were reliable, having a value of above 0.70, as recommended (Nunnally, 1978).

Structural model

For hypothesis testing, we used the SEM technique in the present study. The model fit indices of the structural model indicate an acceptable model fit as the value of chi-square (χ^2/df = 2.89), CFI = 0.941, TLI = 0.931, RMSEA 0.067, and SRMR = 0.046 meet the criterion of Hair et al. (2010). **Table 3** shows the estimated paths and other statistics of the structural model. The estimated paths are also shown in **Figure 2**. Hypothesis 1 stated that E-education positively related to unemployment reduction. The results revealed that the E-education program positively related to unemployment reduction ($b = 0.23$, $t = 4.43$, $p < 0.01$) (refer to **Table 3**). Thus, H1 is supported.

Hypothesis 2 proposes that innovation mediates the relationship between E-education and unemployment reduction. The result showed that E-education has a positive indirect effect on unemployment reduction *via* innovation (coefficient = 0.24, *p < 0.001*), which supports Hypothesis 2.

The indirect effect was examined using the MPLUS delta method. This method is considered an alternative to the Sobel test and has similar robustness and statistical power to explain the indirect effects (Junaid et al., 2019). Therefore, the findings

of the present study do not require any additional validations through the Sobel test.

Discussion

This study focuses on one of the most prominent programs, "E-education," which targets educated youth to create employment opportunities in the era of the internet of things. The aim of the present study was to find a link between E-education and unemployment reduction *via* innovation. The existing literature also highlighted the need to identify mediating mechanisms between the E-education program outcome and the unemployment relationship (Rosemary et al., 2020). We believe that with the help of E-education programs, students will be better equipped, and by utilizing these learned skills, innovation will enhance which leads to the reduction in the unemployment. This happens by making E-education individuals feel that they are capable of earning (unemployment reduction). The current study has taken an E-education program in which trainers teach the students about freelancing, project hunting, and product delivery practices that collectively form a bundle. All these practices are directly beneficial for individual unemployment reduction (Rosemary et al., 2020).

We also invigorate the role of innovation in the relationship between E-education and unemployment reduction. Previous studies highlighted the need to examine the mediating

mechanisms that explain the relationship between E-education and outcomes (Børing, 2017; Rampa and Agogué, 2021). The present study findings stated that innovation mediates the relationship between E-education and unemployment reduction. The results are aligned with previous studies (Mohd Rosli and Normayuni Mat, 2019; Ylijoki et al., 2019).

Data were collected from the successfully passed out students of the E-education program. The research contributed to the E-education literature by providing empirical evidence of the effects of this type of program in a new dimension (innovation). The results show strong evidence for all hypothesized relationships; participation in E-education programs leads to unemployment reduction. Furthermore, the study also confirms the mediating effect of innovation on the relationship between E-education and unemployment reduction.

The results presented in this study paint a very optimistic picture of E-education program-induced unemployment reduction *via* innovation. Pakistan is a developing country, with over 26% of its population consisting of youngsters, of which millions are unemployed. Therefore, not only the government should continue this program (to curb unemployment) rather HEIs should also come forward and start this type of E-education program to equip the youth with contemporary skills along with traditional tertiary education. Moreover, keeping in view the exponential growth in Pakistan's e-commerce market in the past few years, the government should also expand the course tracks offered during the program.

The present study also has some limitations. First, due to the utilization of single-source self-reported information, common method bias (CMB) may have exaggerated the correlations. Thus, future studies may use multi-source in order to mitigate CMB. Second, in the present study, we used innovation as an underline mechanism to explain the relationship between E-education and unemployment reduction. Hence, future studies may use different underline mechanisms to uncover the consequences of E-education programs. Future studies in this domain can draw a regional comparison on the penetration of E-education programs and resultant employment and economic growth prospects. Nevertheless, it would be interesting to draw on a comparison between the use of E-education and skills development in developing and advanced countries.

Data availability statement

The original contributions presented in this study are included in the article/supplementary materials, further inquiries can be directed to the corresponding author.

Author contributions

YS wrote the original manuscript. All authors contributed to the article and approved the submitted 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.

Publisher's note

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A study on psychological stress assessment of higher educational institution's students based on computer data mining technology

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Safety begins in the human mind, and the individual's need for psychological safety is the most fundamental need. This fundamental need takes psychological safety as the starting point for the gradual formation of a connection with the outside world. Graduates are the backbone of China's economic development, and their healthy development is of great significance to the sustainable development of China's economy and society. Excessive psychological pressure may bring pain to students in physical and psychological aspects, and even lead to suicide. If students with abnormal psychological pressure can be found in time, the school can provide help and intervention in time to relieve psychological pressure. This paper uses pressure sensor technology for data collection and data mining techniques for data analysis to assess and predict the psychological stress level of Higher Educational Institutions (HEIs) students. The results show that this method can accurately and objectively evaluate the psychological stress of the students, and the evaluation results of students' psychological stress are stable, which can provide students with psychological stress assessment services. It implies that HEI's policymakers should consider these techniques to assess the psychological stress of the students proactively.

KEYWORDS

psychological stress, HEI's, pressure sensor technology, data mining, China

1. Introduction

With the emergence of various social forms, the state of mind of today's HEIs graduates has changed a lot compared with that of the past. The present living conditions, family background, and academic performance, etc. have led to the cause of various negative psychological emotions in the HEIs students, among which melancholy and anxiety are the most prominent (Seggie et al., 1974).

Stress is an external imbalance that stimulates the body when the external danger does not eliminate, causing physical and mental damage that can lead to the destruction of life.

Lazarus, an American psychologist, states that stress is an external demand beyond what the individual, the social system, or the body's organizational system can bear (Daoyang, 2004). Once a negative psychological state occurs, it can negatively impact their future studies and work (Chaomin, 2014). These people may be unaware of their place in the circle and have difficulty adapting, creating a huge obstacle to their future development. That would be a huge blow, both to their families and to the country as a whole (Yao and Donglin, 2022).

With the development of science and technology, people's living standards have improved significantly. However, this is accompanied by many mental problems (Ho-Young and Lan, 2001), especially among college students. When a senior high school freshman enters the campus, he faces different life from the past, and many college students feel unable to adapt to this new learning style (Shihua et al., 2021). In addition, the relationship around him is changing, and he must get to know more people. When he leaves home for the first time, he must solve all problems by himself. The first-grade students will have negative psychological feelings, such as depression, anxiety, and loneliness (Rice and Lin, 2000), which will lead to a loss of interest in learning and not wanting to communicate with others. For students, appropriate pressure can improve their learning efficiency, which is conducive to their growth and development. However, excessive psychological stress may bring pain to students in physical and psychological aspects, and even lead to suicide. If students with abnormal psychological stress get recognized in time, the school can provide help and intervention timely to relieve psychological stress.

At present, regular questionnaires assess psychological stress mainly. However, this method can only reflect the psychological pressure of the students participating in the survey at that time, and cannot obtain the pressure state of the students not participating in the survey. In addition, students may be perfunctory when filling in the questionnaire, or intentionally fill in wrong information in order to conceal the truth. Therefore, it is the need of time to use some recently emerged techniques to unearth the actual level of psychological stress that students face during their stay at HEIs.

Data mining technology is developed from statistics, databases, and machine learning. It is a process of extracting information and knowledge that people do not know yet, but is useful for the potential decision-making process from big data, and these data and knowledge can provide services for educators, learners, managers, educational software developers, and educational researchers (Ting and Gangshan, 2010). For example, the identification of poor students (Hengxin et al., 2009), analysis of students' online behavior (Shuai et al., 2016), and academic early warning of students and employment prediction can be done through data mining (Campagni et al., 2015; Xing et al., 2015). Data collection is generally obtained through interviews, questionnaires, students' daily behaviors, and teaching resources. This study uses sensor data acquisition. Sensor module is built on the surface of the sensor, on the

parameters of the environment that produce changes in electrical parameters of sensitive devices, such as changes in temperature impact on the resistance value of the thermistor, changes in humidity impact on the resistance value of the moisture sensitive resistor, changes in the brightness of the light impact on the resistance value of the photoresistor, and so on. The difference between changes in the need for an AD digital-to-analog conversion module is used to obtain the small environmental parameters caused by changes in electrical parameters through the signal processing parameters to filter out the wrong data, and the amplification circuit can be helpful to obtain a quantifiable electrical parameter. It leads the microcontroller to identify the electrical parameters and complete the acquisition of environmental data. Using the sensor, the analog amount of information is converted into an electrical signal output, and the main controller makes judgments and conversions to derive the collected analog amount of information. This design uses the characteristics of the sensor to convert pressure signal changes into electrical signal output.

Focusing on the mentioned techniques that have emerged recently, the present study is unique that it employs data mining technology. It uses students' personal information, daily campus life data, and data collected from students' responses to the stress assessment questions to ascertain the psychological stress level of the students. This study will ultimately help to conduct timely counseling of the students for their better future.

The rest of the paper is structured as follows: section two presents the recent literature on students' psychological stress and the use of data mining techniques; section three describes the research methodology employed in this research; section four shows the results of statistical analysis; and final section concludes the study with necessary policy implications and future research directions. The following picture 1 shows the implementation steps of this study.

2. Literature review

Graduates of higher education are the most important talents of the country. Only with good psychological quality can they study hard and contribute to national construction (Zhang et al., 2003). In recent years, the psychological problems of Chinese college students have become increasingly noticeable. The mental issues of university students have become increasingly prominent, and the students are being educated and discussed in depth (Danqing, 2021). Among the mental issues of university students, anxiety and depression are the most significant and harmful factors (Yang et al., 2006). Previous psychological surveys have shown that the number of university students with psychological problems in the country is no longer a small percentage, accounting for 16–25% of the national total. Every year dozens of students finish their lives due to relationship problems, failed relationships, failed exams, and unsatisfactory lives (Zhang, 1994). A study conducted in Shanghai found that 20% of the 200 unhappy factors were confused about the future, relationship management, and problems with the opposite sex (Xiting, 1997).

Indeed, there are many different definitions of stress; different researchers have different views and perceptions about the definition of stress due to different purposes and methods of research: some equate stress with stressful events (Hong and Jinrong, 2002), stressful stimuli, and stressors, such as Brown who states that stress is an event that may endanger an individual or hinder the individual's response. Selye (2015) believes that stress is ubiquitous in life, and everything that happens in one's life is likely to become a source of stress. Basudan et al. (2017) believe that stress is a disease caused by external stimuli, by some external physiological or psychological factors, which affect the physical and mental health of individuals. The research of Sulkowski et al. (2011) shows that stress can lead to overeating, and a long-term stress state is full of risks to mental and physical health. Lin Chun-mei, on the other hand, treats stress as psychological pressure and psychological stress. Chun-mei (2001) states "Psychological stress is stress that is caused by the body's reaction to internal and external conditions and the influence of external factors." Xiao-feng (2013) regards pressure as a relationship between people and the environment, which requires individuals to deal with it. According to Chang (2007), mental stress is a feeling of overwhelm, a feeling that cannot be dispelled for the time being. Others have considered various kinds of stress from both internal and external perspectives in an attempt to paint an exhaustive picture of it. Hee-ting (1991) divides stress into three main categories: stressors, stress reactions, and stress feelings. Shin Ho-young et al. classify stress into tension, stress, and various activities that trigger stress (Linxian, 2007).

The traditional assessment method of students' psychological stress is mainly realized through students' self-assessment and manual interview (Hui, 2011). The self-assessment method is mainly used by students to fill in the self-assessment scale to measure the source of psychological pressure and the state of psychological pressure, which is the most widely used method at present. However, this method can only reflect the psychological pressure of students who participated in the survey and cannot obtain the stress state of students who did not participate. In addition, students may be perfunctory or intentionally fill in wrong information when filling in the questionnaire, and the true state of psychological stress will be difficult to find. The manual interview needs to evaluate the psychological pressure of students through daily or multiple interviews lasting for a period of time (Lee and Hong, 2018). This method usually takes a long time and only works for some students who are active and cooperative. By mining students' personal information and pressure sensor data, this research evaluates students' psychological stress state in a passive way. The use of the established model can be extended to every student at HEIs.

