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Dynamic roles of anxiety and motivation in second/foreign language acquisition

Edited by
Meihua Liu, Chin-Hsi Lin and Yining Zhang

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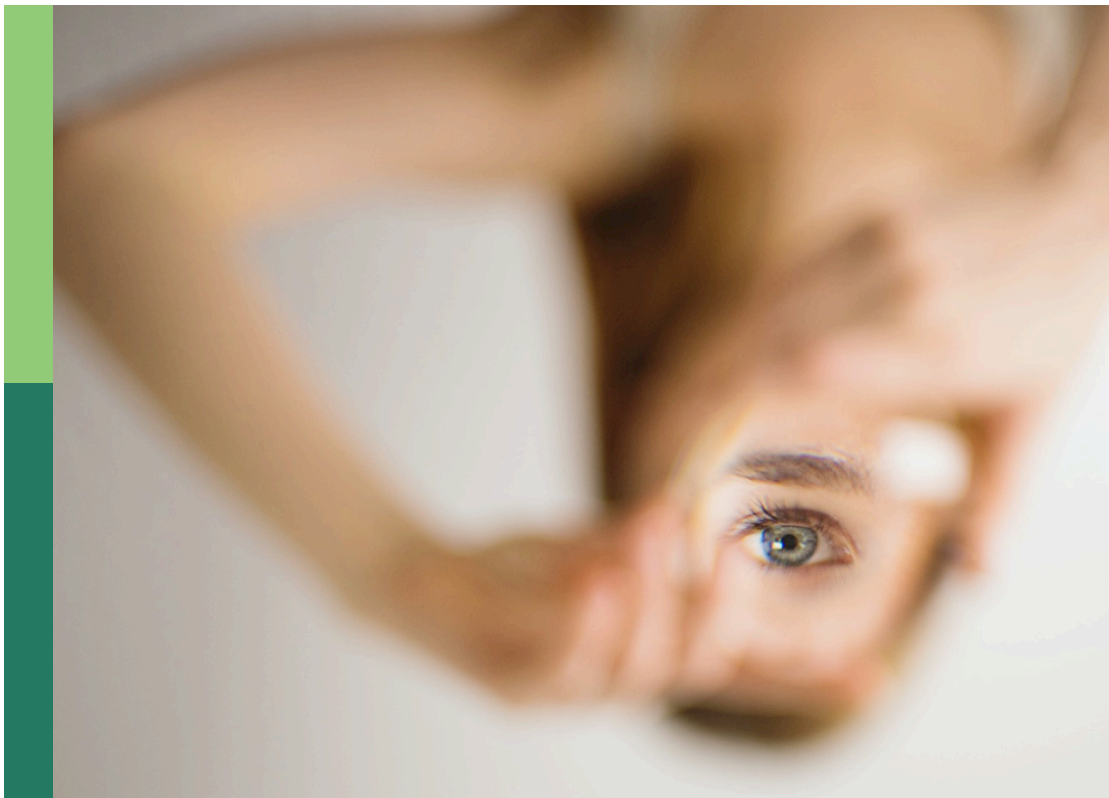

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Dynamic roles of anxiety and motivation in second/foreign language acquisition

Topic editors

Meihua Liu — Tsinghua University, China

Chin-Hsi Lin — The University of Hong Kong, Hong Kong, SAR China

Yining Zhang — Tsinghua University, China

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Douglas F. Kauffman,
Medical University of the Americas – Nevis, United States

*CORRESPONDENCE
Meihua Liu
✉ liumeihua@mail.tsinghua.edu.cn

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Editorial: Dynamic roles of anxiety and motivation in second/foreign language acquisition

Meihua Liu[1]*, Chin-Hsi Lin[2] and Yining Zhang[1]

[1]Department of Foreign Languages and Literatures, Tsinghua University, Beijing, China, [2]Faculty of Education, The University of Hong Kong, Pokfulam, Hong Kong SAR, China

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Editorial on the Research Topic
Dynamic roles of anxiety and motivation in second/foreign language acquisition

Motivation and anxiety, which are classified both as psychological and as affective factors, have been shown to play important roles in second-/foreign-language (SL/FL) learning at all levels. Specifically, students with higher motivation tend to study their target languages (TLs) more effectively, and those with high anxiety, less effectively. Additionally, scholars agree that SL/FL motivation and anxiety (1) are closely related to each other; (2) interact with other variables to affect SL/FL learning; and (3) are dynamic, and thus that their effects on SL/FL learning are also dynamic. Nevertheless, in light of the complex nature of language learning and the huge diversity of SL/FL learning populations and contexts, both motivation and anxiety remain under-researched. Conducted in diverse contexts, the 15 articles making up this special issue expand research on anxiety, motivation, and their relations with SL/FL learning both theoretically and methodologically.

Of these 15 articles, two are reviews (Gao; Wang and Xue) of research on anxiety and motivation, respectively. Wang and Xue focus on how the expectancy-value motivational model impacts academic motivation, engagement, participation in educational tasks, and academic performance. Gao classifies existing FL-anxiety scales into three types: test-based, measuring speaking anxiety; classroom-based, measuring speaking anxiety; and activity-based, also measuring speaking anxiety. She also introduces Classical Testing Theory and Rasch measurement as two major statistical paradigms for guaranteeing the reliability of these scales. As well as summarizing the emerging themes of the relevant research, the author discusses the dynamic approach to interpreting the interrelationship of anxiety, language performance, and other factors involved in language learning, and highlights possible directions for future anxiety-related research.

The remaining 13 papers all report on empirical research: five using mixed methods (He et al.; Lin; Rasool et al.; Ren and Abhakorn; Yan and Liang); four, quantitative methods (Dong, Liu et al.; Greenwald et al.; Wu et al.; Zhang and Dong); one, qualitative methods (Lu and Yoon); and the remaining three, experimental designs (Dong, Liu et al.; Izadpanah; Rezaee and Seyri). They examine various aspects of anxiety and motivation including theory development, strategies, measurements, effects, and sources.

Three of the papers focus on anxiety. Yan and Liang's contribution investigates the effects of English-Chinese interpretation-classroom foreign language anxiety (ICFLA) on interpretation learning and dependency distance (DD) among 49 undergraduate and graduate students in Hong Kong. They report a significant negative correlation between ICFLA levels and consecutive interpretation achievement scores. ICFLA was also negatively correlated with DD in consecutive interpretations. Rasool et al.'s article explores levels of and reasons for writing anxiety, and gender influence on anxiety levels, among 72 pre-service FL teachers in Pakistan. It reports that most of the participants experienced medium to high writing-anxiety levels, without gender differences, that were accounted for by linguistic challenges, fear of negative judgment, lack of self-confidence, and bad prior experiences. Lin's contribution uses interview and survey data from 243 Chinese students of L3 French at a university in the UK to explore the relationship between their L3 anxiety and their self-efficacy, which emerged as negative. It also shows that grammatical and pronunciation similarities between English—the participants' L2—and French positively decreased these students' anxiety levels.

Three further contributions focus on motivation. Ren and Abhakorn's explores the psychological and cognitive factors behind college students' loss of motivation to learn English in universities in China, and the interrelationships of those factors. Specifically, they constructed a shopping-cart model based on the results of 23 interviews and used structural equation modeling to test it on questionnaire data from 286 demotivated students. This revealed three distinct pathways whereby the respondents were demotivated: (1) a large discrepancy between their actual and required positioning of English learning, (2) a low required positioning of English learning, and (3) a low value of English learning in students' minds. He et al. also studied Chinese university students, collecting interview and survey data from 79 of them and investigating their perceptions and practices of rubric use throughout a task process. Their results highlight the important roles of trait motivation and task motivation in the effectiveness of rubric use during assessment. Greenwald et al.'s contribution, meanwhile, looks at intrinsic and extrinsic motivation among 851 monolingual and 196 bilingual children in the United States, and suggests that among the latter group, these two types of motivation are not antagonistic—unlike with their monolingual counterparts.

Four studies examined the interaction of anxiety and motivation. Dong, Liu et al.'s based on a questionnaire survey of 280 Chinese high school students, explores the relations among FL classroom anxiety (FLCA), enjoyment (FLE), and expectancy-value motivation, as well as how effectively these three variables predict students' self-rated FL proficiency. It reports that (1) the students' FLE was significantly and positively correlated with all dimensions of expectancy-value motivation, whereas their FLCA and expectancy-value motivation demonstrated a complex correlation pattern; and (2) expectancy beliefs, intrinsic value, private enjoyment of FL learning and anxiety arising from fear of negative evaluation jointly and significantly predicted the students' self-rated FL proficiency. Dong, Jamal Mohammed et al. report on their exploration, *via* a pre- and post-test experimental design, of the effects of three instructional modes—computer-assisted language learning (CALL), mobile-assisted language learning (MALL), and face-to-face (FTF) learning—on Iranian EFL learners' motivation, anxiety and self-efficacy. Specifically, they randomly assigned 30 such learners to each of three classes, each comprising 25 1-h sessions, and found that the experimental groups' motivation, anxiety, and self-efficacy were positively affected by CALL-based and MALL-based instruction, though there was no statistically significant difference between the CALL and MALL groups in this regard. Zhang and Dong's paper examines how 230 Chinese college students' motivational-regulation strategies affected their proximal and distal L2 writing-achievement emotions (i.e., enjoyment and anxiety), and tested for possible interactive effects of such strategies and self-regulated learning strategies on the same two emotions. They report that all the motivational-regulation strategies that they studied directly predicted both proximal and distal writing enjoyment, but that only a performance-oriented one predicted proximal or distal writing anxiety. Another key finding is that a social-behavior learning strategy counteracted the high proximal anxiety caused by heavy use of the performance self-talk motivational-regulation strategy. Moreover, it highlights motivational-regulation strategies as stable predictors of both proximal and distal writing wellbeing. Wu et al.'s contribution, based on a sample of 223 students of the Top-Notch Students of Basic Disciplines Training Program in a top Chinese university, examines English-use anxiety (EUA), motivation, self-efficacy, and use of English, along with these variables' predictive effects. Their findings indicate that (1) in general, EUA and language-learning orientation were significantly and negatively correlated, and significantly but positively correlated with the other measured variables; (2) the participants' EUA and intrinsic-motivation knowledge significantly predicted their English achievement; and (3) their use of English and self-efficacy mediated the effects of EUA and language-learning orientations on their English achievement.

The remaining three studies focused on other issues related to motivation. Lu and Yoon's paper reports on how they used interview, textual and documentary data to examine the influence of power relations on the research practices of six EFL academics at a Chinese university, as well as the same individuals' coping strategies. They conclude that, even though their participants were driven to engage in research by a combination of intrinsic and extrinsic motivations, their research endeavors were undermined by the marginalized status of EFL researchers from non-elite universities, as imposed by the Chinese academic circle. Even so, they exerted their agency *via* micropolitical literacy and tried to seek ways out of their unfavorable academic culture. Izadpanah's contribution involves a pre- and post-test experimental study of 354 high-school students, aimed at ascertaining the impact of flipped teaching (FT) on EFL students' academic resilience (AR), self-directed learning (SDL), and learner autonomy (LA). It shows that FT significantly affected AR, SDL, and LA, and that the mean scores of EFL students' AR, SDL, and LA were higher through FT. Last but not least, Rezaee and Seyri's piece examines boredom as experienced by 84 online students of English for academic purposes and the success of an autonomy-oriented intervention program aimed at alleviating such boredom.

Collectively and individually, these studies shed considerable light on teaching and learning, both theoretically and empirically. Nevertheless, more research on anxiety and motivation is still warranted. For example, more longitudinal studies are needed to document changes in people's anxiety and motivation, and such changes' effects on SL/FL learning. Likewise, there needs to be more research on both technological and non-technological strategies for intervening to reduce anxiety and increase motivation in the context of such; and anxiety and motivation connected with the learning of SLs/FLs other than English remain under-researched.

Author contributions

ML drafted the editorial. C-HL and YZ revised and polished the editorial. 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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The Relationship Between Foreign Language Classroom Anxiety, Enjoyment, and Expectancy-Value Motivation and Their Predictive Effects on Chinese High School Students' Self-Rated Foreign Language Proficiency

Lianqi Dong[1], Meihua Liu[1]* and Fan Yang[2]*

[1] Department of Foreign Languages and Literatures, Tsinghua University, Beijing, China, [2] Academic Affairs Office, Tsinghua University, Beijing, China

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Lawrence Jun Zhang, University of Auckland, New Zealand

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Gholam Hassan Khajavy, University of Bojnord, Iran

***Correspondence:**
Lianqi Dong
HanksLarry886@live.com
Meihua Liu
liumeihua@mail.tsinghua.edu.cn

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The present study explored the relations among foreign language (FL) classroom anxiety, enjoyment, expectancy-value motivation, and their predictive effects on Chinese high school students' self-rated FL proficiency. Participants were 280 senior high school Chinese English as a foreign language learners who were surveyed on their foreign language classroom anxiety (FLCA), foreign language enjoyment (FLE), and expectancy-value motivation. Results showed that (1) the students generally experienced a medium to a high level of FL classroom emotions with FLE slightly higher than FLCA. They were more value-motivated than expectancy-motivated toward FL learning. Most of them perceived their FL proficiency as unsatisfying; (2) the students' FLE was significantly positively correlated with all dimensions of expectancy-value motivation, while their FLCA and expectancy-value motivation demonstrated a complex correlation pattern. As the students' FLCA level increased, their expectancy beliefs, intrinsic value, attainment value, and utility value decreased, but their cost value increased. By contrast, as their FLE level increased, their expectancy beliefs, intrinsic value, attainment value, utility value all increased, while their cost value first increased and then slightly decreased; and (3) expectancy beliefs, intrinsic value, private enjoyment in FL learning and anxiety arising from fear of negative evaluation jointly significantly predicted the students' self-rated FL proficiency. Implications for future research and teaching were also discussed.