3. Research design

3.1. Statistical technique

This paper used a data mining technique to achieve the objectives of the study. Data mining involves many methods,

and the selection of appropriate methods depends on the data type and the specific purpose of data analysis (Yang et al., 2005). Data mining can be divided into various types, such as classification learning, supervised learning, clustering analysis, association rule mining, prediction mining, time series mining, and deviation analysis (Xiang, 2019). In addition, the internationally known brain functional imaging technology provides strong support for college students' emotional problems (Yihan et al., 2022). Many researchers have analyzed brain imaging data to find the exact location of the brain-activated area of students suffering from depression, anxiety, and other negative emotions (Jing, 2020). Several researchers are now focusing on the neutron's stationary state. By calculating the resting state, we can understand the brain activity of students with negative emotions when they are quietest (Wenyi and Hao, 2022). In this way, doctors can use the images of brain functions to understand their psychological state and to make a correct diagnosis (Compas et al., 1985).

Over the past few years of continuous exploration and research, a process has been developed that is the basis for data collection techniques. It consists of extracting and transforming the required data from uncleaned raw data, building a pattern of classifiers or clusters on top of this, and then extracting and processing the data (Yingqiu and Yali, 2008). The flowchart is shown in Figure 1.

The present research first uses sensor data about the stress intensity of students' responses to stress assessment questions, then extracts students' necessary information from the school database and carries out the standardized conversion of the data. Afterward, it cleans the incorrect, abnormal, and inconsistent data. Then, it loads the data into the warehouse structure. Finally, it uses Microsoft SQL Server Analysis Services for data mining and creates four different data mining models to get the best results for the study.

FIGURE 1
Steps of data mining.
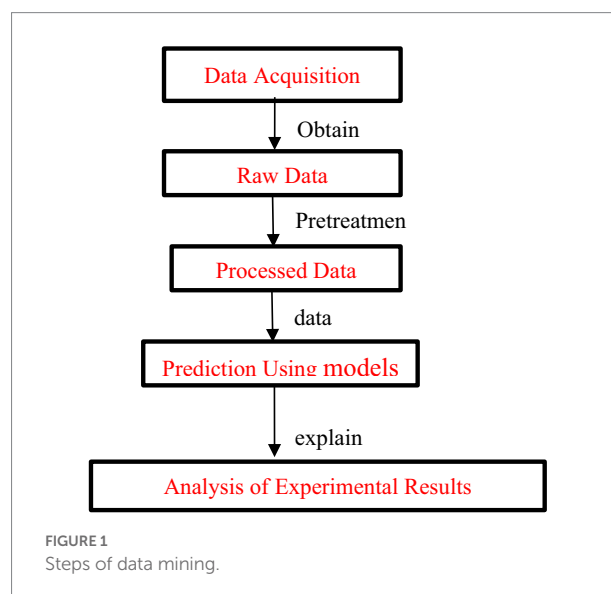
3.1.1. Sensor data collection

These data acquisition is carried out using pressure sensors to collect data on the response pressure strength of students answering questions on a pressure assessment. Working principle: the finger is bound to the press module during the assessment, and data are collected on its response strength during the answer time, so that the sliding rheostat at the set position of the detection module acts to send out a pressure signal and the pressure signal felt is transmitted to the ADC0832 conversion chip by converting it into a voltage signal, which is converted into a digital signal by A/D conversion and transmitted to the microcontroller, which converts the current collected pressure signal according to the input signal. The microcontroller converts the currently collected pressure signal according to the input signal and finally transfers the collected pressure signal each time to the database for storage. The data can be analyzed according to the different signal stimulation intensities and the assessment answer scores.

3.1.2. Data extraction

Because there are large amount of data in the database covering various fields, but not all of it is necessary for data warehousing, different kinds of data have to be extracted from the database according to the needs of data warehousing. Considered from a data warehousing point of view, not all data need to be run in a database. In general, the data warehouse will extract the necessary information from the analysis of the requirements. Firstly, the selection is based on the actual situation of the user. Depending on the user's concerns, the information selected will vary. For example, the school administration can only count the scores of students while the school's admissions office can only investigate the personal data of students (Honglin, 2006). Secondly, the relevant information is extracted based on a specific topic. The method can be a combination of manual, semi-automatic, or automatic methods (Xinhuan, 2014).

3.1.3. Data transformation

Data conversion is also a necessary part of establishing data warehousing process. In order to prevent inconsistent information due to differences in business, it is important to standardize the various data in the database. There are inconsistencies in various existing databases, such as IBMDB2, Oracle, SQL Server, Excel, etc. There are also many cross-cutting issues in real life (Xiaochun, 2011).

As there is a large amount of information in Excel forms in various formats, the information in the same field can also be very different and, therefore, must be converted.

3.1.4. Data cleaning

The accuracy of data is essential in data mining techniques as it is key to its precision.

To obtain accurate information, multiple sources of information must be cleaned. In this context, "cleaning" refers to the correction or removal of incorrect or inconsistent data when it is entered into a database to avoid adverse effects on the correct

judgment of the decision support system (Yihan et al., 2022). That is Qiang and Baojuan (2014), when data are transformed, incorrect data, abnormal data, and inconsistent data must be removed and transformed, data gaps must be filled, isolated locations in the data set identified, and interfering data and data inconsistencies excluded. Some common ways of doing this are as follows:

1. Removing this data record.
2. Relying on the direct human experience.
3. Filling in blank values.

Because the focus of this system is on psychometric tests for university students and specifically on psychometric test scores, most of the data ensure the integrity of the test.

3.1.5. Data loading

The task of data loading is to load all the data according to the already designed data into the warehouse structure (Guangyuan et al., 2013).

The main steps include space-filling and validity checking. For this system, the raw data formats are diverse. Since 2001, when the Department of Educational Technology at the University of X used information technology to store results, there have been three changes in the format of the data handled by the teachers of the various subjects. The early method of aggregating the data was outdated, storing all the Excel tables (one for each course) in different folders by date, which also contained data from other departments, therefore, required special filtering, which is a very time-consuming process. Instead of using a special data SSIS tool to extract and load the data, a special data extraction program was written using Visual Studio to process the data (Wei et al., 2014).

4. Statistical analysis and results

4.1. Overview of analysis implementation

This research uses Microsoft SQL Server Analysis Services for data mining and pressure sensor technology for data collection. Because it is not known which data mining method will be used to get the closest results to the actual situation, we will create four different data mining models to select the best results for the study. Also, we have chosen data from 2022 to predict because in 2022, all students completed the psychological stress test; they also got an average to see the difference between the real and the expected (Yanhong, 2013).

4.2. Sensor data communication preparation

In this design, a serial module is used to establish a communication network between the main control chip and the upper computer, enabling the uploading of three-way

pressure detection data, which can help in informing the user of the current transformer situation promptly. The main chip of the module is the CH340G, which is used more frequently in various communication systems, especially in the Internet of Things (IoT), and can meet the requirements of long-distance transmission with low transmission delay to ensure the quality of data communication. The CH340G is capable of emulating a standard serial port, allowing serial port operation, and is fully compatible with the vast majority of original serial port applications. The role of the serial chip is to convert the TTL level output by the microcontroller to a 232 level that the PC can receive or to convert the 232 level output by the PC to a TTL level that the microcontroller can receive.

The CH340G module communicates with the master chip *via* a serial port for data communication. The RX and TX pins of the CH340G chip are connected to the TX and RX pins of the microcontroller, respectively. The serial communication module circuit is shown in Figure 2.

After access to communication, press the debugging button, and the LCD will display the three-way pressure value and pressure value in real-time. It can be observed that the first line of the liquid crystal shows the pressure value A of the three sensors, and the second line shows the pressure value B. The LCD interface is shown in Figure 3 below.

The microcontroller drives the serial port to transmit the collected reaction pressure data to the upper computer. Open the upper computer to set the serial port connection. After setting the baud rate and port, click "Connect," and you can observe that the connection is successful. After completion, the reaction pressure data can be observed on the interface of the serial port assistant, and the value change is synchronized with the value on the LCD to realize the function of remote data collection.

4.3. Data mining preparation

The first step using the SQL Server Analysis service, create the project for the analysis service for Data Mining.sln. Create a new source in this project, link it to the previous data store, and then create a source view to join the existing source view.

Using the 2019–2022 view as a set of training materials, the 2022 (Year 1 to Year 2 scores) view and the 2022 (Year 1 to Lower Sophomore scores) view (already known), as described earlier (Chen et al., 2011).

The second step is called excavation construction. It is a must to first identify the input and forecast rows for the data mining technique to apply to the training material; on this basis, the correspondence between the input and forecast columns must be established. A mathematical model for data mining was built using an example of the decision tree algorithm, setting a forecast level mean; the input column was set to psychometric test score; in addition, the value of the keyword was set to "school number." Based on this, the association between the input and the forecast

was analyzed using data mining methods, and a valuable forecast was made.

Step three involves adding a pattern to the data collection. Right-click under the Mining Patterns tab and select a new mining pattern to add a decision tree algorithm, a cluster analysis algorithm, a neural network algorithm, and a logistic regression algorithm. Use the same data collection architecture.

4.4. Analysis of the accuracy of mining models

A single algorithm cannot be used for specific data mining. However, the same data can be used for some specific data mining, so biased speculation before the final result appears can easily lead to inaccurate conclusions. For this reason, the authors use different data mining methods to analyze and predict the available data and finally arrive at the optimal method.

In this paper, the data mining accuracy curves in the Microsoft SQL Server Analysis service are used to compare the four patterns, i.e., to observe the performance of the four patterns when performing the same data architecture. Proceed to Figure 4 to get its data.

The blue diagonal line is the ideal model and is the baseline against which the lift is assessed. The other four different colored lines indicate the performance of the four different models in terms of prediction.

SSAS compares these four models on several dimensions, as shown in Table 1.

Within these indicators, "scores" allow for a holistic approach to comparing the validity of models across criteria. The higher the score, the better the model. The value of the "forecast probability" represents the threshold that the customer would need in a "likely to buy" situation. In each instance, the model estimates the accuracy of each forecast and stores it to select the most accurate data mining method. From the above data, it is easy to see that of the four models, neural network has the greatest chance of predicting 77.24%, hence the choice of the neural network in this paper.

TABLE 1 Comparison of different models.