Keywords: foreign language classroom anxiety, foreign language enjoyment, expectancy-value motivation, self-rated foreign language proficiency, Chinese high school students

INTRODUCTION

Foreign language (FL) learning is a demanding task requiring sustained dedication, resilience, and perseverance (Lou and Noels, 2020). Crucial to behavioral maintenance in FL learning, motivation has been long considered an indispensable contributor to FL learning success irrespective of learners' aptitude, L1s (first languages), and FLs being learned (Dörnyei, 2008; Loh, 2019). Not surprisingly, the field of second language acquisition (SLA) is replete with motivation research

paradigms, among which the expectancy-value motivation model is a less taken yet significant potential avenue for understanding L2 motivation (Nagle, 2021). Another important affective factor in FL learning success that has drawn considerable scholarly attention in recent years is FL emotion, especially propelled by the wave of positive psychology (Seligman and Csikszentmihalyi, 2000) that advocates a holistic approach to learner experience in learning. Following this has come an "affective turn" (Pavlenko, 2013; MacIntyre et al., 2019) with a growing number of FL emotions being unearthed and shot into the research limelight (see an overview by Dewaele et al., 2019a). Foreign language classroom anxiety (FLCA) and foreign language enjoyment (FLE) are the two most commonly experienced FL emotions by language learners (Dewaele and MacIntyre, 2014, 2016). Research has evidenced that whereas FLCA may have debilitating effects on FL learning, FLE can facilitate FL learning and even "undo" the adverse effects rendered by negative FL emotions (MacIntyre and Vincze, 2017). Besides being predictive of language learners' FL proficiency, FLCA, FLE, and expectancy-value motivation correlate and interact significantly (e.g., Xu, 2017; Liu and Dong, 2021). Empirical findings concerning such an emotion-motivation relationship began to emerge recently, but the predictive effects of emotion-motivation factors remain largely under-explored. The present study aims to examine the relations among Chinese high school students' FLCA, FLE, expectancy-value motivation, and how they predict students' self-rated FL proficiency.

LITERATURE REVIEW

Foreign Language Classroom Anxiety

Emotions experienced by FL learners have long interested SLA researchers. Negative emotions, considered mostly debilitating in learning a FL, have first entered the research lexicon. Of the large body of FL-specific negative emotions, such as anxiety, anger, shame, disgust, hostility, and boredom, FLCA has been the most well-documented one since as early as the 1970s. There was first a Confounded Approach period regarding FLCA (MacIntyre, 2017) when inconclusive and even contradictory perceptions were common due to the lack of a specifically conceptualized FLCA paradigm. After that, following Horwitz et al.'s (1986) specification of FLCA and the introduction of the Foreign Language Classroom Anxiety Scale (FLCAS), research into FLCA has entered a Specialized Approach period. Horwitz et al. (1986) noted that FLCAS extends over three aspects: communication apprehension, test anxiety, and fear of negative evaluation. According to the authors, communication apprehension is a kind of anxiety arising from communicating with people in classrooms. Test anxiety is concerned with the worry about classroom performance associated with fear of failure. Fear of negative evaluation refers to anxious feelings about external negative evaluations, especially when exposed to evaluative situations. However, not all researchers confirmed such a three-dimension structure in their subsequent studies that instead reported a two- or four-dimension structure after factor analyses in different cultural settings (e.g., Aida, 1994; Cheng et al., 1999). Moreover, some argued that of the dimensions of FLCA, communication apprehension was the most relevant component and the strongest predictor of FL performance (Cheng et al., 1999; Shao et al., 2019), while others maintained that the fear of negative evaluation was the leading factor to trigger students' language anxiety which could have adverse effects on language performance (He et al., 2021).

Despite such inconsistency, with FLCAS and other later developed skill-specific FLA measurements, a large volume of studies has replicated the result that FLA overall is negatively correlated with language learners' FL learning outcomes and that FLA may negatively predict FL proficiency (e.g., Aida, 1994; Horwitz, 2001; Liu and Jackson, 2008; Zhang, 2019). In addition to this, FLA was also found to be associated with an array of learner inter/external variables in FL learning, such as learners' age, gender, mindset, motivation, self-efficacy, learning strategy use, and teacher characteristics (e.g., Ewald, 2007; Dewaele et al., 2017, 2019b; Jiang and Dewaele, 2019; Lou and Noels, 2020). Examination of the interaction between FLA and these variables has sent the FLA research into a Dynamic Approach period (MacIntyre, 2017).

Foreign Language Enjoyment

Toward the 21st century, since the introduction of positive psychology in the field of SLA (MacIntyre and Gregersen, 2012), a new perspective has been taken by researchers to tap into a broader range of learner emotions in FL learning. Following this, a plethora of FL emotions began to be uncovered, validated, and measured, such as enjoyment, pride, joy, hope, excitement, and boredom (e.g., Teimouri, 2018; Dewaele and Li, 2021; Li, 2021). Among them, FLE is the most researched positive emotion experienced by FL learners (Dewaele and MacIntyre, 2014, 2016). As conceptualized by Dewaele and MacIntyre (2014), FLE is the positive feeling that learners would experience in the language classroom when they are creative, overcome their limits, accomplish psychological needs, complete learning tasks and activities, have new experiences, and find themselves in a friendly instrumental environment (cited from Davari et al., 2020). To measure FLE, Dewaele and MacIntyre (2014) designed the Foreign Language Enjoyment Scale (FLES), which consists of 21 items with Likert scale ratings reflecting learners' positive emotions toward their learning experience, peers, and teachers, establishing the research on FLE as an independent avenue in the quest to FL learner emotions. The FLES broadly measures two factors of FLE: private FLE (i.e., positive feelings about one's own progress in FL learning) and social FLE (i.e., learners' positive feelings about their relationships with others in FL learning; Dewaele and MacIntyre, 2016). In recent years, the FLES has undergone several rounds of revisions for clearer construct purposes (Dewaele and MacIntyre, 2016) and validations, and has been applied in varying FL learning contexts, such as in Germany (Resnik and Dewaele, 2021), Iran (Elahi Shirvan and Taherian, 2021), and China (Li et al., 2018; Jiang and Dewaele, 2019; Dewaele and Li, 2022). The two broad components of FLES have been retained across studies, although researchers further differentiated FLE-Teacher and FLE-Atmosphere (Li et al., 2018), or FLE of Teacher Support and FLE of Student Support (Jin and

Zhang, 2018) within the dimension of social FLE. Particularly, research has found that private FLE was significantly correlated with language learners' amount of FL use both inside and outside the classroom and that the effect of private FLE was stronger and more straightforward than that of social FLE (Saito et al., 2018).

Unlike FLCA, FLE is positively associated with FL learners' learning outcomes (Dewaele and MacIntyre, 2014; Dewaele and Alfawzan, 2018; Jiang and Dewaele, 2019). What's more, it is posited that FLE is the emotional key to unlocking learners' potential and could help sustain an enjoyable and safe psychological atmosphere especially when learners are in the face of unfamiliar languages and cultures (Dewaele and MacIntyre, 2014). As with FLCA, FLE also interrelates to a wide display of FL learner variables, such as learners' gender, age, multilingualism, and FL teacher variables, including teacher's age, gender, accent, and strictness (Dewaele et al., 2017, 2019b).

Additionally, FLCA and FLE are found to be independent emotional dimensions bearing a "right-and-left feet" relationship in FL learning (Dewaele and MacIntyre, 2016; Boudreau et al., 2018). In their study, Li et al. (2020) found three different interaction patterns between the two continuously fluctuating emotions. Research has also shown that FLCA over time may gradually evolve into a stable learner trait and hence is not easily malleable while FLE appears to be more sensitive to factors from learners' FL learning environment, such as teachers' behaviors, stimulus from peers, and FL instruction style (Dewaele et al., 2017; Saito et al., 2018). Therefore, it is argued that FLE may cluster to exert cumulative and positive effects on FL learning in the long run (Saito et al., 2018). Despite this, however, it is not that positive emotions will do all wonders for FL learning. Rather, it may be more reasonable that FL learners maintain a proper positive-to-negative ratio (also positivity ratio) or an emotional balance (Dewaele and MacIntyre, 2014), just as we need to walk with both feet.

Expectancy-Value Motivation

Learner motives are fundamental to the acquisition of an additional language. Foreign language motivation reflects FL learners' driving force toward and perseverance with FL learning (Gardner and Lambert, 1972; Gardner, 1985). Over the past 60 years, the research on FL learning motivation has been vibrant. As a result, a broad spectrum of L2 motivation paradigms sprung up one after another, principally represented by the two peaks of Gardner's (1985) socio-psychological/educational motivation model and Dörnyei's (2008) L2 Motivational Self-System (L2MSS; Boo et al., 2015).

In recent years, both Gardner's L2 motivation model and Dörnyei's L2MSS have been under some criticism (see Oga-Baldwin et al., 2019; Nagle, 2021), chiefly due to the former's over-emphasis on integrative-ness and the latter's lack of predictive power on FL learning proficiency. Oga-Baldwin et al. (2019) reviewed major SLA motivation models, arguing for the need to consider learners' competence beliefs when researching L2 motivation, an important element absent from the work of most L2 theorists. Taking into account learners' competence beliefs (or the expectancy component of motivation, the two terms will be used interchangeably in the present study), expectancy-value theory (EVT) is a long-standing perspective on motivation in the field of educational psychology initially pioneered by Atkinson (1957) and further developed by Wigfield and Eccles (2000) and Eccles and Wigfield (2020). According to the EVT, individuals' motivation to do a task is the product of two key factors. One is their expectancy of success, and the other is their value of success in the task. The two components function in a multiplicative ($1 + 1 > 2$) fashion to jointly predict learners' choices, effort, persistence, and performance in learning tasks (Wigfield and Eccles, 2000).

As defined in Eccles and Wigfield (2020), expectancy for success concerns individuals' competence beliefs about how well they have done and will do on an upcoming task about a specific learning activity. Both cross-sectional and longitudinal studies revealed significant positive correlations between learners' expectancy beliefs and learning performance/proficiency (e.g., see Loh, 2019). Unlike expectancy beliefs, subjective task values (encompassing Attainment Value, Utility Value, Cost Value, and Intrinsic Value) mainly pertain to individuals' rationale for choosing and persevering with a specific learning activity (Wigfield and Eccles, 2000).

Of the four types of aforementioned value beliefs, attainment value is concerned with to what extent individuals perceive the importance of doing well in a task. Wigfield and Eccles (2000) noted that attainment value is related to one's personal (mastery and performance) goals. Utility value is individuals' evaluation of the usefulness of a task regarding their current or future goals (Eccles and Wigfield, 2020). Intrinsic value reflects one's inner gains from engaging in and completing a task. Empirical research has indicated that attainment value, utility value, and intrinsic value are all significant positive predictors of learning success (Loh, 2019). Cost value, however, reflects individuals' evaluation of how much effort, opportunity, and emotional cost will be required if they are to complete a task. Individuals tend to avoid tasks that cost too much relative to their benefits and a high cost value appraisal may lead to giving up if it exceeds one's ability beliefs (Loh, 2019; Eccles and Wigfield, 2020).

These four separate facets of subjective task value combine to predict an individual's learning engagement and effort. As such, the expectancy and value components of motivation each have a distinct yet interconnected role in determining learners' overall learning motives (Nagle, 2021). Evidence from educational psychology has explicitly demonstrated that expectancy of success significantly predicted adademic achievement, with value appraisals more predictive of motivated behaviors and persistence (e.g., Guo et al., 2017). In the field of SLA, though the application of EVT in L2 motivation research has remained a less-traveled path, extant research has already provided some illuminating findings. For instance, Nagle (2021) examined links between dimensions of expectancy-value motivation and university students' effort, persistence, and achievement in a Spanish course. The author found that the participants' willingness to communicate in learning the Spanish course was predicted by their attainment value and intrinsic value, that the likelihood of continued course enrollment was predicted by their intrinsic value, and that the course achievement was

predicted by their expectancy beliefs. Meanwhile, reseachers also noted that competency beliefs and intrinsic value are two synchronous ideas for many young students and that expectancy belief has a stronger correlation with intrinsic and attainment value but a weaker association with both utility and cost value (Loh, 2019). Recently, empirical findings supported the existence of the "expectancy × value" interaction in the context of FL learning, adding that such interaction is not only value-specific (Wan, 2019) but also activity-specific (Zhan et al., 2020), which implies that the patterns of "expectancy × value" interaction in FL learning can vary across tasks, activities, and contexts. Nevertheless, still more empirical evidence is needed to further verify this argument (Eccles and Wigfield, 2020).