Sequences, models	Score	Overall correct	Predicted probability
Logistic regression algorithms	0.63	31.46%	74.98%
Neural network algorithms	0.66	33.71%	77.24%
Decision tree algorithms	0.66	34.83%	53.32%
Cluster analysis algorithms	0.58	31.46%	58.60%
Ideal models		51.00%	
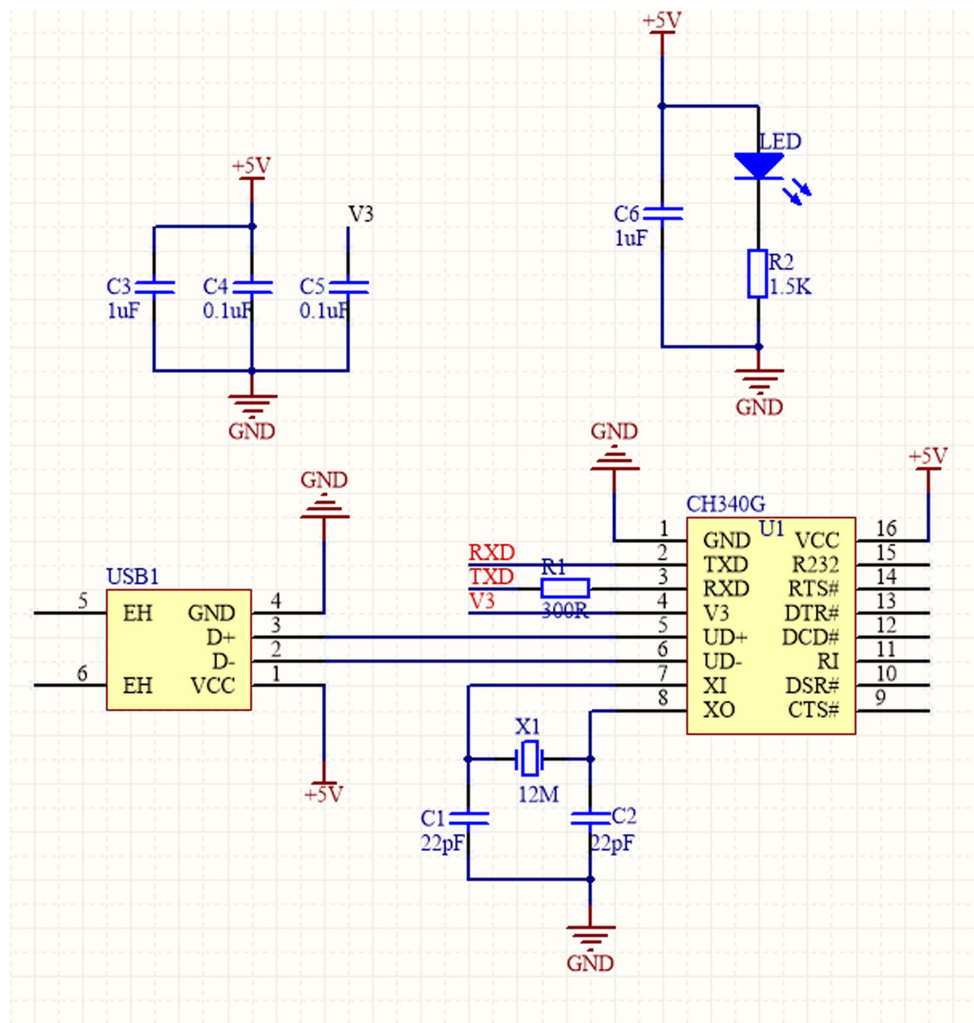
FIGURE 2
Sensor data communication module circuit.
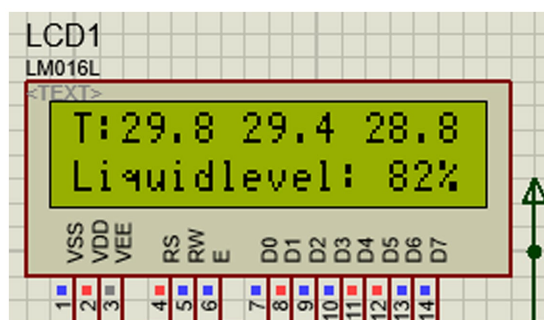
FIGURE 3
LCD interface diagram.

4.5. Prediction using models

On this basis, we will use the neural network roadshow algorithm to predict the data. The above information is practiced

using this method, and then we will introduce forecast data to predict the average test result. The methods are:

1. Switch to the prediction tab of mining mode, click the "Mode" button, and select "Most Accurate Data Mining Neural Network" in the pop-up dialog box;
2. In the input table on the right, select Normal_2022 (in the sophomore year), so that the learning mode on the left and the fields of the input table will be.
3. The information to be displayed in the final results are given in Table 2.

Firstly, there is the base information, which contains the number of credits, class, and gender, and then the base values for the class of 2022, as well as the predicted performance values using the neural network and the probability of the predicted grades determined by the method. Thus, using the method, it is possible to analyze the data for the class of 2022 and make predictions about their final test scores, as it is still in the experimental stage and not yet official.
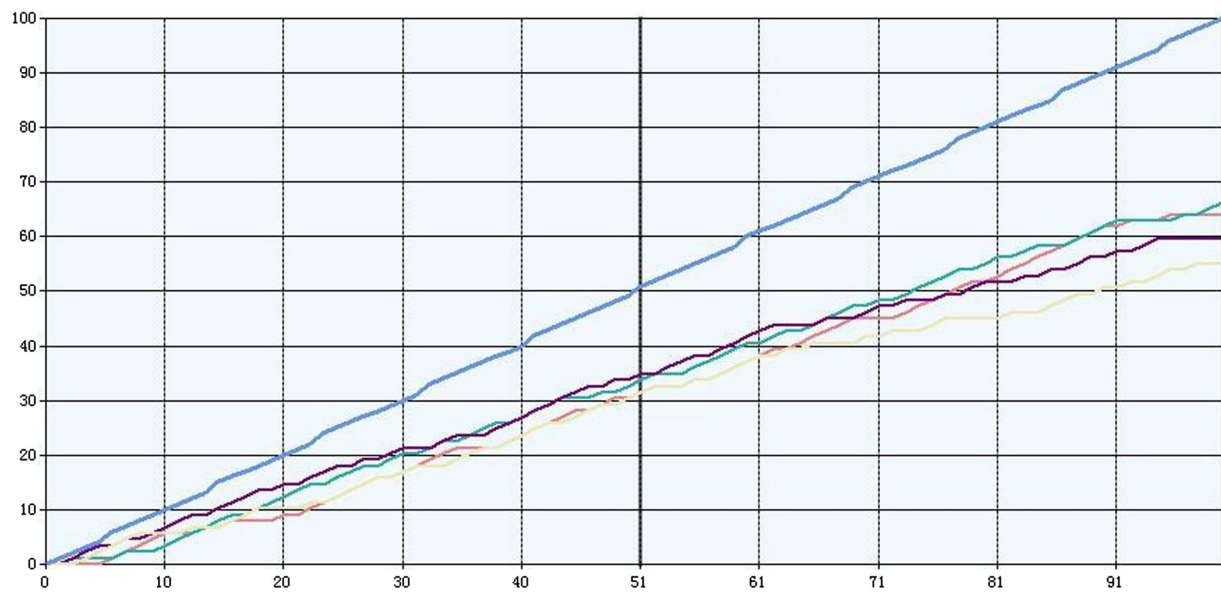
FIGURE 4
Lifting diagram.

TABLE 2 Structure of the predicted results.

Source	Field	Conditions/parameters
normal_2022(Sophomore on)	Student number	None
normal_2022(Sophomore on)	Class Id	None
normal_2022(Sophomore on)	Sex	None
normal_2022(Sophomore on)	Average psychometric test scores (actual values)	None
Neural network algorithms	Average psychometric test scores (predicted)	None
Prediction functions	Predict probability	[Neural network algorithm]. [Predicted values].

We can judge the accuracy and reliability of the data by making predictions about the average test scores of the students in 2022.

The normal_2022 (under sophomore) view (under sophomore) was predicted, and their scores on the psychological stress test up to a sophomore year and their scores on the test from freshman to under sophomore year were compared.

4.6. Study results

After setting the fields according to the requirements above and switching to the results option, the results of the data

mining can then be seen and the results saved to SQL Server as follows.

1. Predict the results when the table is in the normal_2022 (sophomore) view, as shown in Table 3.

Since there are 40 predictions in total, only a small selection of them is listed here. From the table above, the students were analyzed for data and for he can see that by comparing the 202 examinations, we can see that the average of their scores is the same as their actual scores after comparison. After further processing the above information, the result of the query shows that a total of 17 data items meet the requirements.

2. The results of the prediction table for the normal_2022 (under sophomore year) view as shown in Table 4.

Unlike the previous prediction result, the data in this prediction table contain more psychological stress test scores Therefore, the prediction is theoretically more accurate than the case where the prediction table is normal_2022 (upper sophomore year). In practice, the comparison shows that the final prediction accuracy is the same for both, but the prediction table for stress test scores also outperforms the prediction table for less stress test scores. For example, the student with student number 80,113,442 has a predicted value of 1.5 in the first case and a predicted value of 3 in the second case, whereas his actual GPA value is 2.5, so the prediction in the second case is more accurate. Therefore, the prediction in the second case is more factual. In addition, comparing the results of the two scenarios, it was found that the latter was generally more accurate than the first scenario, which partly supports the inference that more stress test scores are more accurate.

TABLE 3 Some results when the prediction table is normal_2022 (Sophomore upper).

Student number	Classes	Gender	Actual value	Predicted value	Prediction accuracy
80,113,436	202,201	Male	1.5	2	0.610708354
80,113,437	202,201	Male	3	3	0.377110042
80,113,441	202,201	Female	2.5	2.5	0.512550846
80,113,442	202,201	Female	2.5	1.5	0.290128239
80,113,443	202,201	Female	2.5	3	0.404747159
80,113,444	202,201	Female	2	2	0.503364539
80,113,445	202,201	Female	2.5	2	0.426135176
80,113,446	202,201	Female	2	2	0.350896618
80,113,447	202,201	Female	2.5	3	0.341418698
80,113,448	202,201	Female	2	2	0.545598651
80,113,449	202,201	Female	2	2.5	0.424083464
80,113,450	202,201	Female	2.5	3	0.485778161
80,113,451	202,201	Female	2	2	0.53151616
80,113,452	202,201	Female	3	2.5	0.478285234
80,113,453	202,201	Female	2.5	3	0.457179444
80,113,454	202,201	Female	2.5	2.5	0.374685875
80,113,455	202,201	Female	2.5	2	0.676034401
80,113,456	202,201	Female	2.5	3	0.365396023
80,113,457	202,201	Female	2	2	0.535056509
80,113,458	202,201	Female	2	2.5	0.402580328
80,113,459	202,201	Female	2.5	2.5	0.369597333

5. Conclusion

With the increasing employment pressure, social life challenges are increasingly severe, students' academic pressures are also increasing, and it is easier to have a negative impact because of excessive psychological stress. The traditional method of psychological stress investigation is difficult to implement on a large scale due to complex operation, long duration, and other factors. If only a questionnaire is used to investigate, students may not take it seriously and can only wait for students to find a psychological center or counselor to master their psychological stress state. The evaluation through big data mining is a new mode that is more active, efficient, and can be widely implemented.

This paper has used data mining techniques to analyze the results of the quiz, both in theory and in practical application, and is limited by the technical aspects of the analysis, which can only be carried out through Microsoft's internal data analysis. From the results above, we can see that the expected results can only be obtained if data mining methods are used. Thus, the present study uses pressure sensor technology for data collection and then data mining techniques for data analysis to assess and predict the psychological stress level of Higher Educational Institutions (HEIs) students. The results show that this method can accurately and objectively evaluate the psychological stress of the students, and the evaluation results of students' psychological stress are stable, which can provide students with psychological stress assessment services.

These findings have critical implications for the HEIs policymakers. First, it provides a base to consider these techniques in order to proactively assess the psychological stress of the students. Second, different colleges and universities can employ these techniques on the data of their students to check the psychological stress level among students and ascertain which data mining method is most suitable for their students. Last but not the least, a national-level policy can be proposed to use these emerging techniques at different levels of organizational staff to assess their level of stress during their job.

Maslow used the hierarchy theory to classify human needs into five levels. Among these needs, security is the most basic after physical needs. After the usual needs are secured, the higher-level needs of belonging, self-esteem, and self-actualization come into action. The more a person's minimum requirements can be adequately met, the higher his needs will be. As Maslow said, when the needs for security and love are fulfilled, their frustration causes sickness. When analyzed from an individual perspective, there is still a significant proportion of people who do not feel sufficiently secure. Their security can make their lives more panicky and their mental health is inevitably adversely affected by the persistence of these problems. Therefore, it is important to fully recognize that psychological resilience plays a pivotal role in the psychological safety of university students, and enhancing their psychological safety through the active use and externalization of psychological resilience is the need of the hour.

TABLE 4 Partial results for the prediction table for normal_2022 (under sophomore year).

Student number	Classes	Gender	Actual value	Predicted value	Prediction accuracy
80,113,436	202,201	Male	1.5	2	0.619432296
80,113,437	202,201	Male	3	3	0.645238327
80,113,441	202,201	Female	2.5	2.5	0.500794354
80,113,442	202,201	Female	2.5	3	0.629051287
80,113,443	202,201	Female	2.5	3	0.650299022
80,113,444	202,201	Female	2	2	0.620749318
80,113,445	202,201	Female	2.5	3	0.453388769
80,113,446	202,201	Female	2	2	0.424878951
80,113,447	202,201	Female	2.5	3	0.627354405
80,113,448	202,201	Female	2	2	0.528929664
80,113,449	202,201	Female	2	3	0.599644427
80,113,450	202,201	Female	2.5	3	0.516437026
80,113,451	202,201	Female	2	2	0.579014835
80,113,452	202,201	Female	3	3	0.633618033
80,113,453	202,201	Female	2.5	2	0.366215011
80,113,454	202,201	Female	2.5	3	0.536548189
80,113,455	202,201	Female	2.5	2	0.381811887
80,113,456	202,201	Female	2.5	3	0.606786119
80,113,457	202,201	Female	2	3	0.38950895
80,113,458	202,201	Female	2	2.5	0.344746506
80,113,459	202,201	Female	2.5	3	0.423091955

With vast implications, this research has some limitations as well. First, the number of samples in this study is small, which has affected the training effect to a certain extent. If the number of participants can be increased, the model can have better results. Second, other algorithms can also be used in the future to increase the penalty of false judgment for samples, which should improve the effectiveness of the model.

In the future, this model can have the opportunity to be promoted in more colleges or schools through feasibility verification and can help students with psychological stress assessment services.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

SC: conceptualization, methodology, software, validation, formal analysis, resources, data curation, investigation, and writing—review and editing.

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Conflict of interest

The author declares 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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Check for updates

Do intensified job demands predict burnout? How motivation to lead and leadership status may have a moderating effect

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Objectives: The aim of this longitudinal study was to investigate how intensified job demands (job-related planning demands, career-related planning demands, and learning demands) are associated with burnout. We explored whether affective-identity motivation to lead moderates this association and, thus, functions as a personal resource regardless of leadership status. We further investigated whether the possible buffering effect is stronger for those professionals who became leaders during the follow-up.

Methods: Our sample consisted of highly educated Finnish professionals (n = 372): part of them (n = 63, 17%) occupied a leadership position during the 2-year follow-up while the rest maintained their position without formal leadership duties.

Results: The results of hierarchical linear modeling indicated that intensified learning demands were associated with later burnout. High affective-identity motivation to lead was not found to buffer against the negative effects of intensified job demands - instead, it strengthened the connection of intensified job- and career-related demands to burnout. Nevertheless, among the whole sample, professionals with high affective-identity motivation to lead reported lower burnout when job demands were not highly intensified. The leadership status also played a role: High affective-identity motivation to lead strengthened the connection of career-related demands to burnout in those professionals who became leaders during the follow-up.

Conclusions: Altogether, we propose that in certain circumstances, affective-identity motivation to lead might help professionals, with and without formal leadership duties, to be more ready to lead their own work and well-being. However, in order to promote sustainable careers, the vulnerability role of high affective-identity motivation to lead should be considered as well.

1. Introduction

Professionals, i.e., knowledge-workers, in modern society are impacted by new ways of working and intensified job demands (IJDs); they are increasingly required to make key decisions, adopt new skills and knowledge, and plan their own jobs and careers (Kubicek et al., 2015; Kotera and Vione, 2020). Leadership is typically awarded to highly educated professionals for good work: when professionals occupy leadership positions it brings another dimension of high demands (Skakon et al., 2011; Li et al., 2018). General accelerated pace of life (Rosa, 2003,

2013), IJDs (Kubicek et al., 2015), and, for example, the fact that employees are required to manage their own work ability, might obscure one's own boundaries, the borders of adequate performance level, and the perception of what is normal within the spectrum of occupational well-being. If job demands are long-term and constantly exceeding a person's limited resources, they can pose a risk for occupational well-being (Bakker and Demerouti, 2017; Mauno et al., 2022). Baruch and Vardi (2016) have proposed that such modern workplace factors as career self-management may indeed risk individuals' well-being and sustainable career development. People in the modern workplace are adapting to change and proactively shaping their career as agents (De Vos et al., 2020). For example, not all professionals "drive" toward leader positions –some "drift" toward them (Auvinen et al., 2021). Career choices that fit one's own personal values are more likely to provide a sustainable career (De Vos et al., 2020). The framework of sustainable careers (De Vos et al., 2020) integrates the dimensions of person, context, and time to explain the complexity of career paths; meanwhile the indicators of sustainable careers –happiness, productivity, and health – also form a basis for individual, organizational, and societal welfare (De Vos et al., 2020).

The motivation to lead (MTL; Chan and Drasgow, 2001) describes both a stable and dynamic difference between people in terms of the decisions they take about whether to pursue further training and assume greater leadership roles and responsibilities. MTL is generally considered to be a resource that supports more sustainable careers for leaders because it seems to promote occupational well-being (Auvinen et al., 2020; De Vos et al., 2020). However, while we agree that MTL is certainly a useful resource for highly educated professionals wanting to pursue a leadership position later in their career, we must remember that leadership-related tasks often fall also on those not in formal positions of leadership (Yukl, 1989; Bass and Bass, 2008). In present-day work environments, for example, self-leadership, entrepreneurial behavior, and shared leadership are increasingly valued within organizations as they are often associated with better performance (Zhu et al., 2018; Goldsby et al., 2021; Pirhadi and Feyzbakhsh, 2021). Professionals are also expected to be increasingly self-directed and flexible in managing both their career development and daily work activities (Kubicek et al., 2015), regardless of their position. Leadership could thus be seen as part of all kinds of professional work. Certainly, there are differences between formal and informal leader roles. However, it could be assumed that those professionals who find leadership interesting and motivating could more easily find sources of meaningfulness when working in previously mentioned environments.

Indeed, this study has an explorative perspective regarding the role of 'affective-identity motivation to lead' (AI-MTL) for professionals without formal leadership status. As the borders between professional and formal leader positions are not as clear as they were in the past, we wanted to pursue the possibility to gain novel knowledge regarding AI-MTL as a resource for highly educated professionals. In addition, we chose to study AI-MTL as our sample also consists of those professionals who occupy formal leadership positions during the 2 year follow-up. Research on MTL as a resource is scarce overall (see Auvinen et al., 2020, 2021) and non-existent for those professionals without formal leadership status. We are interested to see whether AI-MTL acts as a buffer against the negative effects of IJDs on occupational well-being, and to note any differences during the follow-up in the ways AI-MTL affect those in leadership positions and those who are not; is it a personal resource that might buffer against negative well-being outcomes regardless of leadership status? Beyond MTL research, white-collar workers have reported more intensification in planning, decision-making, and learning demands compared to, for example, blue-collar workers (Mauno et al., 2020). Thus, investigating resources for this group is particularly relevant. Moreover, as job demands are unlikely to decrease in the future, exploring resources such as AI-MTL also in non-leadership contexts would help individuals and organizations not only cope but actually thrive –while creating more sustainable careers. In the following chapters, we will introduce the main constructs and theoretical models of our study as well as the detailed hypotheses that will be tested.

2. Literature review

2.1. Occupational well-being as an indicator of career sustainability and intensified job demands (IJDs)

IJDs, introduced by Kubicek et al. (2015), are thought to have five dimensions: work intensification (WI); intensified job-related planning demands (IJPDs); intensified career-related planning demands (ICPDs); intensified knowledge-related learning demands (IKLDs); and intensified skill-related learning demands (ISLDs). However, because IKLDs and ISLDs overlap both conceptually and empirically, there are previous studies (e.g., Mauno et al., 2020; Huhtala et al., 2021) which have combined them as *intensified learning demands* (ILDs). This study will look at three of the above-mentioned aspects: (a) IJPDs, referring to the need employees increasingly feel to organize their work autonomously, set goals, and monitor the end results. (b) ICPDs, referring to the increasing responsibility they feel to form networks and monitor career prospects. and (c) ILDs, referring to the expectation that employees should constantly revise and renew their job-related knowledge and skills at work. There were two reasons for not including WI in this study: firstly, the three aspects chosen all concern *career* pressures –the focus of this study –whereas WI is about pressures felt more generally with regard to the working day (Kubicek et al., 2015); secondly, these three aspects have overall been less studied than WI (Mauno et al., 2019).

In the present study we investigate occupational well-being (i.e., 'low burnout') as an indicator of sustainable careers which reflects the health dimension of the model (De Vos et al., 2020). Burnout is defined as a psychological syndrome emerging as a response to prolonged, chronic, work-related stressors (Maslach and Jackson, 1981; Maslach et al., 2001). It manifests itself as exhaustion – feeling that emotional and physical resources are being depleted; cynicism – feeling negative and distant toward different aspects of work; and reduced professional efficacy – feeling a lack of achievement, productivity, and competence at the job (Maslach et al., 2001). We refer to reduced professional efficacy in this study as inadequacy (Salmela-Aro et al., 2011; Feldt et al., 2014). The consequences of burnout are widely recognized both on the individual level –as psychological and physical health problems, and organizational level –e.g., employee absenteeism (Salvagioni et al., 2017). In fact, burnout can be described as 'an enduring psychological condition of ill-being signaling that employees are no longer able and no longer willing to

invest effort in their work' (Bakker and De Vries, 2021, p. 3). In addition to the humanitarian cost for organizations and society, there is also an economic one (Maslach and Leiter, 2017), so burnout prevention is a crucial issue for every employer.

The Job Demands-Resources model (JD-R) categorizes work conditions into job demands and job resources (Demerouti et al., 2001). Although the name would indicate that the model refers exclusively to job resources (e.g., autonomy), in more recent studies personal resources (e.g., self-efficacy) have been included as well (Bakker and Demerouti, 2017). Both these kinds of resources can act as a buffer and become particularly important when job demands intensify (Bakker and Demerouti, 2017). To some extent, it is advisable to encourage learning at work, along with the improvement of competencies, and greater self-directivity (e.g., Van der Heijden and Spurk, 2019), but the resulting IJDs might also compromise occupational well-being. IJDs have, for instance, been found to associate with higher cognitive stress symptoms (Rantanen et al., 2021) which may eventually lead to burnout (Maslach et al., 2001), and one cross-sectional study among Finnish employees found that IJPDs, ICPDs, and ILDs all relate to higher overall burnout (Mauno et al., 2019). Meanwhile, another cross-sectional study on Finnish health care staff also found that IJPDs, ICPDs, and ILDs positively associated with higher exhaustion, but not with higher cynicism (Huhtala et al., 2021).

Since job demands can be seen as either hindrances or challenges (Cavanaugh et al., 2000; Mauno et al., 2022), some professionals might feel motivated by the challenge to increasingly self-direct their work, while others might be distressed by the hindrance. However, meta-analyzes (Crawford et al., 2010; Mazzola and Disselhorst, 2019) show that higher demands –regardless of their type –are generally linked to adverse health outcomes (including burnout). Overall, there is strong evidence on job demands triggering a health-impairment process (Bakker and Demerouti, 2017). IJDs are thus likely to lead to burnout and reduce occupational well-being, whether or not there are personal resources to mitigate this relationship. Previous studies thus brought us to our first hypothesis:

> *H1:* High IJPDs (H1a), ICPDs (H1b), and ILDs (H1c) among highly educated professionals relate to higher burnout (exhaustion, cynicism, and inadequacy) 2 years later.

2.2. Motivation to lead (MTL) as a personal resource

Bakker and De Vries (2021) have most recently introduced self-regulation perspectives to the JD-R model, pointing out that different personal resources are key to how employees can prevent and reduce burnout (from high job demands and low resources) by influencing their own job characteristics through self-regulation strategies. Since differences between individuals affect how environments are interpreted, the fit between employees and their working environment should be more widely recognized when preventing burnout. From the career-development perspective of this study, this is particularly pertinent because the focus is on person-career fit, and a good person-career fit is more likely when career decisions are made according to one's own personal values

(De Vos et al., 2020). If the work captures the intrinsic value of contributing to a broader purpose as well as self-actualization, it is likely to be perceived as more meaningful and contribute to one's well-being (Martela and Pessi, 2018). This intrinsic motivation can thus work as a personal resource and build up resilience to job demands.