Foreign Language Classroom Anxiety, Foreign Language Enjoyment, and Expectancy-Value Motivation

Given the relevance of FL emotions and expectancy-value motivation to FL learning, researchers showed interest in finding out how FLCA, FLE, and expectancy-value motivation are linked. Some researchers analyzed correlations between FL emotions and components of expectancy-value motivation. For example, Xu (2017) found that Chinese first-year undergraduates' FLA was negatively correlated with their expectancy and intrinsic value but positively connected with attainment value. Other researchers (e.g., Liu and Dong, 2021; Zhang, 2021) further revealed that expectancy-value motivation could predict FL learning emotions. The longitudinal study by Liu and Dong (2021) revealed that both expectancy and value components of motivation were negative predictors for anxiety experienced by postgraduates learning academic oral English. These prior research findings inform that it may be more discreet to consider the relations between FL emotions and expectancy-value motivation as bidirectional since each can play a role in affecting the other, and they both are critical to FL learning success.

Foreign Language Classroom Anxiety, Foreign Language Enjoyment, Expectancy-Value Motivation, and Foreign Language Proficiency

With the links between FL emotions and motivation beginning to draw scholarly attention recently, inquiries were extended to understand how FL emotions and expectancy-value motivation could simultaneously predict FL learning. Xu's (2017) study with first-year Chinese undergraduates showed that FLA, expectancy beliefs, and intrinsic value could jointly predict FL listening test scores, but the research did not tap into the effects of the "expectancy × value" interaction. In a recent study, Dong and Liu (2022) examined the effects of FLE on FL test performance among Chinese high school students and found that the expectancy component of motivation mediated the predictive effects of FLE and that the "expectancy × value" interaction existed in the pathway. With a holistic view of learners' FL emotions gaining momentum, we currently know little about how expectancy-value motivation may predict FL learning outcomes when diverse FL emotions are considered synchronously, which motivated the present study.

THE PRESENT STUDY

Although the significance of FL emotions, FL expectancy-value motivation, and the links between them have been acknowledged in the literature, the discussion can be advanced in some more respects. First, a holistic view looking into the two emotional feet in FL learning, namely both FLCA and FLE and examining their relations with FL expectancy-value motivation and combined predictive effects on FL learning is evidently lacking. This is worthy of our attention because, for one thing, in a real FL learning context, FL learners do not experience one type of emotion at a single time but are in the constant flow of different emotions; and for another, the two FL emotions intertwine significantly with motivation along the FL learning process (Liu and Dong, 2021). Second, although EVT holds significant potential for understanding L2 motivation (Nagle, 2021), SLA research that takes such a perspective is scarce. Moreover, though it was conceptualized that learners' expectancy for success and subjective task values multiplicatively predict learning performance and proficiency, such "expectancy × value" interaction has not been sufficiently validated in different contexts, and their effects on FL learning and proficiency remain a less-understood myth. Third, the past research has primarily been conducted among FL learners at a tertiary education level (e.g., Liu and Dong, 2021; Zhang, 2021), leaving FL emotions and expectancy-value motivation of young FL learners largely unnoticed, although young FL learners' FLCA, FLE, and expectancy-value motivation appraisals can be very different from college students (Li et al., 2018; Loh, 2019).

Currently, the number of Chinese high school students learning a FL as a compulsory course has reached more than 41 million (China Ministry of Education, 2021). Given the lack of research mentioned above, it is crucial to establish links between FLCA, FLE, and expectancy-value motivation, and investigate their joint predictive effects on Chinese young learners' FL learning. Focusing on FL learners of this population, the present study aims to seek answers to the following research questions (RQs):

RQ1. What is the general profile of Chinese high school students' FLCA, FLE, expectancy-value motivation, and self-rated FL proficiency?
RQ2. How are Chinese high school students' FLCA and FLE related to their expectancy-value motivation?
RQ3. How do FLCA, FLE, and expectancy-value motivation predict Chinese high school students' self-rated FL proficiency?

MATERIALS AND METHODS

Participants

The study focused on young FL learners who were 280 (148 male and 132 female) English as a foreign language (EFL) learning

students from a senior high school in Northwestern China, ranging from 15 to 20 years old (M = 17.6 years; SD = 0.93). They were all native Chinese speakers. Aiming to get high scores in English, all participants needed to take frequent tests on English, monthly or bimonthly. High scores on tests are deemed to be reflective of their English learning success. Before the assessment session, the participants were familiarized with the purpose of the study. They were apprised of the nature of voluntary participation, with consents obtained from them, their headteachers, and the school.

Measures

Background Information Questionnaire

A 3-item background information questionnaire was designed to collect the participants' personal information, including age, gender, and class number.

English Learning Expectancy-Value Motivation Scale

The English Learning Expectancy-Value Motivation Scale was an 18-item measure adapted from the Expectancy-Value Beliefs Inventory (EVBI; Trautwein et al., 2012). The original EVBI consisted of 16 items covering five dimensions: expectancy, intrinsic value, attainment value, utility value, and cost value. Example items include "I would like to take more English classes" and "I always look forward to English classes." To fit the present situation, we added the item "Good grades in English can be of great value to me later" to the dimension of utility value and "The amount of time I spend on learning English keeps me from doing other things I would like to do" to the cost value dimension according to the recent modifications in Yang and Mindrila (2020). For this reason, both confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM) were conducted to examine the factor structure of the newly formulated measurement as recommended by Alamer (2022) and Alamer and Marsh (2022). All items were placed on a 7-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." The higher the score, the stronger the expectancy beliefs and subjective values. Reliability analysis revealed high internal consistency of the scale in this study (Cronbach alpha = 0.89).

Foreign Language Classroom Anxiety Scale

The study adopted the English Language Classroom Anxiety Scale, an 8-item measure extracted from the FLCAS (Horwitz et al., 1986) by Jiang and Dewaele (2019) in their research on Chinese EFL learners' FLCA. As Jiang and Dewaele (2019) maintained, this reduced version reflected physical symptoms of anxiety, nervousness, and lack of confidence rendered by FLCA, thus it suits the purpose of the present study which aims to understand young FL learners' anxiety in the classroom learning. The authors did not report the dimensions of the measure. For this reason, factor analysis was performed in the present study. All the items were placed on a 7-point Likert scale, and the higher the score, the higher levels of the participants' FLCA. Example items included "I always think that the other students learn English better than I do" and "Even if I am well prepared for the English class, I feel anxious about it." The scale also exhibited high internal consistency in this study (Cronbach alpha = 0.80).

Foreign Language Enjoyment Scale

The English Language Enjoyment Scale, a 10-item measure extracted from the FLE (Dewaele and MacIntyre, 2014) by Jiang and Dewaele (2019) in their quest to investigate Chinese college EFL learners' FLE, was adapted and used in this study. The reasons are twofold. First, as Jiang and Dewaele (2019) commented, these items reflected both social and private dimensions of FLE in classroom learning, which is in line with the context of the present study. Second, for an in-depth discussion, we seek to compare Chinese high school students' FL classroom emotions with those of Chinese college students. All items were positively phrased on a 7-point Likert scale, and a higher score indicates a higher level of FLE. Example items included "I performed well in this term's English class." and "My English class is a positive learning environment." The scale's internal consistency in this study was also high (Cronbach alpha = 0.86).

Self-Rated Foreign Language Proficiency

Participants self-rated their current English proficiency (score range: 1–10) in the questionnaire session. The question for eliciting their response was "If the full score is 10, how much would you rate your current English proficiency?"

Data Collection

The study was conducted in the fourth week of the semester when the participants might form appraisals for themselves and have adapted to the EFL courses they were taking. The language of the questionnaire was Chinese, and the translation was double-checked. The participants completed the composite questionnaire and self-rated their current English proficiency. The session lasted for about 20 minutes with the help of two teachers from the school.

Data Analysis

The survey data were mainly analyzed using SPSS 26.0 and Mplus 8.3 which examined the reliability and validity of measures, the central tendency of data, correlations, and predictive effects of variables. After the main data analysis, we used Microsoft Excel 16 to draw figures that reflected the associations among FLCA, FLE, and expectancy-value motivation.

Factor Structure of the Foreign Language Classroom Anxiety Scale and Foreign Language Enjoyment Scale

A multivariate normal distribution test was performed before we dealt with all the standardized data. The results of the Shapiro–Wilk test ($W = 0.989$, $p > 0.05$) and skewness and kurtosis value altogether indicated that the data showed a normal distribution. We began by examining the factor structures of the FLCAS and FLES. The results of Kaiser-Meyer-Olkin (KMO) tests for the FLCAS and FLES were 0.80 and 0.85, respectively, suggesting

that both scales were suitable for factor analysis. A rotated factor analysis (varimax) on the English Language Classroom Anxiety Scale generated two factors: Communication Anxiety (FLCAS1, 37.22% variance) and Fear of Negative Evaluation (FLCAS2, 18.75% variance), explaining a total of about 55.97% of participants' FLCA variance. Principle component analysis on the English Language Enjoyment Scale reported two factors: FLES-social (FLES1, 34.09% variance) and FLES-private (FLES2, 26.45% variance), explaining a total of about 60.54% of FLE variance. To assess the construct validity of the FLCAS and FLES, we employed the ESEM method which allowed items to be freely estimated and cross-loaded, and was considered an improved method integrating the merits of both CFA and EFA (exploratory factor analysis; see Alamer, 2021b, 2022). The results confirmed the two dimensions of the FLCAS and the FLES with model fit indices for both scales at an acceptable level (Alamer and Marsh, 2022).

Factor Structure of the Expectancy-Value Motivation Scale

As previously mentioned, the original English Learning Expectancy-Value Motivation Scale was adapted and two extra items from Yang and Mindrila (2020) were incorporated. Thus, we confirmed the factor structure of the new measurement and assessed its construct validity (see **Table 1**).

The results in **Table 1** show that although both CFA and ESEM models generated acceptable model fit indices (i.e., CFI $>$ 0.90, TLI $>$ 0.90, SRMR $\leq$ 0.07, and RMSEA $\leq$ 0.07), the ESEM solution is more desirable and differences between fit values are above the typical criterion (i.e., differences in CFI $>$ 0.015, see Alamer and Marsh, 2022). Therefore, the ESEM framework of expectancy-value motivation was used in the present study, and its standardized factor loadings are presented in **Table 2**.

RESULTS

Means, SDs, and Correlations of Foreign Language Classroom Anxiety, Foreign Language Enjoyment, Expectancy-Value Motivation, and Self-Rated Foreign Language Proficiency

Table 3 reports descriptive and Pearson correlation statistics of the main variables. As shown, the mean of the participants' self-rated FL proficiency was relatively low (M = 4.73) on a 1–10 scale, which means that the participants generally perceived their FL proficiency as unsatisfying. Their experience of classroom emotions was at a medium to a high level over the mid-point of 3.5 (7-point Likert scale), with the FLE slightly higher than the FLCA. Compared to their value component of motivation, the participants' expectancy beliefs were significantly weaker, indicating that they were more motivated by the value of learning the FL. Of their four value components of motivation, the utility value was the highest, and the intrinsic value was the lowest, suggesting that the participants were more instrumentally motivated than intrinsically motivated toward their FL learning.

In addition, the participants' self-rated FL proficiency was significantly positively correlated with FLE and almost all dimensions of expectancy-value motivation (except for the cost value) and significantly negatively correlated with FLCA ($p < 0.01$). Dimensions of FLE and FLCA were significantly positively intra-correlated while significantly negatively inter-correlated, except for the correlation between FLE-social and communication anxiety being not significant. The participants' FLCA was significantly negatively correlated, while FLE was positively correlated with their expectancy beliefs. Specifically, the correlation between FLCA arising from fear of negative evaluation and expectancy beliefs showed a small to medium effect size (r = -0.26), and that between FL classroom communication anxiety and expectancy beliefs exhibited a medium to large effect size (r = -0.46) (Plonsky and Oswald, 2014). With a unitary pattern, dimensions of FLE were significantly positively correlated with all factors of expectancy-value motivation. The correlation between intrinsic value and private FLE showed a large effect size (r = 0.72) while that between cost value and the two dimensions of FLE only reported small effect sizes (r = 0.19 $\sim$ 0.24). The correlational relations between the dimensions of FLCA and expectancy-value motivation were rather complex: intrinsic value was negatively correlated while

TABLE 1 | CFA and ESEM model fit indices for the expectancy-value motivation scale.

Model	χ^2	*p*	*df*	SRMR	RMSEA	CFI	TLI
CFA	266.69	<0.001	112	0.07	0.07	0.91	0.93
ESEM	125.19	<0.001	73	0.02	0.05	0.98	0.95

TABLE 2 | ESEM factor loadings of the expectancy-value motivation scale.