AI-MTL is one way to conceptualize intrinsic motivation. It is part of a three-dimensional model of MTL (Chan and Drasgow, 2001), referring to leading out of joy. The other two dimensions refer to leading based on duty or responsibility (social-normative motivation) and leading without calculating the costs and benefits regarding the leadership position (non-calculative motivation) (Chan and Drasgow, 2001). Although the weight is on intrinsic motivation and a natural, personality-related inclination to lead, Chan and Drasgow (2001) do not assume AI-MTL to be an inborn quality; they suggest it can also be learned and reinforced by supporting self-efficacy *via* feedback in leadership training (Chan and Drasgow, 2001; Badura et al., 2020). In the present study, we examine AI-MTL as a personal resource for coping with IJDs and as a buffer against burnout. Hitherto, the only study concerning the relationship between MTL and occupational well-being is a cross-sectional study conducted among leaders ($n = 1,003$) by Auvinen et al. (2020). Occupational well-being (i.e., low burnout and high work engagement) was found to be highest among those leaders who reported high AI-MTL, suggesting that AI-MTL can be seen as a personal resource among leaders and highlighting the importance of person-career fit (Auvinen et al., 2020). In this study, we aim to provide a novel perspective by studying AI-MTL as a resource (or moderator) among highly educated professionals whose status may change from a professional to a formal leader during the study's follow-up.

Compared to other types of MTL, AI-MTL has been linked to higher agentic orientation (Badura et al., 2020; Auvinen et al., 2021) –implying the tendency to be, for example, assertive, confident, ambitious, and independent (Eagly and Karau, 2002). One could suggest that people with these kinds of tendencies are also more daring to be in charge and pursue career-related responsibilities. Those professionals could find it more meaningful to work in environments that require skills and qualities related to leadership (e.g., self-leadership, entrepreneurial behavior within an organization, shared leadership) who have the following qualities in terms of their personality and values: (1) have a genuine interest in leadership and experience an intrinsic desire (or need) to lead. (2) find it comfortable to take the lead in a team, and (3) perceive themselves to be contributing more as a leader than they would as a follower (Chan and Drasgow, 2001). Having a high AI-MTL may promote their person-career fit (De Vos et al., 2020), whereas those professionals who do not find leadership meaningful, might feel more easily overwhelmed about the part of professional work that requires qualities related to leadership. Additionally, proactive personality has been cited as an efficient personal resource, as it allows employees to recognize and regulate the strain they experience (Bakker and De Vries, 2021). Such proactiveness also describes the agentic orientation which, again, has been associated with AI-MTL (Badura et al., 2020). These are examples of how AI-MTL might help to cope with demands that relate to planning, decision-making, and learning, whether or not one is a leader. This led us to our second hypothesis:

H2: AI-MTL moderates the relationship between the three IJDs and burnout: high AI-MTL buffer against the negative effects of IJPDs (H2a), ICPDs (H2b), and ILDs (H2c) on later burnout.

2.3. The importance of affective-identity motivation to lead (AI-MTL) for professional career paths

As formal leadership is typically awarded to highly educated professional for good work, it is possible that they occupy these positions for external motives (Chan and Drasgow, 2001); for instance, they might take the role out of a sense of duty, or for the economic advantages it offers (e.g., Auvinen et al., 2021). If a leadership position is accepted when the motivational resources to lead are low or non-existent, occupational well-being and career sustainability may suffer, due to a poor person-career fit and a sense of meaninglessness (Auvinen et al., 2020; De Vos et al., 2020). We expect AI-MTL to serve as a personal resource for highly educated professionals both with and without formal leadership roles considering the requirements of contemporary careers (as previously discussed). However, there are three reasons we assume that the buffering effect against burnout will be stronger among those who become formal leaders during the follow-up.

One reason is because the focus of AI-MTL has been to identify and develop motivated and high-performing candidates to fill leadership roles (Chan and Drasgow, 2001). This means the concept is probably better at capturing the specific elements of *formal* leadership positions than of those positions where leadership-related qualities also happen to be useful, such as professionals who are their own bosses or share leadership with their peers. Secondly, given our sample contains those who change their status to a leader, there are some special features that need to be considered. Previous studies have noted that employees experience more IJDs when their situation at work changes (Kubicek et al., 2015), so motivational resources would become particularly relevant for those who become leaders. Lastly, on top of the general intensification in demands at work (Kubicek et al., 2015; Mauno et al., 2019), leadership positions in particular are associated with high demands (Skakon et al., 2011; Li et al., 2018). Coping with these demands might be challenging if a leader has weak AI-MTL, as leaders with higher AI-MTL are more likely to believe in their leadership capabilities (i.e., leadership self-efficacy; Chan and Drasgow, 2001; Badura et al., 2020). Experiences of self-efficacy may help them feel in control even if aspects of work are indeed demanding and stressful. Not experiencing leadership self-efficacy could lead to burnout among professionals in formal leadership roles more easily than others, since weaker AI-MTL would be less important for those whose primary task is not leadership. Our third hypothesis is therefore:

H3: The moderating (buffering) effect of AI-MTL in the context of high IJPDs (H3a), ICPDs (H3b), and ILDs (H3c) is stronger among those who occupy a leadership position during the follow-up compared to those who maintain their professional position.

3. Method

3.1. Participants

The original sample of this longitudinal study was drawn from the membership registers of four Finnish trade unions in March–April 2017 (T1): the Finnish Union of University Professors, the Finnish Union of University Researchers and Teachers, the Finnish Business School Graduates, and the Academic Architects and Engineers in Finland (TEK). An electronic survey was sent to all members of the first two trade unions mentioned here (excluding those who have retired), and an electronic survey was sent to a random sample of 3,000 members of the latter two unions. In total, an electronic survey was sent to 9,998 union members of which 2,200 responded (response rate 22%). Two years later, in March–April 2019 (T2), the follow-up survey was sent to those participants who had participated in the baseline measurement and had given us their permission to include them in the follow-up ($n = 1,013$). The total number of these participants who responded in the follow-up was 694 (response rate 69%).

The sample used for the present study comprised those participants who were not already working as leaders at T1 and who also participated in the follow-up survey at T2 ($n = 372$). These participants either maintained their original professional position without leadership duties ($n = 309$, 83%) or had moved on to a leadership position ($n = 63$, 17%) 2 years later. The sample consisted of slightly more women ($n = 220$, 59%) than men ($n = 152$, 41%); the age range of participants was 25–66 years ($M = 44$, $SD = 9.95$); and the hours they worked per week varied between 5 and 75 h ($M = 41.33$, $SD = 7.06$). There were 12 professors (3%), 204 other university academics and researchers (55%), 71 business school graduates (19%), and 85 technical academics (23%) in the sample at T1.

3.2. Measures

Intensified job demands (IJDs) were measured using the Intensification of Job Demands Scale (IJDS; Kubicek et al., 2015) at T1. Participants were asked to assess possible changes they had experienced at work during the last 5 years (or during their whole time in the job, if they had been in the organization less than 5 years). Knowledge-and skill-related demands were combined since their mean scores were highly correlated ($r = 0.82$, $p < 0.001$) –resulting in three subscales: *intensified job-related planning demands (IJPDs)*, which had 5 items, e.g., 'one increasingly has to check independently whether the work goals have been reached' ($M = 3.59$, $SD = 0.96$, $\alpha = 0.86$); *intensified career-related planning demands (ICPDs)*, which had 3 items, e.g., 'one increasingly has to plan one's professional career independently' ($M = 3.76$, $SD = 0.95$, $\alpha = 0.79$); and *intensified learning demands (ILDs)*, which had 6 items, e.g., 'one has to acquire new expertise for the job more often' ($M = 3.65$, $SD = 0.94$, $\alpha = 0.93$). Answers to each item were given on a 5-point Likert scale (where 1 = not at all and 5 = completely). From these, the mean scores were then calculated for the three dimensions with higher scores indicating higher IJDs.

Burnout was measured at T1 and T2, using a nine-item version of the Bergen Burnout Inventory (BBI-9; Salmela-Aro et al., 2011; see also Feldt et al., 2014). BBI-9 measures exhaustion with 3 items, e.g.,

'I often sleep poorly because of the circumstances at work' ($M = 3.07$, $SD = 1.15$, $\alpha = 0.74$); cynicism with 3 items, e.g., 'I feel that I have gradually less to give' ($M = 2.52$, $SD = 1.17$, $\alpha = 0.82$); and inadequacy with 3 items, e.g., 'My expectations to my job and to my performance have reduced' ($M = 2.78$, $SD = 1.25$, $\alpha = 0.75$). Participants responded to each item on a 6-point Likert-type scale (where $1 = $ totally disagree and $6 = $ totally agree). From these, the mean scores were then calculated for the three dimensions of burnout, with higher scores indicating higher burnout.

Affective-identity motivation to lead (AI-MTL) was measured using the Motivation to Lead Questionnaire (Chan and Drasgow, 2001) at T1. The five items for the present study were taken from Bobbio and Rattazzi's (2006) shortened version of the MTL questionnaire, e.g., 'most of the time I prefer being a leader rather than a follower when working in a group' ($M = 3.09$, $SD = 0.75$, $\alpha = 0.81$). Participants responded to each item on a 5-point Likert scale (where $1 = $ totally disagree and $5 = $ totally agree). From these the mean score was calculated (two items reversed), with higher scores indicating higher AI-MTL.

Leadership status was measured using a dichotomous variable. If participants maintained their professional position without leadership duties during the follow-up it was coded as 0, and 1 if they occupied a leadership position.

Control variables included gender (female $= 0$, male $= 1$), age (years), length of working week (in hours), and occupational background (no $= 0$, yes $= 1$, for professors, other university academics and researchers, business school graduates, technical academics). The baseline of the dependent variable was taken into account by controlling for measures of burnout at T1. In spite of inconsistent evidence, gender and age were included because some studies (e.g., Rollero et al., 2016; Zacher and Schmitt, 2016) suggest that these variables be associated with occupational well-being. Working hours were similarly included since adverse health consequences suggested to follow overly long weekly working hours (e.g., Geurts et al., 2014; Kivimäki et al., 2015). Descriptive information about the study variables is summarized in Table 1.

3.3. Statistical analyses

IBM's SPSS Statistics 27 software was used in all the statistical analyzes. First the intercorrelations among the main and background variables were explored using either Spearman's or Pearson's correlations (depending on the scale of the variable), and the statistically significant background variables were then set as covariates. We then used hierarchical linear modeling (see Baron and Kenny, 1986; Dawson, 2014) to investigate the longitudinal associations between IJDs and later burnout. Two-way interaction terms (dimension of IJDs at $T1 \times$ AI-MTL at T1) were formed to study the moderating role of AI-MTL. Three-way interaction terms (dimension of IJDs at $T1 \times$ AI-MTL at $T1 \times$ leadership status at T2) were formed to study whether the effects differ between those who had become leaders and those who had not. A significant three-way interaction would indicate that the moderating effect of AI-MTL is dependent on one's leadership status in the follow-up.

All variables –except for the dependent variable –were standardized before entering them in the model and each categorical variable was given a code (0, 1) for consistency (Dawson, 2014). Seven

steps were then taken to see the extent to which the IJPD, ICPD, and ILD dimensions of IJDs at T1 could each relate to burnout in terms of exhaustion, cynicism, and inadequacy at T2. First (i) the baseline of the dependent variable was entered (burnout at T1); then (ii) possible control variables; then (iii) the particular independent variable (dimension of IJDs at T1); then (iv) the first moderator variable (AI-MTL at T1); then (v) the second moderator variable (leadership status at T2). Finally, the interaction terms were entered: (vi) two-way (dimension of IJDs at T1 x AI-MTL at T1, dimension of IJDs at T1 x leadership status at T2, AI-MTL at $T1 \times$ leadership status at T2); and (vii) three-way (dimension of IJDs at $T1 \times$ AI-MTL at $T1 \times$ leadership status at T2). Altogether, nine regression analyzes were conducted (results reported in Tables 2–4).