Items	Attainment	Intrinsic	Utility	Cost	Expectancy
Attainment 1	0.45*	0.33	0.00	0.19	−0.02
Attainment 2	0.87*	0.02	0.05	0.02	0.00
Attainment 3	0.65*	−0.02	0.08	0.22	0.01
Intrinsic 1	0.26	0.69*	−0.04	−0.12	0.05
Intrinsic 2	0.00	0.82*	−0.04	−0.03	−0.03
Intrinsic 3	−0.08	0.76*	0.13	0.05	0.05
Intrinsic 4	−0.13	0.88*	0.06	0.10	0.01
Intrinsic 5	0.15	0.68*	0.06	0.05	−0.01
Intrinsic 6	0.09	0.48*	−0.24	−0.06	0.25
Cost 1	0.22	0.25	−0.06	0.57*	0.04
Cost 2	0.03	0.38	−0.01	0.57*	−0.06
Cost 3	0.01	−0.03	0.32	0.67*	0.03
Utility 1	0.02	0.01	0.83*	−0.04	0.05
Utility 2	0.03	−0.01	0.82*	0.05	−0.08
Utility 3	0.03	0.19	0.63*	−0.08	−0.02
Expectancy 1	0.01	0.01	−0.07	−0.19	0.67*
Expectancy 2	−0.02	−0.03	0.00	0.02	0.95*
Expectancy 3	0.01	0.10	0.05	0.11	0.76*

*$p < 0.05$.

cost value was positively correlated with the dimensions of FLCA, and attainment value and utility value both were negatively correlated with FLCA caused by fear of negative evaluation (small effect sizes, r = -0.16 ∼ -0.22) but positively correlated with FLCA arising from communication (small effect sizes, r = 0.01 ∼ 0.04).

Relationship Between Foreign Language Classroom Anxiety, Foreign Language Enjoyment, and Expectancy-Value Motivation

After a bird's view of the links between FLCA, FLE, and expectancy-value motivation components, a more detailed analysis was performed to probe more relational sophistication among these variables. **Figure 1** profiles the links between individual participants' FLCA and FLE (numbers on the horizontal axis refer to participants' ID and numbers on the vertical axis refer to the strength of FL emotions). As displayed, these two FL emotion feet were stably and negatively associated across individuals and the pattern curves of them are not asymmetric. As such, FLCA and FLE were indeed independent dimensions that evolved within related but distinct systems. Meantime, individual differences were also remarkable in the experience of these two FL emotions.

Figure 2 presents how the participants' components of expectancy-value motivation were linked with their FLCA. As can be seen, irrespective of their levels of FLCA, the participants generally held relatively high utility value appraisals in FL learning. More precisely, the participants of high FLCA had an almost equally high cost and attainment value, followed by intrinsic value and expectancy beliefs; the participants of medium FLCA held high attainment value, followed by cost value, intrinsic value, and expectancy beliefs; and the participants of low FLCA had high attainment value, followed by expectancy beliefs, intrinsic value, and cost value. Overall, there appeared a pattern that as the participants' level of FLCA increased, their expectancy beliefs, intrinsic value, attainment value, and utility value all decreased, while their cost value increased. Moreover, the changes in participants' FLCA were conspicuously accompanied by the changes in expectancy beliefs, intrinsic value, and cost value.

Figure 3 depicts the relation between the participants' FLE and components of expectancy-value motivation. Similarly, the participants' levels of expectancy-value motivation varied by their levels of FLE. Despite the FLE differences, the participants had relatively high utility value and attainment value in FL

TABLE 3 | Summary of means, standard deviation, and correlations among main variables.

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1. Self-ratings	4.73	1.55	1								
2. FLCAS-neg	4.38	1.27	−0.40**	1							
3. FLCAS-com	4.48	1.17	−0.26**	0.37**	1						
4. FLES-social	4.68	1.10	0.26**	−0.18**	0.05	1					
5. FLES-private	4.57	1.03	0.58**	−0.38**	−0.18**	0.55**	1				
6. Expectancy	4.00	1.50	0.54**	−0.26**	−0.46**	0.14**	0.40**	1			
7. Intrinsic	4.13	1.21	0.67**	−0.40**	−0.24**	0.44**	0.72**	0.56**	1		
8. Attainment	5.38	1.14	0.35**	−0.22**	0.04	0.39**	0.50**	0.23**	0.53**	1	
9. Cost	5.03	1.23	−0.02	0.04	0.33**	0.24**	0.19**	-0.21**	0.15*	0.35**	1
10. Utility	5.67	1.14	0.25**	−0.16*	0.01	0.36**	0.49**	0.19**	0.48**	0.66**	0.35**

*Note: FLCAS-neg, foreign language classroom anxiety arising from fear of negative evaluation; FLCAS-com, foreign language classroom communication anxiety. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level.*

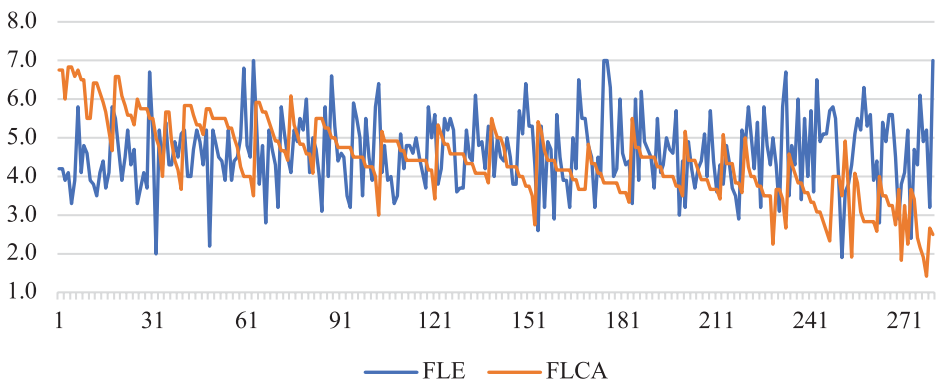

FIGURE 1 | Relationship between FLCA and FLE across individuals.

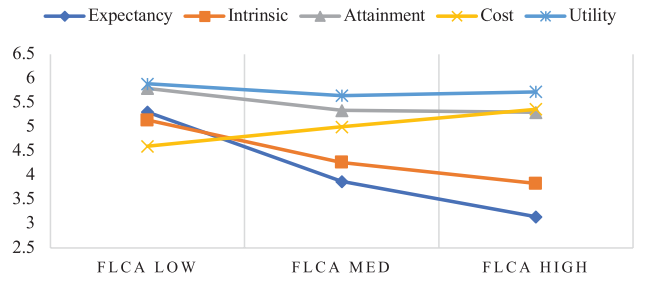

FIGURE 2 | Relationship between FLCA and expectancy-value motivation.

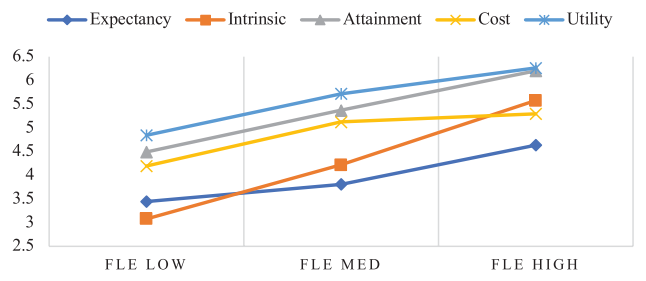

FIGURE 3 | Relationship between FLE and expectancy-value motivation.

learning, which is almost the same as when the participants' FLCA was examined. The participants with high FLE held high intrinsic value, followed by cost value and expectancy beliefs; the participants with medium FLE had high cost value appraisals followed by intrinsic value and expectancy beliefs; and the participants with low FLE held high cost value appraisals followed by expectancy beliefs and intrinsic value. Further, it can be observed that as participants' level of FLE increased, their expectancy beliefs, intrinsic value, attainment value, and utility value all increased while their cost value first increased and then slightly decreased. Differentiating from **Figure 2**, the changes in the participants' FLE were markedly echoed by the changes in all components of expectancy-value motivation.

Predictive Effects of Foreign Language Classroom Anxiety, Foreign Language Enjoyment, and Expectancy-Value Motivation on Self-Rated Foreign Language Proficiency

A stepwise hierarchical multiple regression analysis was performed to test the predictive effects of the participants' FLCA, FLE, and expectancy-value motivation on their self-rated FL proficiency. The averages of the four FL classroom emotion factor scores and the five expectancy-value factor scores were used as predictor variables, and the average of the self-rated FL proficiency scores was used as the dependent variable. The analysis generated four statistically significant models. Model 2 with intrinsic value and expectancy beliefs as predictor variables (Adjusted R^2 = 0.49) accounts for approximately 49% of the total self-rated FL proficiency variance, significantly more than Model 1 with intrinsic value as a single predictor (Adjusted R^2 = 0.45). Model 3 with intrinsic value, expectancy beliefs, and FLCAS-neg as predictor variables (Adjusted R^2 = 0.51) accounts for approximately 51% of the total variance, significantly more than Model 2 (Adjusted R^2 = 0.49). Model 4 with intrinsic value, expectancy beliefs, FLCAS-neg, and FLES-private as predictor variables (Adjusted R^2 = 0.52) accounts for approximately 52% of the total variance, significantly more than Model 3 (Adjusted R^2 = 0.51). As the VIF indexes indicated, no significant collinearity among variables was detected. Of the four predictors in Model 4, the participants' expectancy beliefs, intrinsic value, and FLE-private were strong positive predictors while FLCAS-neg was a negative predictor of their self-rated FL proficiency.

Drawing on Zhan et al. (2020) and following the "expectancy × value" interaction reviewed in the literature, we further examined whether "expectancy × value" interaction existed with FLCA and FLE in predicting self-rated FL proficiency. To this end, we generated the "expectancy × intrinsic value" variable, added it to the existing predictor variables, and conducted another round of stepwise hierarchical multiple regression analysis. This time, four models were yielded. Yet the "expectancy × intrinsic value" variable didn't enter any regression model and the R^2 changes of new models were not significant compared with those in **Table 4**. This being said, the "expectancy × value" interaction did not appear to predict the participants' self-rated FL proficiency.

DISCUSSION

General Profile of Chinese High School Students' Foreign Language Classroom Anxiety, Foreign Language Enjoyment, Expectancy-Value Motivation, and Self-Rated Foreign Language Proficiency

RQ1 focuses on the general profile of Chinese high school students' FLCA, FLE, expectancy-value motivation, and self-rated FL proficiency. The results showed that the participants, in general, experienced a medium to a high degree of FL classroom emotions and that their FLE was slightly higher than FLCA, which is consistent with most previous findings (e.g., Dewaele and MacIntyre, 2014; Jiang and Dewaele, 2019; Dewaele and Li, 2022). However, compared with the levels of FLCA and FLE reported by Chinese college students in Jiang and Dewaele (2019), the level of FLCA was higher while that of FLE was lower among high school students in the present study. This might be because college students in China often have a relatively higher degree of autonomy over their FL learning. In contrast, high school students usually have to follow a prescribed learning process and face greater challenges in a more exam-oriented environment (Yao et al., 2021). For instance, the participants of the present study had to take at least four large-scale English examinations in a single semester that aim to assess their mastery of English grammar, reading, writing, and other knowledge and/or skills

TABLE 4 | Regression models with self-rated FL proficiency as a dependent variable.

		Unstandardized coefficients		Standardized coefficients				
		B	Std. Error	Beta	t-value	p-value	VIF	Adjusted R^2
Model 1	(Constant)	1.08	0.25		4.36	0.00		0.45
	Intrinsic value	0.87	0.06	0.67	15.23	0.00	1.00	
Model 2	(Constant)	0.79	0.25		3.21	0.00		0.49
	Intrinsic value	0.70	0.07	0.54	10.45	0.00	1.46	
	Expectancy	0.25	0.05	0.24	4.67	0.00	1.46	
Model 3	(Constant)	1.93	0.42		4.55	0.00		0.51
	Intrinsic value	0.63	0.07	0.48	9.05	0.00	1.62	
	Expectancy	0.25	0.05	0.23	4.60	0.00	1.46	
	FLCAS-neg	-0.19	0.06	−0.15	−3.28	0.00	1.19	
Model 4	(Constant)	0.28	0.48		2.68	0.01		0.52
	Intrinsic value	0.48	0.09	0.37	5.47	0.00	2.62	
	Expectancy	0.25	0.05	0.24	4.71	0.00	1.46	
	FLCAS-neg	-0.16	0.06	−0.13	−2.86	0.01	1.22	
	FLES-private	0.26	0.09	0.17	2.82	0.01	2.13	

Note: FLCAS-neg, foreign language classroom anxiety arising from fear of negative evaluation.

required by the national curriculum. Consequently, they were more anxious and less enjoyable in FL learning.

Additionally, it was found that the participants were more value-motivated, especially driven by utility and attainment value, but less expectancy-motivated in FL learning, which also echoes some previous research (e.g., Liu, 2007; Gan, 2009). This implied that most Chinese high school students perceived FL learning more as helpful and important to their future goals even if they are not interested in it. This phenomenon, in effect, is common among Asian students (Loh, 2019) since most of them work hard on schoolwork mainly because they want to please their parents and conform to certain social norms, such as meeting the expectations of others and getting admissions to top universities. Still, the participants perceived FL learning as a challenging task and regarded their FL proficiency as unsatisfying, which was even common among most Chinese college students (e.g., Zhan et al., 2020). Although the participants may likely underestimate their FL proficiency since they consider modesty a cherished virtue in their culture, the possibility that FL learning itself poses challenges to most Chinese FL learners seems to suffice.

Relations Among Chinese High School Students' Foreign Language Classroom Anxiety, Foreign Language Enjoyment, and Expectancy-Value Motivation

RQ2 considers the relation between Chinese high school students' FLCA, FLE, and expectancy-value motivation. The participants' responses showed that their FLCA was significantly negatively correlated while FLE was significantly positively correlated with expectancy beliefs, meaning that the participants who experienced lower FLCA and higher FLE when learning English were more likely to be driven by firmer expectancy beliefs, and vice versa. These results also resonate with some recent findings (e.g., Liu and Dong, 2021; Dong and Liu, 2022). But moreover, it was found that FLE was significantly positively correlated with all components of value motivation while FLCA was negatively correlated with intrinsic value and positively associated with cost value. It is likely that positive FL emotions help add to the value of the learning activity and open learners to more learning chances, while negative FL emotions expose learners to wakening their weaknesses, thus making them balk at learning tasks and debark from their FL learning interest and engagement. Alternatively, according to the broaden-and-build theory (Fredrickson and Joiner, 2018), positive emotions open the mind and nourish the growth of resources, while negative emotions such as anxiety or anger have opposite narrowing effects (Dewaele and Li, 2021).

As shown in **Figures 2**, **3**, the participants whose FL classroom emotions differed also varied sharply with regard to expectancy-value appraisals, lending credence to the interaction of FL classroom emotions and expectancy-value motivation (Xu, 2017; Liu and Dong, 2021). Our study further revealed that as the participants' FLCA level increased, their expectancy beliefs, intrinsic value, attainment value, and utility value decreased, while their cost value increased. In contrast, as their FLE increased, their expectancy beliefs, intrinsic value, attainment value, and utility value all increased, while their cost value first increased and then decreased. These results can be interpreted in two possible ways. First, it is understandable that since cost value mainly pertains to the negative aspects of doing a task that requires time, effort, and emotional investment (Eccles and Wigfield, 2020), the more FL learners feel anxious about completing a task, the more they need to wrestle with aspects even irrelevant to the task itself, which certainly consumes resources available for working memory (Carroll, 1999). Hence, not surprisingly, the participants' perceived cost value increased with their anxious feelings. However, the increase of FLE may not necessarily translate into decreased cost value but only helps downsize it when FLE itself is at a high level. This means that

only when FL learners' FLE is high will they perceive FL learning as more cost-effective. Second, this finding may corroborate Dewaele and MacIntyre's (2014) and Dewaele et al.'s (2019b) conclusion that FLE and FLCA are not opposite ends of the same dimension and are indeed influenced by differentiated factors, with FLE more associated with teacher-related variables while FLCA more linked to learners themselves. Our results support these ideas by further showing that the increase in FLE may significantly lift all components of expectancy-value motivation while the decrease of FLCA may only significantly increase expectancy beliefs and intrinsic value. Explanations for this can also be drawn from a few previous studies that weighed the effects of FLE on FL learning against those of FLCA and reported that the facilitative effects of FLE, both cross-sectional and longitudinal, were stronger than the debilitative effects of FLCA when they were examined simultaneously (e.g., Saito et al., 2018; Li and Li, 2022).

Predictive Effects of Foreign Language Classroom Anxiety, Foreign Language Enjoyment, and Expectancy-Value Motivation on Self-Rated Foreign Language Proficiency

RQ3 addresses how the participants' FLCA, FLE, and components of expectancy-value motivation predicted their self-rated FL proficiency. As Model 4 in **Table 4** suggests, the participants' self-rated FL proficiency was specifically predicted by a selection of expectancy-value motivation and classroom emotion components. Precisely, expectancy beliefs and intrinsic value are the motivational factors that predicted learners' self-rated FL proficiency, concurring with Loh's (2019) claim that competency beliefs and interests are two synchronous ideas for many young students. Expectancy beliefs are learners' evaluations of how well they expect themselves to do in the future based on their previous experience (Wigfield and Eccles, 2000). They are more like cumulated and therefore stable judgments closely related to individuals' self-rated ability. Another predictor, intrinsic value, is the inner gain learners can obtain from participating in an activity or completing a task (Wigfield and Eccles, 2000). According to the self-determination theory, language learners' intrinsic motivation reflects their inherent inclination toward carrying out learning tasks (Alamer, 2021b), which in the meanwhile, is also indicative of the fun, pleasure, and excitement in performing the task *per se* (Noels et al., 2003; Alamer, 2021a). Naturally, those with high intrinsic value tend to be more motivated to learn, both psychologically and behaviorally. Likewise, when individuals do intrinsically valued tasks, they will also gain important consequences, most of which are quite positive (Deci and Ryan, 1985). Such a significant role of intrinsic motivation in learning performance has been well endorsed across gender, ethnicity, and institutional levels in educational settings (see Ryan and Deci, 2020). Apart from motivational factors, we found that private FLE and FLCA caused by fear of negative evaluation were two FL emotion predictors of self-rated FL proficiency. These two dimensions deal with the personal side of FL classroom emotions. Hence, they exhibited bearings with self-rated FL proficiency which is also a psychologically rooted factor. Furthermore, although private FLE significantly positively predicted while FLCA caused by fear of negative evaluation negatively predicted self-rated FL proficiency, the predictive power of the former outweighed that of the latter, confirming the findings of some previous studies (e.g., Saito et al., 2018; Li and Li, 2022). As Dewaele et al. (2019b) firmly put, "it is FLE rather than FLCA that is directly tied to the product of successful L2 learning in classroom settings." Before concluding, it is important to note that our research did not replicate the "expectancy × value" interaction as reported in a few recent studies (e.g., Zhan et al., 2020; Dong and Liu, 2022). This might be attributed to the differences in dependent variables under varied investigations. For example, our study did not relate the expectancy-value motivation components directly to real FL test performance and FL learners' behaviors, which were assumed to be more strongly impacted by expectancy and value beliefs as we previously reviewed. Yet this finding adds some fresh insights to and merits further elaboration for the specificity of the "expectancy × value" interaction (Wan, 2019; Zhan et al., 2020), an intriguing avenue awaiting more future research.

CONCLUSION

The present study investigated the relations among FLCA, FLE, expectancy-value motivation, and their predictive effects on Chinese high school students' self-rated FL proficiency. It was found that (1) Chinese high school students generally experienced a medium to a high level of FLCA and FLE in their FL learning, with the latter slightly higher than the former. Chinese high school students were overall more value-motivated than expectancy-motivated in FL learning, and most of them perceived their FL proficiency as unsatisfying; (2) Chinese high school students' FLCA was significantly negatively correlated, while FLE was positively correlated with their expectancy beliefs. Whereas their FLE was significantly positively correlated with all components of value motivation, their FLCA and value components of motivation demonstrated a complex correlational pattern; and (3) Chinese high school students' expectancy beliefs, intrinsic value, private FLE, and FLCA caused by fear of negative evaluation jointly predicted their self-rated FL proficiency.

As the present study highlights the significant positive predictive effects of learners' language learning enjoyment and expectancy-value motivation on FL learning outcomes, these findings have pedagogical implications. First, it is necessary, if at all possible, that task value interventions are implemented and integrated with FL teaching and learning. Research in neighboring fields has already illustrated that task value interventions could promote learning interest and engagement (e.g., Hulleman et al., 2017). Language teachers can draw on the idea by purposefully raising their learners' task value awareness. It is especially recommended that they encourage language learners to align subjective appraisals of FL learning activities/tasks to personal goals in such forms as short essay writing, dialog journals, or group sharing (Nagle, 2021). Second, language teachers may consider devising approaches to boost FL learners' private FLE experience. To do

so, aside from creating an enjoyable FL learning environment where FL learners feel safe and supported, teaching efforts should also be made to enhance FL learners' positive feelings about their own progress in FL learning. Third, given the strong predictive effects of intrinsic value motivation on FL learning, cultivating FL learners' intrinsic value gains particular urgency. A feasible way may be that more interest-arousing elements are incorporated into FL learners' learning materials to gift learners not only with good grades but also with positive feelings. On the way to achieving this, there is the hope that we are making strides toward bolstering our language learners' character growth and emotional wellbeing (MacIntyre et al., 2019).

Our findings should be considered in light of at least three limitations. First, since the research data were collected in a convenience sampling process from only one school, homogeneity in the region, participants' age, teachers' instructional style, and school effects are inevitable. Therefore, the relations between variables as evidenced by the present study may not be generalizable to a larger EFL or FL learner population. For this reason, future research is needed to verify our findings in a wider pool of participants from various contexts. Second, we only considered self-rated FL proficiency in the study because of the difficulty in organizing a standardized and reliable proficiency test. Our participants might be prone to underestimate their proficiency due to modesty. Further research can map out solutions to address this issue. Third, it is worth noting that the present study's findings were based on mere cross-sectional data. Thus, we do not ascertain that they reflected causal relations among our measured variables. We look forward to more longitudinal research assessing the relations among FL emotions, learning motivation, and language proficiency springing up in the future. Notwithstanding these limitations, the present study serves to enrich the literature on how FL classroom emotions, expectancy-value motivation, and self-rated FL proficiency link and coexist in the process of FL learning.

DATA AVAILABILITY STATEMENT

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

AUTHOR CONTRIBUTIONS

LD conceived the idea, analyzed the data, and drafted the manuscript. ML provided critical feedback and helped to shape the research. FY reviewed and revised the manuscript. All authors contributed to the article and approved the submitted version.

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REFERENCES

Aida, Y. (1994). Examination of Horwitz, Horwitz, and Cope's construct of foreign language anxiety: the case of students of Japanese. *Mod. Lang. J.* 78, 155–168. doi: 10.1111/j.1540-4781.1994.tb02026.x

Alamer, A. (2021b). Construct validation of self-determination theory in second language scale: the bifactor exploratory structural equation modeling approach. *Front. Psychol.* 12:732016. doi: 10.3389/fpsyg.2021.732016

Alamer, A. (2021a). Basic psychological needs, motivational orientations, effort, and vocabulary knowledge: a comprehensive model. *Stud. Sec. Lang. Acquis.* 44, 164–184. doi: 10.1017/S027226312100005X

Alamer, A. (2022). Exploratory structural equation modeling (ESEM) and bifactor ESEM for construct validation purposes: guidelines and applied example. *Res. Methods Appl. Linguist.* 1, 1–13. doi: 10.1016/j.rmal.2022.100005

Alamer, A., and Marsh, H. (2022). Exploratory structural equation modeling in second language research: an applied example using the dualistic model of passion. *Stud. Second Lang. Acquis.* 44, 1–24. doi: 10.1017/S027226312100863

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychol. Rev.* 64, 359–372. doi: 10.1037/h0043445

Boo, Z., Dörnyei, Z., and Ryan, S. (2015). L2 motivation research 2005–2014: understanding a publication surge and a changing landscape. *System* 55, 145–157. doi: 10.1016/j.system.2015.10.006

Boudreau, C., MacIntyre, P. D., and Dewaele, J.-M. (2018). Enjoyment and anxiety in second language communication: an idiodynamic approach. *Stud. Second Lang. Learn. Teach.* 8, 149–170. doi: 10.14746/ssllt.2018.8.1.7

Carroll, D. (1999). *Psychology of Language*. Monterey, CA: Brooks/Cole Pub. Co.

Cheng, Y., Horwitz, E., and Schallert, D. (1999). Language anxiety: differentiating writing and speaking components. *Lang. Learn.* 49, 417–446. doi: 10.1111/0023-8333.00095

China Ministry of Education (2021). *National Statistical Bulletin Of Education Development In 2020*. Available online at: http://www.moe.gov.cn/jyb_sjzl/sjzl_fztjgb/202108/t20210827_555004.html (accessed November 7, 2021).

Davari, H., Karami, H., Nourzadeh, S., and Iranmehr, A. (2020). Examining the validity of the achievement emotions questionnaire for measuring more emotions in the foreign language classroom. *J. Multiling. Multicult. Dev.* 2, 1–14. doi: 10.1080/01434632.2020.1766054

Deci, E. L., and Ryan, R. M. (1985). *Intrinsic Motivation And Self-Determination In Human Behavior*. New York, NY: Plenum.