All significant two-way interactions then underwent a simple slope analysis to test their significance under high, median, and low (-1 SD, Mean, $+1$ SD) scores of the moderator variable (Dawson, 2014). In three-way interactions that were significant, a simple slope analysis was performed to test their significance under low (-1 SD) and high ($+1$ SD) scores of moderator variable (AI-MTL) and two options of leadership status (dichotomous moderator variable: maintaining professional position without leadership duties during follow-up / occupying a leadership position during follow-up). The results of simple slope analyzes are seen in Figures 1–4.

4. Results

4.1. Descriptive results

Based on correlational analysis (Table 1), the burnout dimensions showed significant correlations over time (test–retest $r = 0.48$–0.64) indicating that burnout remained relatively stable over 2 years. While all three IJD dimensions measured at the study baseline had significant positive correlations with exhaustion 2 years later, only IJPDs and ICPDs had such a correlation with inadequacy 2 years later. Meanwhile, there was significant negative correlation between AI-MTL at the study baseline and cynicism (a higher AI-MTL indicated lower cynicism 2 years later); and significant positive correlations between AI-MTL and ICPDs on the one hand, and length of working week on the other (both at study baselines). The background variables only correlated with exhaustion 2 years later; the number of working hours per week correlated positively, as did being a woman (gender) and being a professor or other university academic/ researcher (occupation), while business school graduates and technical academics were more likely to report lower levels of exhaustion 2 years later.

4.2. Intensified job-related planning demands (IJPDs) and burnout

As shown in Table 2, IJPDs were not related to any of the burnout dimensions so *H1a* was not supported. For the two-way interactions, AI-MTL did moderate the association between IJPDs and two of the dimensions of burnout – cynicism and inadequacy – but not exhaustion. However, the significant moderator effects were not consistent with *H2a* as shown graphically in Figures 1, 2. *H3a* was not supported either as AI-MTL functioned similarly regardless of

TABLE 1 Correlations for the study variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. IJPDs[a] T1	–												
2. ICPDs[a] T1	0.57***	–											
3. ILDs[a] T1	0.46***	0.30***	–										
4. Exhaustion[a] T1	0.22***	0.22***	0.25***	–									
5. Cynicism[a] T1	0.05	0.16**	−0.03	0.36***	–								
6. Inadequacy[a] T1	0.11*	0.21***	−0.09	0.37***	0.77***	–							
7. Exhaustion[a] T2	0.17***	0.20***	0.22***	0.64***	0.15**	0.20***	–						
8. Cynicism[a] T2	0.08	0.09	0.05	0.28***	0.48***	0.41***	0.39***	–					
9. Inadequacy[a] T2	0.12*	0.17**	0.06	0.28***	0.41***	0.51***	0.32***	0.75***	–				
10. AI-MTL[a] T1	0.09	0.24***	−0.08	0.06	−0.02	0.03	0.00	−0.13*	−0.02	–			
11. Age[a]	0.05	−0.07	0.15**	0.09	0.02	0.06	0.08	0.03	0.02	−0.05	–		
12. Length of working week[a]	0.08	0.06	−0.02	0.30***	−0.05	−0.01	0.25***	0.04	0.03	0.13*	0.08	–	
13. Gender[b,1]	−0.04	−0.09	−0.08	−0.17**	0.01	0.05	−0.17**	0.01	−0.03	−0.09	−0.06	−0.06	–
14. Professors[b,2]	0.03	−0.07	0.03	0.13*	0.06	0.05	0.07	0.02	0.02	−0.00	0.16**	0.22***	0.03
15. Other university academics and researchers[b,2]	0.04	0.13*	0.02	0.21***	−0.04	0.03	0.21***	0.07	0.06	−0.04	0.10	0.17**	−0.14**
16. Business school graduates[b,2]	0.06	0.03	0.05	−0.11*	0.03	−0.02	−0.11*	−0.08	−0.01	0.07	−0.19***	−0.10*	−0.08
17. Technical academics[b,2]	−0.11*	−0.15**	−0.09	−0.19***	−0.01	−0.04	−0.18***	−0.02	−0.06	−0.02	−0.01	−0.20***	0.23***

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Significance tests are two-tailed.

[a]Pearson, [b]Spearman.

IJPDs, Intensified job-related planning demands; ICPDs, Intensified career-related planning demands; ILDs, Intensified learning demands; AI-MTL, Affective-identity motivation to lead.

[1]Gender (female = 0, male = 1).

[2]Occupational background (no = 0, yes = 1, for professors, other university academics and researchers, business school graduates, and technical academics).

leadership status 2 years later (i.e., three-way interaction effects on burnout dimensions were not significant).

According to a simple slope analysis (see Figure 1), there was a significant positive association between IJPDs and cynicism ($B = 0.206$, $p = 0.008$) under the condition of high AI-MTL. The same association was only slightly positive under the condition of median AI-MTL ($B = 0.067$) and slightly negative ($B = −0.072$) under the condition of low AI-MTL, however these last two associations were not significant ($p = 0.222$ and $p = 0.353$, respectively). In other words, having high AI-MTL strengthens the association between IJPDs and cynicism, regardless of leadership status at T2. Overall, when IJPDs were low, high level of AI-MTL associated with lower levels of cynicism compared to when the level of AI-MTL was low, but when IJPDs were high, there was no difference.

Because AI-MTL was found to have a similar moderation effect on feelings of inadequacy at T2, it also underwent a simple slope analysis (see Figure 2) which showed that there was a significant positive relationship between IJPDs and inadequacy under the condition of high AI-MTL ($B = 0.259$, $p < 0.001$). As with cynicism, no significant associations were found between IJPDs and inadequacy

under conditions of either median or low AI-MTL ($B = 0.089$, $B = −0.081$, and $p = 0.105$, $p = 0.296$, respectively). In other words, having high AI-MTL strengthens the association between IJPDs and inadequacy, regardless of leadership status at T2. Overall, when IJPDs were low, high AI-MTL was associated with lower levels of inadequacy. In turn, when IJPDs were high, high AI-MTL was linked with higher levels of inadequacy.

4.3. Intensified career-related planning demands (ICPDs) and burnout

As seen in Table 3, ICPDs were not related to any of the burnout dimensions so *H1b* was not supported; and neither was *H2b* because, even if AI-MTL moderated the relationship of ICPDs with inadequacy (though not exhaustion and cynicism), this relationship was positive – i.e., not negative as we had hypothesized. Simple slope analysis (see Figure 3) confirmed a significant positive relationship between ICPDs and inadequacy under the condition of high AI-MTL and – to a lesser extent – under the condition of median AI-MTL ($B = 0.275$, $B = 0.122$ and $p < 0.001$, $p = 0.027$, respectively). Although

TABLE 2 The longitudinal associations between intensified job-related planning demands (IJPDs) and burnout (exhaustion, cynicism, and inadequacy) moderated by affective-identity motivation to lead (AI-MTL) and leadership status.

	Exhaustion T2[a]			Cynicism T2[b]			Inadequacy T2[b]		
	B	$R^{2\,adj}$	ΔR^2	B	$R^{2\,adj}$	ΔR^2	B	$R^{2\,adj}$	ΔR^2
Baseline of dependent variable		0.411	0.413***		0.224	0.227***		0.253	0.255***
Burnout dimension T1	0.683 ***			0.559***			0.633***		
Control variables		0.416	0.013		–	–		–	–
Gender	−0.161			–			–		
Length of working week	0.039			–			–		
Professors[1]	−0.032			–			–		
Other university academics and researchers[1]	0.163			–			–		
Business school graduates[1]	0.014			–			–		
Independent variable		0.416	0.001		0.225	0.003		0.257	0.006
IJPDs T1	0.049			0.067			0.110		
1. Moderator variable		0.417	0.003		0.238	0.014**		0.256	0.001
AI-MTL T1	−0.053			−0.149*			−0.047		
2. Moderator variable		0.423	0.008*		0.236	0.001		0.260	0.006
Leadership status T2	0.389**			−0.134			−0.318		
Two-way interaction terms		0.427	0.009		0.247	0.017*		0.278	0.023**
AI-MTL×IJPDs	0.060			0.134**			0.170**		
IJPDs×Leadership status	−0.137			0.025			−0.060		
AI-MTL×Leadership status	−0.245			0.099			0.153		
Three-way interaction term		0.425	0.000		0.247	0.002		0.280	0.005
AI-MTL×IJPDs×Leadership status	0.040			−0.150			−0.254		

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Leadership status at T2 (has maintained a professional position without leadership duties = 0, has occupied a leadership position during follow-up = 1).
[1]Occupational background (no = 0, yes = 1, for professors, other university academics and researchers, business school graduates, and technical academics). Unstandardized B is reported here because the predictor and moderator variables were centered before conducting the analyzes. In case of [a]non-significant interactions, Unstandardized B is reported from the final step of the model. In case of [b]significant two-way interactions, Unstandardized B is reported from the second final step, however, for a three-way interaction, Unstandardized B is reported from the final step.

the moderated association was slightly negative under the condition of low AI-MTL, it was not significant ($B = −0.031$, $p = 0.689$). The results indicate that the higher the AI-MTL is, the stronger the association between ICPDs and inadequacy, regardless of leadership status at T2. Overall, under conditions of low ICPDs, high AI-MTL was associated with lower levels of inadequacy. In turn, when ICPDs were high, high AI-MTL was associated with higher levels of inadequacy.

Although significant three-way interaction (AI-MTL x ICPDs x leadership status) was found for exhaustion indicating differences regarding leadership status (see Table 3), AI-MTL appeared to have no buffering effect, so H3b was also rejected. According to simple slope analysis (see Figure 4), the relationship between ICPDs and exhaustion was significantly positive ($B = 0.524$, $p = 009$) under the condition of high AI-MTL and leadership position. In other words, high AI-MTL strengthens the connection of ICPDs to later exhaustion in those subjects who had occupied a leadership position during the follow-up period. In turn, the relationship between ICPDs and exhaustion was negative under the condition of low AI-MTL and occupied leadership position, but the coefficient was non-significant

($B = −0.464$, $p = 0.081$). No significant associations were found between ICPDs and exhaustion under conditions of high or low AI-MTL and professional position without leadership status (high AI-MTL: $B = 0.050$, $p = 0.489$, and low MTL: $B = 0.082$, $p = 0.237$). In other words, having high (or low) AI-MTL has no role in the relationship between IJPDs and later exhaustion among those subjects who maintained their professional position without leadership duties during follow-up.

4.4. Intensified learning demands (ILDs) and burnout

The results of regression analyzes (Table 4) showed that the only dimension of IJDs to associate with burnout in the follow-up was ILDs. Greater ILDs associated with feelings of greater inadequacy 2 years later, but because no associations with exhaustion or cynicism were found, *H1c* could only be partially supported. Further, neither *H2c* nor *H3c* could be supported as AI-MTL did not moderate the relationship between ILDs and any dimension of burnout.

TABLE 3 The longitudinal associations between intensified career-related planning demands (ICPDs) and burnout (exhaustion, cynicism, and inadequacy) moderated by affective-identity motivation to lead (AI-MTL) and leadership status.