Dewaele, J.-M., and Alfawzan, M. (2018). Does the effect of enjoyment outweigh that of anxiety in foreign language performance? *Stud. Second Lang. Learn. Teach.* 8, 21–45. doi: 10.14746/ssllt.2018.8.1.2

Dewaele, J.-M., and Li, C. (2021). "Teacher enthusiasm and students' social-behavioral learning engagement: The mediating role of student enjoyment and boredom in Chinese EFL classes," in *Learner Psychology and Instructed Second Language Acquisition (Special issue), Language Teaching Research*, eds M. Sato and K. Csizér Wein (Thousand Oaks, CA: SAGE Publications). doi: 10.1177/13621688211014538

Dewaele, J.-M., and Li, C. (2022). Foreign language enjoyment and anxiety: associations with general and domain-specific English achievement. *Chinese J. Appl. Linguist.* 45, 32–48. doi: 10.1515/cjal-2022-0104

Dewaele, J.-M., and MacIntyre, P. D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Stud. Second Lang. Learn. Teach.* 4, 237–274. doi: 10.14746/ssllt.2014.4.2.5

Dewaele, J.-M., and MacIntyre, P. D. (2016). "Foreign language enjoyment and foreign language classroom anxiety: the right and left feet of FL learning?," in *Positive psychology in SLA*, eds P. D. MacIntyre, T. Gregersen, and S. Mercer (Bristol: Multilingual Matters), 215–236. doi: 10.21832/9781783095360-010

Dewaele, J.-M., Chen, X., Padilla, A. M., and Lake, J. (2019a). The flowering of positive psychology in foreign language teaching and acquisition research. *Front. Psychol.* 10:2128. doi: 10.3389/fpsyg.2019.02128

Dewaele, J.-M., Magdalena, A. F., and Saito, K. (2019b). The effect of perception of teacher characteristics on Spanish EFL learners' anxiety and enjoyment. *Mod. Lang. J.* 103, 412–427. doi: 10.1111/modl.12555

Dewaele, J.-M., Witney, J., Saito, K., and Dewaele, L. (2017). Foreign language enjoyment and anxiety in the FL classroom: the effect of teacher and learner variables. *Lang. Teach. Res.* 22, 676–697. doi: 10.1177/1362168817692161

Dong, L., and Liu, M. (2022). Effects of foreign language enjoyment on foreign language test performance: a moderated mediation model. *Mod. For. Lang.* 192, 195–206.

Dörnyei, Z. (2008). *The Psychology Of The Language Learner: Individual Differences In Second Language Acquisition*. Mahwah, NJ: Lawrence Erlbaum.

Eccles, J. S., and Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: a developmental, social cognitive, and sociocultural perspective on motivation. *Contemp. Educ. Psychol.* 61:101859. doi: 10.1016/j.cedpsych.2020.101859

Elahi Shirvan, M., and Taherian, T. (2021). Longitudinal examination of university students' foreign language enjoyment and foreign language classroom anxiety in the course of general English: latent growth curve modeling. *Int. J. Biling. Educ. Biling.* 24, 31–49. doi: 10.1080/13670050.2018.1441804

Ewald, J. D. (2007). Foreign language learning anxiety in upper-level class: involving students as researchers. *For. Lang. Ann.* 40, 122–142. doi: 10.1111/j.1944-9720.2007.tb02857.x

Fredrickson, B. L., and Joiner, T. (2018). Reflections on positive emotions and upward spirals. *Perspect. Psychol. Sci.* 13, 194–199. doi: 10.1177/1745691617692106

Gan, Z. (2009). Asian learners' re-examined: an empirical study of language learning attitudes, strategies and motivation among mainland Chinese and Hong Kong students. *J. Multiling. Multicult. Dev.* 30, 41–58. doi: 10.1080/01434630802307890

Gardner, R. C. (1985). *Social Psychology And Second Language Learning: The Role Of Attitudes And Motivation*. London: Edward Arnold.

Gardner, R. C., and Lambert, W. E. (1972). *Attitudes And Motivation In Second Language Learning*. Boston, MA: Newbury House.

Guo, J., Marsh, H. W., Parker, P. D., Morin, A. J. S., and Dicke, T. (2017). Extending expectancy-value theory predictions of achievement and aspirations in science: dimensional comparison processes and expectancy-by-value interactions. *Learn. Instr.* 49, 81–91. doi: 10.1016/j.learninstruc.2016.12.007

He, X., Zhou, D., and Zhang, X. (2021). *An Empirical Study On Chinese University Students' English Language Classroom Anxiety With The Idiodynamic Approach*. Thousand Oaks, CA: SAGE Open. doi: 10.1177/21582440211037676

Horwitz, E. K. (2001). Language anxiety and achievement. *Ann. Rev. Appl. Linguist.* 21, 112–126. doi: 10.1017/S0267190501000071

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x

Hulleman, C. S., Kosovich, J. J., Barron, K. E., and Daniel, D. B. (2017). Making connections: replicating and extending the utility value intervention in the classroom. *J. Educ. Psychol.* 109, 387–404. doi: 10.1037/edu0000146

Jiang, Y., and Dewaele, J.-M. (2019). The predictive power of socio-biographical and language variables on foreign language anxiety of Chinese university students. *System* 89, 1–12. doi: 10.1016/j.system.2020.102207

Jin, Y., and Zhang, L. J. (2018). The dimensions of foreign language classroom enjoyment and their effect on foreign language achievement. *Int. J. Biling. Educ. Biling.* 1, 1–15. doi: 10.1080/13670050.2018.1526253

Li, C. (2021). A control–value theory approach to boredom in English classes among university students in China. *Mod. Lang. J.* 105, 317–334. doi: 10.1111/modl.12693

Li, C., Dewaele, J.-M., and Jiang, G. (2020). The complex relationship between classroom emotions and EFL achievement in China. *Appl. Linguist. Rev.* 11, 485–510. doi: 10.1515/applirev-2018-0043

Li, C., Jiang, G., and Dewaele, J.-M. (2018). Understanding Chinese high school students' foreign language enjoyment: validation of the Chinese version of the foreign language enjoyment scale. *System* 76, 183–196. doi: 10.1016/j.system.2018.06.004

Li, C., and Li, W. (2022). Anxiety, enjoyment, and boredom in language learning amongst junior secondary students in rural China: How do they contribute to L2 achievement? *Stud. Sec. Lang. Acquis.* 1–16. doi: 10.1017/S0272263122000031

Liu, M. (2007). Chinese students' motivation to learn English at the tertiary level. *Asian EFL J.* 9, 126–146. doi: 10.1016/j.nedt.2015.07.003

Liu, M., and Dong, L. (2021). "The interaction of expectancy-value beliefs and academic oral communication anxiety in bilingual chinese postgraduate students," in *Multilingualism*, ed. X. Jiang (London: IntechOpen). doi: 10.5772/intechopen.98181

Liu, M., and Jackson, J. (2008). An exploration of Chinese EFL learners' unwillingness to communicate and foreign language anxiety. *Mod. Lang. J.* 92, 71–86. doi: 10.1111/j.1540-4781.2008.00687.x

Loh, K. (2019). What we know about expectancy-value theory, and how it helps to design a sustained motivating learning environment. *System* 86, 102–119. doi: 10.1016/j.system.2019.102119

Lou, N. M., and Noels, K. A. (2020). Mindsets matter for linguistic minority students: growth mindsets foster greater perceived proficiency, especially for newcomers. *Mod. Lang. J.* 104, 739–756. doi: 10.1111/modl.12669

MacIntyre, P. D. (2017). "An overview of language anxiety research and trends in its development," in *New Insights Into Language Anxiety: Theory Research And Educational Implications*, eds C. Gkonou, M. Daubney, and J.-M. Dewaele (Bristol: Multilingual Matters), 11–30. doi: 10.21832/9781783097722-003

MacIntyre, P. D., and Gregersen, T. (2012). Emotions that facilitate language learning: the positive-broadening power of the imagination. *Stud. Second Lang. Learn. Teach.* 2, 193–213. doi: 10.14746/ssllt.2012.2.2.4

MacIntyre, P. D., and Vincze, L. (2017). Positive and negative emotions underlie motivation for L2 learning. *Stud. Second Lang. Learn. Teach* 7, 61–88. doi: 10.14746/ssllt.2017.7.1.4

MacIntyre, P. D., Gregersen, T., and Mercer, S. (2019). Setting an agenda for positive psychology in SLA: theory, practice, and research. *Mod. Lang. J.* 103, 262–274. doi: 10.1111/modl.12544

Nagle, C. (2021). Using expectancy value theory to understand motivation, persistence, and achievement in university-level foreign language learning. *For. Lang. Ann.* 54, 1238–1256. doi: 10.1111/flan.12569

Noels, K. A., Pelletier, L. G., Richard, C., and Vallerand, R. J. (2003). Why are you learning a second language? motivational orientations and self-determination theory. *Lang. Learn.* 50, 57–85. doi: 10.1111/1467-9922.53223

Oga-Baldwin, W., Fryer, L., and Larson-Hall, J. (2019). The critical role of the individual in language education: new directions from the learning sciences. *System* 86, 1–7. doi: 10.1016/j.system.2019.102118

Pavlenko, A. (2013). "The affective turn in SLA: From "affective factors" to "language desire" and "commodification of affect," in *The Affective Dimension In Second Language Acquisition*, eds D. Gabrys-Barker and J. Bielska (Bristol: Multilingual Matters), 3–28.

Plonsky, L., and Oswald, F. L. (2014). How big is "big"? Interpreting effect sizes in L2 research. *Lang. Learn.* 64, 878–912. doi: 10.1111/lang.12079

Resnik, P., and Dewaele, J.-M. (2021). Learner emotions, autonomy and trait emotional intelligence in "in-person" versus emergency remote English foreign language teaching in Europe. *Appl. Linguist. Rev.* 2021, 1–29. doi: 10.1515/applirev-2020-0096

Ryan, R., and Deci, E. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: definitions, theory, practices, and future directions. *Contemp. Educ. Psychol.* 61:101860. doi: 10.1016/j.cedpsych.2020.101860

Saito, K., Dewaele, J.-M., and In'nami, Y. (2018). Motivation, emotion, learning experience and second language comprehensibility development in classroom settings: a cross-sectional and longitudinal study. *Lang. Learn.* 68, 709–743. doi: 10.1111/lang.12297

Seligman, M. E. P., and Csikszentmihalyi, M. (2000). Positive psychology: an introduction. *Am. Psychol.* 55, 5–14. doi: 10.1037/0003-066X.55.1.5

Shao, K., Pekrun, R., and Nicholson, L. J. (2019). Emotions in classroom language learning: what can we learn from achievement emotion research? *System* 86, 102–121. doi: 10.1016/j.system.2019.102121

Teimouri, Y. (2018). Differential roles of shame and guilt in L2 learning: how bad is bad? *Mod. Lang. J.* 102, 632–652. doi: 10.1111/modl.12511

Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., and Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy–value theory: a latent interaction modeling study. *J. Educ. Psychol.* 104, 763–777. doi: 10.1037/a0027470

Wan, Z. H. (2019). Exploring the effects of intrinsic motive, utilitarian motive, and self-Efficacy on students' science learning in the classroom using the expectancy-value theory. *Res. Sci. Educ.* 51, 647–659. doi: 10.1007/s11165-018-9811-y

Wigfield, A., and Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemp. Educ.* 25, 68–81. doi: 10.1006/ceps.1999.1015

Xu, J. (2017). The mediating effect of listening metacognitive awareness between test-taking motivation and listening test score: an expectancy-value theory approach. *Front. Psychol.* 8:2201. doi: 10.3389/fpsyg.2017.02201

Yang, Y., and Mindrila, D. (2020). Probing the underlying structure of modern expectancy-value theory in multicultural education: a bayesian exploratory factor analysis. *Int. J. Educ. Psychol.* 9, 55–81. doi: 10.17583/ijep.2020.4261

Yao, Y., Guo, N. S., Wang, W., and Yu, J. (2021). Measuring Chinese junior high school students' language mindsets: what can we learn from young EFL learners' beliefs in their language ability? *System* 101:102577. doi: 10.1016/j.system.2021.102577

Zhan, Y., Jiang, Y., Wan, Z. H., and Guo, J. J. (2020). Is there an "expectancy × value" effect? Investigating the impact of self-efficacy and learning motives on Chinese undergraduates' use of deep language learning strategies. *Asia Pac. Educ. Res.* 30, 83–94. doi: 10.1007/s40299-020-00516-y

Zhang, X. (2019). Foreign language anxiety and foreign language performance: a meta-analysis. *Mod. Lang. J.* 2, 763–781. doi: 10.1111/modl.12590

Zhang, Y. (2021). "The effects of expectancy and task values on Chinese doctoral students' anxiety about using English for academic oral communication," in *Teaching and Researching Chinese EFL/ESL Learners in the 21st Century*, eds Z. Lu, M. Liu, and W. Zhang (London: Routledge).

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"I Have Grown Accustomed to Being Rejected": EFL Academics' Responses Toward Power Relations in Research Practice

Hua Lu[1,2]* *and Sook Jhee Yoon*[2]

[1] School of Foreign Studies, Anhui Polytechnic University, Wuhu, China, [2] Faculty of Education, Languages and Psychology, SEGi University, Kota Damansara, Malaysia

While there has been an increasing interest in English as a foreign language (EFL) teachers' research engagement and researcher identity construction, scant attention has been paid to tensions caused by the issue of power relations in their research practice. This study draws on data from semi-structured interviews complemented with data from narrative frames and document analysis to examine the influence of power relations on the research practice of six EFL academics and their coping strategies at a Chinese university. The data analysis reveals that for the participants in the study, even though they were driven to be engaged in research practice by a combination of intrinsic and extrinsic motivations, they found that their research endeavors were undermined by the marginalized status of EFL researchers from non-elite universities, as imposed by the Chinese academic circle. Nevertheless, in the face of potential bias against their peripheral academic status, they exerted their agency with micropolitical literacy and tried to seek a way out of the unfavorable academic culture. As EFL teachers at regular universities are increasingly expected to be more research-active and research-productive, more attention and support are needed to facilitate their professional development and researcher identity construction.

Keywords: power relations, EFL academics, research practice, research grant applying, academic writing and publishing

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***Correspondence:**
Hua Lu
luhua27@163.com

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INTRODUCTION

In recent years, there has been a surge of interest in EFL teachers' research practice (e.g., Allison and Carey, 2007; Bai and Hudson, 2011; Borg, 2009; Bai et al., 2013; Yuan, 2017; Peng and Gao, 2019; Yuan et al., 2020) and researcher identity construction (e.g., Xu, 2014; Long and Huang, 2017; Tran et al., 2017; Teng, 2019; Nakata et al., 2021; Bao and Feng, 2022). Previous works by Barkhuizen (2009), Trent (2012), and Taylor (2017) have shown that research engagement can promote language teachers' teaching effects and contribute to their professional growth in research knowledge and skills, as well as contribute to their career advancement. Additionally, research has been given a top priority in many higher education institutions across the world that wish to improve their global ranking

(Quimbo and Sulabo, 2014; Dai et al., 2021), particularly in the publish-or-perish academic culture (Lee, 2014; Bai, 2018). Therefore, university EFL teachers, like teachers in other disciplines, face mounting pressure to be research-active and research-productive (Borg and Liu, 2013; Yang et al., 2021a).

In many higher education institutions, English proficiency courses are offered as a breadth subject taken by students across the disciplines. The language instructors are employed based on their qualifications in teaching English and their high level of proficiency in English (Bai et al., 2014; Zhou and Zhang, 2016; Xu, 2020). Experience in research, albeit an added strength, is often not one of the main criteria for landing the language instructor position. Hence, there is an inherent mismatch between instructors' experiences and the expectations to publish (Wang and Han, 2011; Huang and Guo, 2019) if the "publish or perish" concept is imposed upon these language instructors. This inherent mismatch has unfairly led language instructors to be at a disadvantage where research and publication-related achievements are concerned. These language instructors are labeled as an "academically marginalized community" (Liu and Borg, 2014, p. 288), loosely defined as those who have shown unsatisfactory research creativity and productivity (Dai, 2009). Such a marginal situation necessitates an examination of power relations in language instructors' research practice, particularly those from non-elite universities with limited institutional resources. While previous studies have detected the constraints inflicted upon EFL teachers' researcher identity construction by the unfavorable academic context (Barkhuizen, 2009; Liu and Borg, 2014; Long and Huang, 2017), few have conducted a further exploration of the specific influence of the issue of power relations on their research practice. In this study, we limit the scope to EFL academics from a common comprehensive university in China, where both established researchers and struggling research practitioners are present in the same department. This study aims to fill this gap by addressing the following two research questions:

1. What influence does the issue of power relations have on the research practice of university EFL academics?
2. How do university EFL academics deal with the issue of power relations in their research practice?

LITERATURE REVIEW

University English as a Foreign Language Teachers' Researcher Identity

A great deal of previous research suggests that identity plays a central role in language teachers' professional development because it helps teachers understand their work and make sense of their professional roles (e.g., Tsui, 2007; Liu et al., 2011; Trent, 2011, 2014; Farrell, 2012; Xu, 2012; Xu, 2016; Teng, 2020a; Yang et al., 2021b). As described as dynamic, fluid, and multifaceted (Beijaard et al., 2004), the construction of teacher identity involves a complex process through which individual teachers are engaged in various forms of practice, such as teaching and research, in their situated professional contexts (Yuan, 2017). It is not uncommon for teachers to constantly construct and reconstruct their identities to integrate their personal and professional dimensions in socio-institutional conditions (Beijaard and Meijer, 2017). One example is the work of Selvi et al. (2022), who employed collaborative autoethnography to unpack the complexities of identity among non-native English language teaching practitioners. Their work shows that initial beliefs and interactions with people and space can lead to constant changes in identities. Similarly, Molina (2022) reported that in the transnational English language teaching contexts, English language teachers' work displayed complexities, and the fluid and multifaceted dimensions of their transnational identities could transcend generalizations and stereotypes as they interacted with situated circumstances. Awadelkarim (2022) also reported that academics often manifested their selfhood in their research writing. These works show that growth in self can lead to changes in identity as an English language teaching practitioner and how they perceive their identity as a researcher.

Consistent with teacher identity, EFL teachers' researcher identity also displays features of being dynamic, complex, and multifaceted (Teng, 2018). It has been noted that EFL academics' researcher identity construction is subject to not only personal factors such as research knowledge and skills (Dai, 2009; Xu, 2020), research self-efficacy (Boran, 2018; Nakata et al., 2021), research motivations (Yuan et al., 2016; Peng and Gao, 2019), but also a number of institutional (Yang et al., 2021a), and socio-cultural factors (Norton and Early, 2011; Xu, 2014). Extensive research has shown that many socio-institutional factors exert tremendous influence upon EFL teachers' researcher identity construction, such as global and national academic culture (e.g., Zhang, 2014; Tian et al., 2016; Tran et al., 2017; Teng, 2019; Gao and Zheng, 2020), institutional research culture (e.g., Bai, 2018; Farsani and Babaii, 2019; Alhassan and Ali, 2020; Bao and Feng, 2022), and institutional research policies (e.g., Xu, 2014; Long and Huang, 2017; Yuan et al., 2020; Yang et al., 2021a; Yuan, 2021). These socio-institutional factors play either a conducive or a constraining role in academics' research engagement. For example, Gao and Zheng (2020) found that the socio-political context, such as a country's highly centralized system in education, may put academics in a research dilemma because it largely restrains academics' autonomy to decide what to research and where to publish. Likewise, based on four university EFL teachers' research experiences, Long and Huang (2017) reported that the institutional context was only conducive to teachers' research engagement with reasonable and attainable research requirements, while it became unsupportive when its requirements seemed to be unattainable to academics.

Subject to various factors, the construction of researcher identity is a long and arduous process (Yuan, 2017), particularly for university EFL teachers in current academic contexts. Influenced by the trends of marketization (Mok, 2009), new managerialism (Deem et al., 2008), the performative culture (Perryman, 2009; Yang et al., 2021a), and the intention of enhancing their global competitiveness, many higher education institutions have adopted a research-oriented culture and put explicit requirements for research output in institutional policies such as recruitment, promotion, and key performance evaluation

(Wang and Han, 2011; Bai et al., 2012; Long and Huang, 2017). University EFL teachers are thus socio-institutionally driven to be research productive in order to meet these requirements. This is typically reflected in the institutional key performance appraisal system carried out in many countries and regions, which evaluates academics' research productivity mainly by the quality and quantity of scholarly publications and research grants at high levels (Sikes, 2006; Chetty and Lubben, 2010). As these research policies demand certain levels of research excellence to be fulfilled, EFL teachers often feel that they are too stressed and incompetent to meet these stringent requirements (Yuan et al., 2020). Moreover, their institutional context with unfavorable research culture has been found to be more of a constraining factor than a supportive one in their research work (Long and Huang, 2017). As a result, becoming a researcher has proven to be a difficult and demanding journey for EFL teachers, during which they frequently grapple with various tensions and challenges in their situated socio-institutional contexts (Barkhuizen, 2009; Liu and Borg, 2014). In a study done by Yang et al. (2021a), they reported that both negative and positive emotions contributed to the professional identity tensions, which led the EFL teachers to be the disheartened performer, the miserable follower, the strenuous accommodator, and the fulfilled integrator.

However, there is also research finding that EFL academics exercised their agency to be actively engaged in research activities despite their contextual constraints. For example, Yuan (2017) found that a novice language academic exercised his self-agency to survive the publishing game and develop his academic identity within socially defined contexts. Similarly, based on a case study on a language academic's research experiences, Teng (2020a) reported that a sense of agency was necessary to help academics learn and participate in the academic community. Overall, EFL academics' research practice is subject to various factors, including socio-institutional factors as well as individual factors. Under these circumstances, teacher agency plays a pivotal role in academics' research ability building and professional development (Xu, 2020).

Tensions and Power Relations in University English as a Foreign Language Teachers' Research Practice

In addition to the institutional research requirements, for university EFL teachers, their marginalized academic status (Liu, 2009; Liu and Borg, 2014) and weak research tradition (Dai, 2009) also cause tensions and challenges in their research practice. To start with, there is a tension between their objective of doing research for pedagogical practice and their institution's demand of doing research for publication. Studies found that a large number of EFL teachers were willing to be engaged in research that could bring benefits to their pedagogical practice while not caring much about whether their research could get published or not (Barkhuizen, 2009; Liu and Borg, 2014), given that most EFL teachers at tertiary institutions were initially recruited more as language instructors than competent researchers (Liu and Borg, 2014). However, in many institutions, the usual research requirements in institutional policies explicitly state the official stance of the institutional authorities: only published research counts as research (Wang and Han, 2011). This difference in the purpose of doing research highlights the conflicts between teachers' intrinsic motivation and their extrinsic pressure to do research. While EFL teachers hold the view that the priority of research should be set on pedagogical benefits, their institutions set specific requirements for research output in quantified terms. This may eventually lead to a decline in academics' intrinsic motivation to do research when they feel doing research is a compulsory duty externally enforced by their institution (Xu, 2014), which has absolute power over them.

As early as the 1980s, Foucault (1980) pointed out that power is pervasive in modern society and power relations are omnipresent. Power, according to Van Dijk (2013), is a property of relationships between social groups, institutions, or organizations. While not everyone has equal access to valued social resources, dominant groups or institutions may enact or legitimize power abuse and inequality in text and talk (Van Dijk, 2013). Society and culture are built on discourse (Fairclough et al., 2011). Being interpretative and explanatory, discourse analysis *per se* studies complex social phenomena with a multi-disciplinary and multi-methodological approach (Wodak and Meyer, 2009). It views language as social interaction and addresses social problems (Fairclough et al., 2011), one of which is professional and institutional power (Van Dijk, 2005). In specific social domains such as educational organizations, which possess a particular order of discourse (Fairclough, 2001), power and dominance are linked with the rules that serve as the background of the "discursive reproduction of power" (Van Dijk, 2005, p. 478) in such institutions. Members of other groups who are reliant on institutional power are the victims of such power. However, their dissenting discourses have received far less attention (Van Dijk, 2005). Foucault's and others' analyses of power and power relations have had a substantial impact on education (Dussel, 2010), since education is often associated with power (Gore, 1995). The issues caused by the omnipresence of power relations are particularly salient for university EFL teachers, who are victims of the tensions induced by power relations in their research practice. For example, both Braine (2005) and Yuan (2017) have noticed that EFL academics might experience bias against their research topics and research contexts. Confined to their local socio-cultural and educational contexts, EFL teachers' research topics and focuses might not be taken as mainstream research interests, particularly given EFL teachers' low academic status. Furthermore, some studies also mentioned that EFL academics might encounter bias in publishing articles when academic journals' preferences are influenced by social networks (Xu, 2014; Yuan et al., 2020), the author's academic status (Yuan et al., 2020), educational background (Dai et al., 2021), or professional title (Dai et al., 2021), which increases the tension in publishing their research work and thus induces some negative emotions such as complaint and disappointment (Xu, 2014; Yuan, 2021; Yuan et al., 2020). Given that the number of language academic journals is small compared to a large number of EFL teachers' publishing needs (Xu, 2014), the dim reality aggravates the tensions related to power relations experienced by EFL teachers in their research engagement.

To date, while previous studies have brought the issue of power relations regarding EFL academics to people's attention, the specific tensions caused by power relations in their research practice and how they cope with these tensions remain underexplored, particularly for those EFL teachers from non-elite universities without a prestigious research reputation. What potential bias and tensions they might encounter and how they deal with these tensions in research practice may be of broad relevance to language instructors in similar socio-cultural contexts across the globe. Therefore, adopting the theoretical lens provided by Foucault's account of power relations (Foucault, 1980), this study aims to offer a nuanced understanding of this topic by exploring the influence of power relations on the research practice of EFL academics from a non-elite university and their coping strategies in the context of higher education in China.