	Exhaustion T2[c]			Cynicism T2[a]			Inadequacy T2[b]		
	B	$R^{2\ adj.}$	ΔR^2	B	$R^{2\ adj}$	ΔR^2	B	$R^{2\ adj.}$	ΔR^2
Baseline of dependent variable		0.411	0.413***		0.224	0.227***		0.253	0.255***
Burnout dimension T1	0.671***			0.532***			0.592***		
Control variables		0.416	0.013		–	–		–	–
Gender	−0.157			–			–		
Length of working week	0.054			–			–		
Professors[1]	0.065			–			–		
Other university academics and researchers[1]	0.139			–			–		
Business school graduates[1]	−0.010			–			–		
Independent variable		0.418	0.003		0.223	0.001		0.257	0.006
ICPDs T1	0.066			0.049			0.107		
1. Moderator variable		0.421	0.004		0.236	0.016**		0.257	0.002
AI–MTL T1	−0.061			−0.165**			−0.073		
2. Moderator variable		0.426	0.007*		0.235	0.001		0.262	0.006
Leadership status T2	0.367**			−0.132			−0.340*		
Two-way interaction terms		0.427	0.005		0.241	0.012		0.275	0.020*
AI-MTL×ICPDs	−0.016			0.085			0.144*		
ICPDs×Leadership status	−0.036			0.107			0.160		
AI-MTL×Leadership status	−0.662 **			−0.171			0.029		
Three-way interaction term		0.435	0.010*		0.241	0.002		0.276	0.002
AI-MTL×ICPDs×Leadership status	0.510*			0.247			0.267		

*p < 0.05, **p < 0.01, ***p < 0.001. Leadership status at T2 (has maintained a professional position without leadership duties = 0, has occupied a leadership position during follow-up = 1).
[1]Occupational background (no = 0, yes = 1, for professors, other university academics and researchers, business school graduates, technical academics). Unstandardized B is reported here because the predictor and moderator variables were centered before conducting the analyzes. In case of [a]non-significant interactions, Unstandardized B is reported from the final step of the model. In case of [b]significant two-way interactions, Unstandardized B is reported from the second final step, however, for a three-way interaction, Unstandardized B is reported from the final step. In case of [c]significant three-way interactions, Unstandardized B is reported from the final step of the model.

5. Discussion

The main objective of this longitudinal study was to increase our understanding of ways to support sustainable careers among highly educated professionals who, in the face of intensifying work demands, either occupy or do not take on a leadership position. We approached it by looking at whether IJDs are related to burnout 2 years later, and whether AI-MTL moderates this relationship and thereby functions as a personal resource, buffering against the negative effects of IJDs. In addition, we investigated whether this moderating effect might be stronger among those who occupied a leadership position during the follow-up than those who did not.

5.1. How intensified learning demands (ILDs) correspond with inadequacy 2 years later

ILDs were the only dimension of the three IJDs to associate with subsequent burnout in the follow-up. More closely, greater ILDs were related to stronger feelings of inadequacy 2 years later, but not feelings of greater exhaustion or cynicism. The association with inadequacy could have occurred because ILDs are about increased

requirements to update one's expertise or adopt new work processes (Kubicek et al., 2015) while inadequacy covers feelings of lack of achievement and competence on the job (Maslach et al., 2001). Thus, the pressure to meet ILDs may risk one's self-esteem related to feelings of competence whereas exhaustion and cynicism would not be that easily evoked by ILDs. ILDs may not necessarily lead to exhaustion if the job is only moderately straining in other aspects. Learning new skills and knowledge may be motivating as well (challenge demands; LePine et al., 2005), which again may act as a counterforce for cynicism.

Interestingly, neither IJPDs nor ICPDs were found to be associated with any of the burnout dimensions. This finding is not in line with previous studies, which have shown that job demands are generally likely to trigger health-impairment processes (Bakker and Demerouti, 2017; Mazzola and Disselhorst, 2019), and that all IJDs relate to higher total burnout (Mauno et al., 2019). One reason for our finding could be that we studied highly educated professionals (e.g., academics), for whom the freedom to independently plan their jobs and careers might well have been an important factor in gravitating toward their field in the beginning. As such, they would have been more predisposed toward dealing with intensified job demands – as sources of both empowerment and strain – thus not so clearly detrimental to well-being.

TABLE 4 The longitudinal associations between intensified learning demands (ILDs) and burnout (exhaustion, cynicism, and inadequacy) moderated by affective-identity motivation to lead (AI-MTL) and leadership status.

	Exhaustion T2[a]			Cynicism T2[a]			Inadequacy T2[a]		
	B	$R^{2\,adj.}$	ΔR^2	B	$R^{2\,adj.}$	ΔR^2	B	$R^{2\,adj.}$	ΔR^2
Baseline of dependent variable		0.411	0.413***		0.224	0.227***		0.253	0.255***
Burnout dimension T1	0.658***			0.554***			0.652***		
Control variables		0.416	0.013		–	–		–	–
Gender	−0.176			–			–		
Length of working week	0.050			–			–		
Professors[1]	−0.045			–			-		
Other university academics and researchers[1]	0.138			–			–		
Business school graduates[1]	−0.004			–			–		
Independent variable		0.421	0.006		0.227	0.005		0.262	0.011*
ILDs T1	0.072			0.070			0.150*		
1. Moderator variable		0.421	0.002		0.237	0.012*		0.261	0.000
AI-MTL T1	−0.035			−0.142*			−0.030		
2. Moderator variable		0.427	0.007*		0.236	0.001		0.265	0.006
Leadership status T2	0.342*			−0.161			−0.349*		
Two-way interaction terms		0.431	0.009		0.231	0.002		0.267	0.008
AI-MTL×ILDs	−0.065			0.012			0.105		
ILDs×Leadership status	0.167			0.160			−0.010		
AI-MTL×Leadership status	−0.208			0.267			0.300		
Three-way interaction term		0.430	0.000		0.235	0.007		0.271	0.007
AI-MTL×ILDs×Leadership status	−0.052			−0.334			−0.362		

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Leadership status at T2 (has maintained a professional position without leadership duties = 0, has occupied a leadership position during follow-up = 1).
[1]Occupational background (no = 0, yes = 1, for professors, other university academics and researchers, business school graduates, and technical academics). Unstandardized B is reported here because the predictor and moderator variables were centered before conducting the analyzes. In case of [a]non-significant interactions, Unstandardized B is reported from the final step of the model.

Another reason for our findings could be previous studies (Bakker and Demerouti, 2017; Mazzola and Disselhorst, 2019) investigating rather different types of job demands. Not only this, but whereas Mauno et al. (2019) measured burnout in total, our study went into more detail, differentiating between three dimensions of burnout. Interestingly, our finding that IJDs did not associate with cynicism tallied with Huhtala et al. (2021) but whereas they found IJDs to associate with exhaustion, we did not. The reason for this could be the difference in work context (i.e., healthcare; Huhtala et al., 2021), where intensified demands would be heightened. However, we must bear in mind that the overall amount of previous research on IJDs remains scarce (Mauno et al., 2019), so our understanding of the consequences of different IJDs are far from complete.

5.2. Affective-identity motivation to lead (AI-MTL) may strengthen the negative effects of intensified demands on burnout

Contrary to our expectations, AI-MTL strengthened the negative burnout effects of IJDs rather than acting as a buffer. Even though the buffer role was not found, it is worth noticing that when

IJPDs and ICPDs are low, burnout seems to be lower among participants with high AI-MTL. Among our sample in which 83% of participants maintained their professional positions without taking on formal leadership duties, this finding gives a reason to wonder if AI-MTL could be beneficial also in roles without a formal leader status. On the other hand, our results might also reflect person-career misfit: When IJDs are high, and particularly when they are related to job and career planning, a professional with high AI-MTL might realize that their present position does not really fit with their character, values and goals (i.e., identity). This again might lead to a sense of meaninglessness and trigger symptoms of burnout.

AI-MTL strengthened the association between IJPDs and feelings of cynicism and inadequacy, regardless of leadership status. Thus, it can be concluded that when investigated professionals felt they were increasingly required to organize their daily work independently (Kubicek et al., 2015), high AI-MTL made them more vulnerable to feeling cynical and/or inadequate. Among professionals who do not have formal leadership duties, yet who have high AI-MTL, this cynicism (i.e., negative attitude toward work; Maslach et al., 2001) may come from feelings of 'having less to offer' (Salmela-Aro et al., 2011) as AI-MTL is based on the idea that one contributes more as a
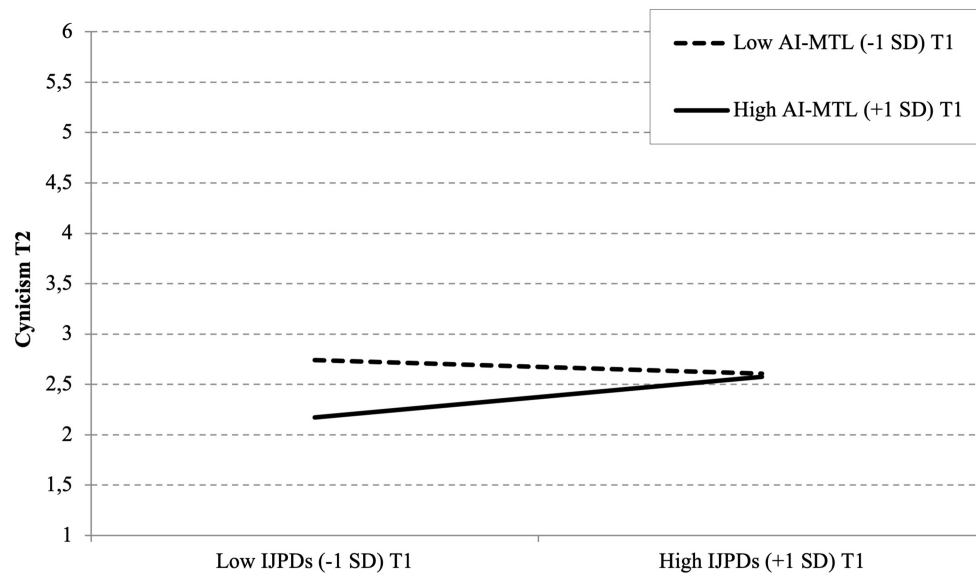
FIGURE 1
Two-way interaction effect between affective-identity motivation to lead (AI-MTL) at T1 and intensified job-related planning demands (IJPDs) at T1 on cynicism at T2 (*B* coefficients are reported in the text).
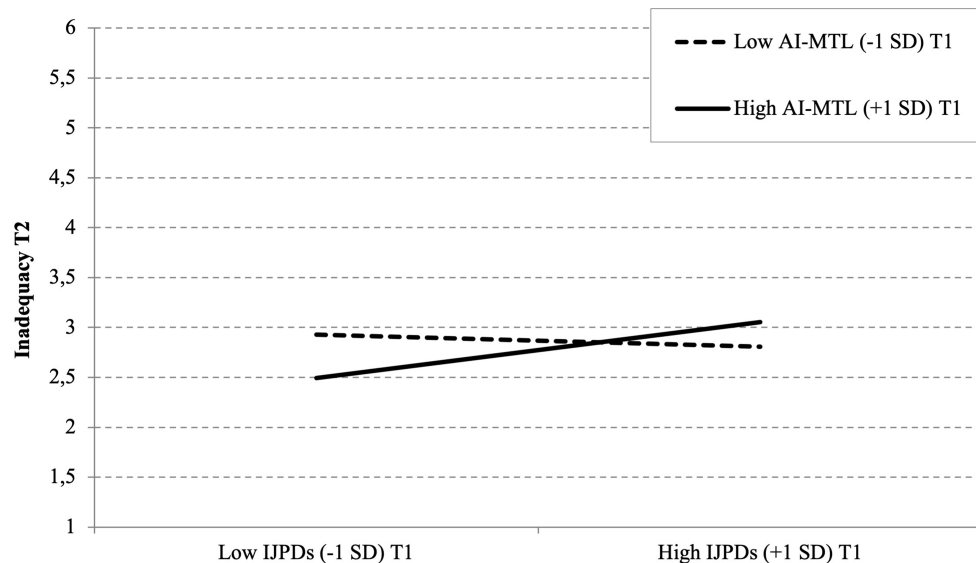

FIGURE 2
Two-way interaction effect between affective-identity motivation to lead (AI-MTL) at T1 and intensified job-related planning demands (IJPDs) at T1 on inadequacy at T2 (*B* coefficients are reported in the text).

leader than as a follower (Chan and Drasgow, 2001). Equally, inadequacy may be the result of feeling less competent (Maslach et al., 2001). High AI-MTL may thus actually endanger well-being and sustainable careers when job-related planning and decision-making demands intensify.

AI-MTL was found to have a similar strengthening effect on the association between ICPDs and feelings of inadequacy. Even moderate levels of AI-MTL were found to have this effect, but to a lesser extent than among those reporting high AI-MTL. Again,

among professionals, this could result from realizing that they are not in a position where they could utilize their AI-MTL, which again may lead to frequently questioning the value of one's work (Salmela-Aro et al., 2011) –especially in an environment where employees are increasingly responsible for creating networks and for ensuring their own personal career development (Kubicek et al., 2015). High job demands could also highlight the consequences of decisions made earlier in a career, thereby endangering feelings of well-being.
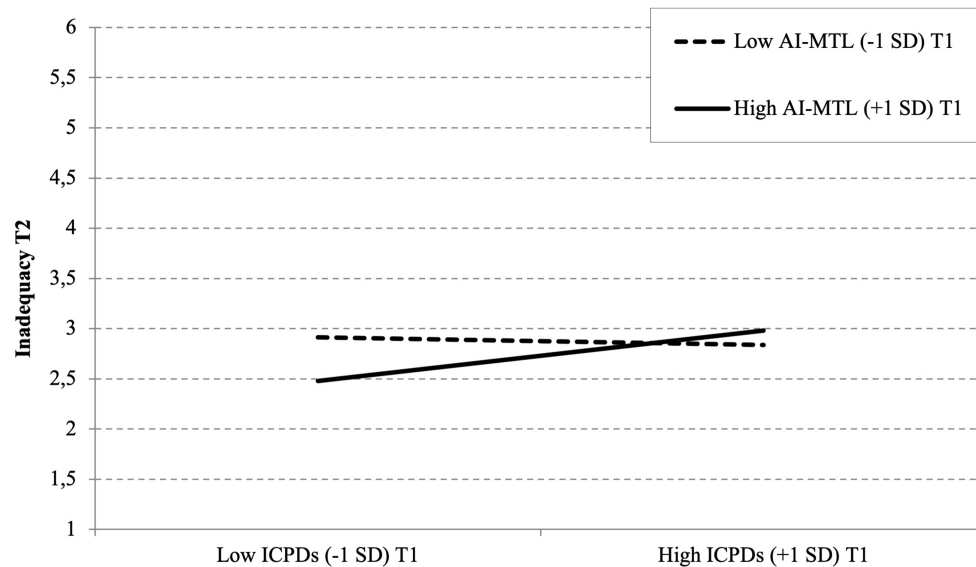
FIGURE 3
Two-way interaction effect between affective-identity motivation to lead (AI-MTL) at T1 and intensified career-related planning demands (ICPDs) at T1 on inadequacy at T2 (*B* coefficients are reported in the text).
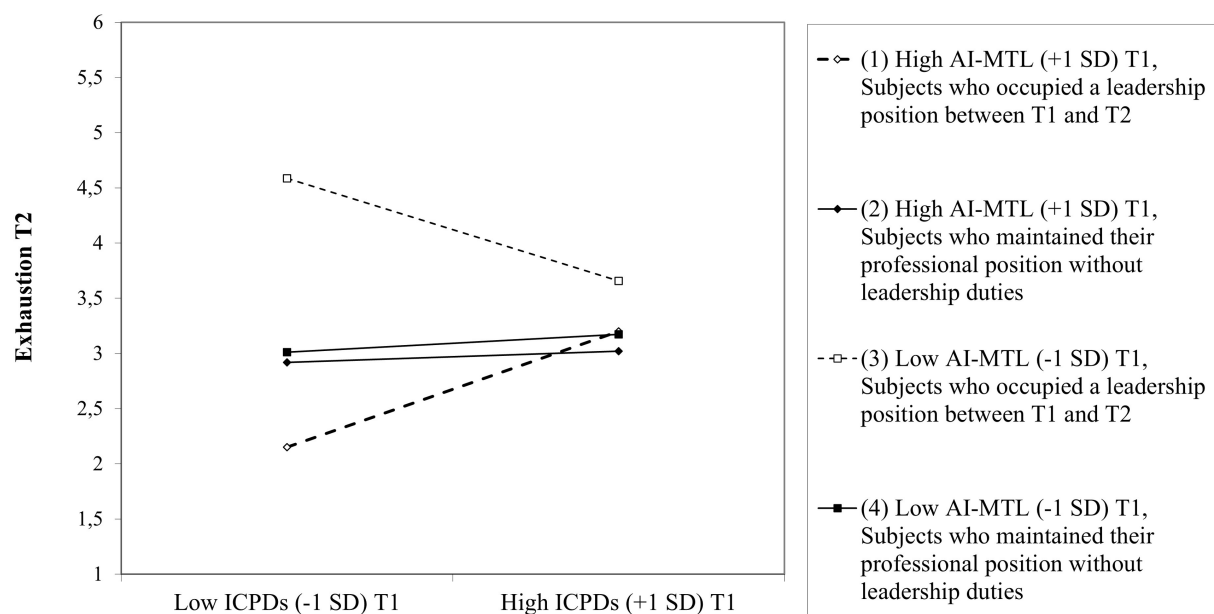

FIGURE 4
Three-way interaction effect between affective-identity motivation to lead (AI-MTL) at T1, intensified career-related planning demands (ICPDs) at T1 and leadership status on exhaustion at T2 (*B* coefficients are reported in the text).

One could reasonably wonder from the above results if AI-MTL might function as a useful personal resource for highly educated professionals – without formal leadership duties – in situations where job demands are not highly intensified. However, if these demands intensify, the role of work meaningfulness and value-based actions (i.e., person-career fit) could be emphasized; coping with intensified demands might be harder if the work itself does not allow contributing others and expressing the true identity of oneself (Martela and Pessi, 2018).

5.3. Differences in affective-identity motivation to Lead (AI-MTL) according to leadership status

We found some differences according to leadership status: high AI-MTL strengthened the association between ICPDs and exhaustion only among those subjects who had become leaders during follow-up - the association with exhaustion was not observed among non-leaders with high AI-MTL. This finding could be explained, for example, by

agentic orientation which is thought to be stronger among people reporting higher AI-MTL (Badura et al., 2020). Agentic orientation is related to proactivity which has been suggested to help in regulating strain (Bakker and De Vries, 2021), however, in addition to proactivity, it is linked with an emphasis on achieving (Eagly and Karau, 2002). Hence, leaders with high AI-MTL could be threatening their occupational well-being by being highly self-demanding as they may put more emphasis on achieving higher career-related demands compared to leaders with low AI-MTL.

Another such difference was that leaders with high AI-MTL reported less exhaustion at the end of the follow-up compared to leaders with low AI-MTL – regardless of the level of ICPDs at the study baseline; among the whole sample, of which the majority did not take on a leadership position by T2, participants with high AI-MTL reported better occupational well-being only if ICPDs were low. Although AI-MTL marginally strengthened the association between intensified career-related demands and exhaustion, it still seems that AI-MTL (i.e., intrinsic motivation toward leadership) functions, to some extent, as a personal resource for leaders to fight exhaustion. This supports previous findings about AI-MTL as a resource for leaders (Auvinen et al., 2020, 2021). Leaders with high AI-MTL are more likely to experience leadership self-efficacy (Chan and Drasgow, 2001; Badura et al., 2020) which may enhance the experience of controlling the overall picture. Thus, it may help in coping with the more stressful aspects of work – and in dealing with particularly high demands associated with leadership positions (Skakon et al., 2011; Li et al., 2018).

5.4. Theoretical contributions and practical implications

This study contributes to existing literature on sustainable careers and MTL. To the best of our knowledge, it is the first longitudinal study on how AI-MTL affects the relationship between intensified job demands and burnout among highly educated professionals, some of whom occupied a leadership position during the follow-up. The resource perspective of AI-MTL has been previously studied cross-sectionally and only among leaders (Auvinen et al., 2020), whereas our study is longitudinal and 83% of our sample were not in formal positions of leadership. Moreover, IJPDs, ICPDs, and ILDs are central from the career perspective and have, thus far, been of only minor research interest – particularly among longitudinal studies. Overall, we broadened the concept of person-career fit by exploring whether MTL would also be beneficial for those outside formal leadership roles (i.e., among highly educated professionals).

Our findings provide valuable insights for human resource management. In an era of accelerating digitalization (Rosa, 2003, 2013), the association between ILDs and feelings of inadequacy within an organization need to be recognized: for example, when developing and implementing new technologies and when motivating employees to adopt new knowledge and skills. In other words, if learning demands are high, the support offered should be high as well. Moreover, in order to promote sustainable careers in the midst of these intensified demands, it might be beneficial to consider the level of AI-MTL –in addition to other factors –when recruiting new professionals. Regardless of their current leadership status, it might

be beneficial to discuss with them about matters that relate to their AI-MTL –what kind of positive effects it might have for one's occupational well-being but also what kind of risks it might be linked with in that specific position. The discussion could aim to utilize one's motivational resources without sacrificing one's well-being when the demands increase.

5.5. Limitations and further research

Our study nevertheless has some limitations that must be taken into consideration. To begin with, the variables we studied were measured using self-reports. In future studies on this topic, questionnaires could be complemented by other data collection methods such as interviews or a health tracking system for assessing burnout-related symptoms. Studying changes over a longer period of time would also have allowed us to uncover more detailed results on leaders as they would have occupied their leadership positions for a longer time. New challenges followed by a position change might intensify the overall job demands experienced and the effect of this change on exhaustion may thus well be temporary. Additionally, the concept of AI-MTL was originally utilized to detect the suitable candidates to fill the formal leadership roles (Chan and Drasgow, 2001) and therefore it may not tap onto, for example, the self-leadership and shared leadership features of professional work properly. However, considering also the possibility to occupy leader roles that many professionals face, it was reasonable to study a motivational construct related to more formal leader roles.

The generalizability of this study is also limited as the results are, to a certain extent, sample-specific: we studied a group of highly educated Finnish professionals; and, although the size of the sample was satisfactory ($n = 372$), the number of participants in leadership positions was relatively small ($n = 63$). Therefore, this study should be replicated applying larger groups and more evenly matched group sizes.

Although the importance of AI-MTL is highlighted by most studies (Badura et al., 2020), we would have gathered more detailed and contrastive information if all the dimensions of leader motivation had been studied simultaneously. MTL dimensions have been found in different combinations (i.e., profiles) among leaders (Auvinen et al., 2020) and so the buffering role of AI-MTL might be better understood by considering different combinations of MTL dimensions as moderators. Finally, to broaden the literature of AI-MTL as a potential resource for all professionals, regardless of their leadership status, career sustainability should be investigated by other indicators than just burnout.

6. Conclusion

This study has contributed to the literature on the motivation to lead, building on the previous research of AI-MTL in the context of sustainable careers and resources (Auvinen et al., 2020, 2021). We found that intensified learning demands at work may be associated with feelings of inadequacy 2 years later. Although the results regarding AI-MTL as a buffer did not turn out as hypothesized, this study broadened the perspective of person-career fit by

investigating AI-MTL as a personal resource for all professionals, regardless of their leadership status. It seems that for leaders, AI-MTL could function as a resource for tackling exhaustion specifically –no matter the intensity of job demands. For professionals without formal leadership duties, it could help tackle cynicism and inadequacy when job demands are not highly intensified. However, we cannot ignore that AI-MTL in professionals may also lead to increased vulnerability by capturing elements that, in excess, strengthen the association between intensified job demands and burnout. Perhaps there is an optimal level of AI-MTL that would help to ensure occupational well-being and sustainable careers. Occupational well-being is yet not only a responsibility of an individual but also structural and societal actions are needed. This study is a part of this conversation, highlighting the aspects that could help build meaningfulness in professional and managerial work, that serves as an important resource for lasting, enduring careers.

Data availability statement

The datasets presented in this article are not readily available because anonymized data is not transferred outside the EU/EEA area. Requests to access the datasets should be directed to, taru.feldt@jyu.fi.

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

KL and AT shared the first authorship, contributed equally to this work, performed the statistical analysis, and drafted the manuscript. EA, MH, and TF provided comments to the manuscript and were involved in the data collection. TF acted as a principal investigator (PI) in the study project. All authors conceived the study design, contributed to the article, and approved the submitted 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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