METHODOLOGY

Research Context and Participants

The study was conducted at a common public university in central China. This university was chosen for two reasons. First, it is a typical non-elite public university with a middle ranking among all the higher education institutions in China. Public universities like this constitute approximately 94% of China's higher education institutions (Wang, 2018). Two, given that the first author has a professional relationship with the university, it was chosen as the research site to ensure the completion of data collection based on factors of accessibility, feasibility, and familiarity (Hatch, 2002). In order to promote its ranking and further its development, this university has constantly adopted a research-oriented tendency in its institutional policies, even with the release of China's national research policy, breaking the "five-only," which intends to deemphasize the top priority of research for higher education institutions. Take the 3-year key performance appraisal system at this university, for example. It offers options of a teaching track, a teaching-research track, or a research track for teachers to take. However, the requirements for research output in the research track are so demanding and unattainable that no one actually chooses this option. As for the teaching track, only those with an "excellent" teaching evaluation title (top 20% in annual teaching evaluation get this title) in 3 consecutive years can pass with this option. In the most recent key performance appraisal from the cycle of 2019–2021, only 7 passed the teaching track among the 90 faculty members in the School of Foreign Studies. Therefore, the majority of teachers in this department still had to choose the teaching-research track, which imposes stringent and specific requirements on research productivity based on teachers' professional titles, mainly manifested in research grants and article publications, in addition to certain teaching requirements. EFL teachers thus need to be actively engaged in research activities and have research outcomes as required regardless of their professional titles.

Adopting a qualitative research approach, this study used purposive sampling to select the participants (Merriam and Tisdell, 2015). For three reasons, six EFL teachers from the School of Foreign Studies at the research site were selected. First, regardless of whether they were established researchers or struggling research practitioners, they were all actively engaged in research practice and assumed the dual roles of EFL teacher and researcher at the same time. Second, they were all willing to provide rich information and share their stories due to their friendly relationship with the first author, which guaranteed the completion of data collection (Silverman, 2013). Third, they were at different professional phases and varied in different aspects, such as educational background, professional title, and research area, which helped achieve maximum variation among participants (Patton, 2014). The detailed background information of the participants is presented in **Table 1**. The six participants are referred to as T1, T2, T3, T4, T5, and T6.

Data Collection

This study drew data mainly from three sources, namely, narrative frame, semi-structured interview, and document

TABLE 1 | Background information of the participants.

Name	Gender	Age	Educational background	Professional title	Research area	Years of teaching
T1	Male	Late-30s	Ph.D. in foreign linguistics and applied linguistics MA in English linguistics and literature BA in English language education	Professor	Applied linguistics	18
T2	Female	Early-50s	Ph.D. in neurolinguistics MA in English linguistics and literature BA in English language	Professor	Neurolinguistics	25
T3	Female	Early-40s	MA in British literature BA in English language	Associate professor	British literature	13
T4	Female	Mid-40s	MA in English teaching pedagogy BA in English language	Associate professor	English teaching pedagogy	17
T5	Male	Mid-40s	Ph.D. in corpus linguistics MA in applied linguistics BA in English language	Lecturer	Corpus linguistics	14
T6	Male	Late-30s	MA in second language acquisition BA in English language	Lecturer	Second language acquisition	16

analysis. At the beginning of the study, a narrative frame was used to collect basic and general information of the participant's storied experiences (Barkhuizen, 2014). The narrative frame provided to the participants was adapted from the ones used by Xu (2014) and Teng (2019). The adapted narrative frame elicited not only the basic personal information from the participants, but also information related to their research practice, such as the participants' research motivations, attitudes toward the institutional research requirements, perceived challenges in their research practice, and desired institutional research support.

Then, semi-structured interviews were conducted by the first author in a one-on-one and face-to-face manner with all the participants. To ensure the validity of the interview questions, prior to the interview data collection stage, we sent an email to invite one of the leading scholars on teacher education in Hong Kong as our expert reviewer to validate the interview protocol on our research. The expert generously granted our request and wrote detailed remarks on the original interview questions we sent him. He advised us to rephrase some questions so that they could probe into the teachers' experiences. For example, "With regard to research, do you have any particular experiences to share with us?" or "What factors will influence your possibility of doing research? Any examples?" Based on the expert's advice, we rephrased some of the interview questions as suggested. After that, the first author proceeded to the interview stage. In the interviews, the first author asked the participants some further questions concerning what they wrote in narrative frames to gain a clearer understanding of their responses. Then, the interview moved on to explore the participants' research experiences, particularly the critical incidents or the most memorable events they have encountered, along with their emotions, reflections and comments. During the interviews, the participants were invited to air their opinions on the influencing factors in their research work and their corresponding feelings as well. For example, they were asked to reflect on their perceived challenges and tensions in their research work, analyze the possible reasons for these challenges, and develop potential solutions to them. The interviews lasted 40–60 min for each participant, and they were all conducted by the first author in Chinese (the mother tongue for both the interviewer and the participants). All the interviews were audio-recorded with the participants' permission and transcribed verbatim. After that, the transcriptions were sent back to the participants for accuracy checking.

Also, the institutional documents concerning teachers' research output requirements were collected by the first author to provide additional information about the participants' research contexts and settings (Bowen, 2009). Furthermore, these documents, which listed specific requirements for faculty members' research output as well as a system of rewards and penalties, can be used to supplement and triangulate the collected interview and narrative frame data in order to answer the research questions. With the permission of the dean of the School of Foreign Studies, the first author collected the relevant institutional research documents at the research site.

Data Analysis

Thematic analysis and content analysis were used in this study. While the former helped the authors analyze data collected from narrative frames and interviews, the latter was used to analyze collected institutional research documents. A qualitative, inductive approach (Miles et al., 2018) was adopted in thematic data analysis. The process is as follows. First, we repeatedly read the interview transcripts and the participants' written narrative frames to familiarize ourselves with the collected data. Second, during the process of data review, particular attention has been paid to the possible evidence of the issue of power relations (e.g., tensions, obstacles, and potential bias caused by power relations) in the participants' research practice and the participants' responses to this issue. This process of open coding resulted in a wide range of codes, such as "stringent institutional research requirements," "limitations of the institutional platform," "peripheral academic discipline status," "reviewing experts' disciplinary tendencies," "journal editors' preferences," "emotional acceptance of the disadvantaged status," and "exercising self-agency to enhance research competence." All these codes were further compared and integrated to produce the themes that represented the venues (e.g., research grant applications and academic publishing) and sources of the power relations (e.g., the academic circle, reviewing experts, journal editors, and the institution) in the participants' research work. As a result, two themes emerged from these codes, that is, "complexities in research grant applying" and "struggles in academic writing and publishing." As for the participants' coping strategies, "exercising teacher agency with micropolitical literacy" was the emerged theme since their emotional responses and behaviors of exercising self-agency toward the tensions caused by power relations were their agency-driven actions with micropolitical literacy. To enhance the trustworthiness of the study, the second author, a qualitative researcher with a Ph.D. in education, was invited to analyze the data as well. The first author and the second author then went through several discussions about the disagreements in the codes, eventually reaching an inter-rater agreement of more than 90%.

FINDINGS

A review of the institutional research policies indicates that the university mainly places requirements for research output on research grants and scholarly publications. The participants therefore put their efforts into these two directions to meet the institutional requirements. In both their narrative frames and interviews, they frequently talked about the challenges, obstacles, and tensions they have experienced in research grant applying and academic writing and publishing, along with their emotions and actions in dealing with the tensions in their research practice.

Experiencing Complexities in Research Grant Applying

As one of the main criteria of teachers' research productivity, research grants appear in every research policy at the participants' workplace. Applying for research grants was one of the

institutional expectations of the participants' research practice (T2, T3, T4, narrative frames) and their constant research endeavors in these years (T1, T5, T6, narrative frames). For some of them, getting a research grant, particularly a high-level one, was a critical event in their research journey. T1, a prolific researcher with the professional title of professor, only considered himself "a real researcher" when he successfully got a research grant from the National Social Science Foundation, one of the highest level grants in China, in 2011 (T1, interview). Similarly, T2 started to build her research team in 2016 because she felt she had "a responsibility" after securing the national research grant that year (T2, interview). However, in their department, getting a national research grant was extremely rare. Back then, their successes were reported as breaking news on the university's website.

Despite a few participants' successful experiences, most participants expressed their frustrations and anxieties in applying for research grants, which were often derived from the potential bias in academia, in addition to their own limited research competence. While they admitted that they needed to improve "the unsatisfactory quality of the research grant applications" (T5, interview) they wrote, they found that they also had to face the bias against their academic discipline in some provincial research grants. T4, a conscientious EFL teacher with a research interest in English teaching pedagogy, shared her disheartening experience of grant application.

"When we are applying, we may be restricted to some research grants. For example, the Provincial Social Science Foundation only values theoretical research and allows those who do that to apply. We conduct research on teaching, teachers, or students, and our research is regarded as teaching research and is not allowed to apply" (T4, interview).

Because many EFL teachers' primary concern was teaching, their research interest was naturally in teaching research, which was of practical-oriented value to them. However, the restriction on teaching research in grant applications meant that they had an even smaller chance of getting grants, which discouraged their research engagement and enthusiasm. They felt that they needed to be careful with their research focus to increase the chance of being successful.

The potential bias against teaching research and the importance of research topics were also echoed in T6's story. When sharing his experience of a successful research grant application with the first author in the interview, he candidly admitted that it was a "coincidental and fortunate" event for him because the application he wrote was a study on students' spoken English ability, which was not valued as a theoretical study in academia. Research grant applications on English teaching pedagogy like this were not favored at the provincial level. His grant application was immediately turned down when he applied for a provincial grant. Nevertheless, he continued to send the same application to another research grant, and it passed with the reviewing expert's approval. He commented,

"This thing (getting research grants) is really hard to tell. It is hard to tell because when the same proposal is sent to different experts, some may find it meaningless, others may like it very much. There are the factors of luck and gambling involved" (T6, interview).

While the unpredictable factor in T6's research grant application was experts' preferences, for T3, it was a researcher's academic status. As a diligent researcher, T3 has been actively applying for research grants at various levels since she returned to her work institution from a visiting scholar program in Shanghai in 2016. She believed she had reached the peak of her research after extensive reading and contact with the most cutting-edge knowledge in her field. Therefore, she applied for the National Social Science Foundation grant with passion and confidence. However, after a couple of tries, she found that an established scholar got the national research grant on a very similar research topic to hers when she was applying for the third time, which was devastating for her because she knew it meant "no hope" for a young researcher like her to get this grant if she continued to "follow the same research direction" (T3, interview). She lamentably concluded,

"In grant applying, maybe sometimes others have quicker research results than us. Like when I applied for the national research grant, that scholar got the grant a little bit earlier. It is definitely a hindrance for us liberal arts researchers" (T3, interview).

In addition to the unfavorable factors analyzed above, in 2021, the participants' work institution issued a new research policy stating that only those who have experience in applying for the national research grant are allowed to apply for the provincial higher education research grant. This policy puts many EFL lecturers over 35 without a doctoral degree in a Catch-22 dilemma. On the one hand, they need a provincial research grant like this to get a senior professional title. On the other hand, only those who have a senior professional title, a doctoral degree, or are under 35 are eligible to apply for the national research grant according to the national policy. Given that more than half of the faculty members in the English department are lecturers in their late thirties or early forties without a doctoral degree, this institutional policy has worsened the situation of the whole department because it decreases many frontline teachers' chances of getting provincial research grants. As one of the participants commented,

"The current policy is to see what level of research grants we get, but in fact, we all know some high-level research grants, ordinary teachers don't have a chance to get them at all, because not everyone is allowed to apply for them in the first place. This is actually unfair" (T5, interview).

While getting research grants meant "recognition from academia" (T1, interview), the process of applying turned out to be entangled with complex power relations issues such as potential bias against the academic discipline, experts' preferences, researchers' academic status, and the institutional policy, which increased the tensions and difficulties in grant applications for the participants. Given the stringent institutional requirements on the level and number of research grants, the participants felt they were always under immense pressure and experienced intense anxiety when they were constantly striving for successful grant applications.

Experiencing Struggles in Academic Writing and Publishing

According to the participants, they were doing research not only for their own "research interests and joy" (T1, T2, T3, T4, T5, narrative frames), but also for external motivations such as "promotion in professional titles" (T1, T2, narrative frames; T4, interview), and "passing the key performance appraisal" (T6, narrative frame). In some cases, the role played by external motivations was much greater than that of intrinsic motivations. T6, for example, repeatedly emphasized the external pressure of having research output. He claimed that he was writing manuscripts purely to meet the institutional requirements; otherwise, he would not do it because the process was "torturing and painful" (T6, narrative frame). Despite his reluctance and painful feelings, he persisted in writing manuscripts because it was "a system constraint" (T6, interview).

Even though mid-career lecturers like T6 felt it was enormously stressful to be engaged in research, the pressure of having research productivity was actually on all the participants, regardless of their professional titles. Tensions resulting from power relations were also evident in the research practice of academics with senior professional titles. In both his narrative frame and interview, T1, a rising academic who secured a full professorship in his thirties several years ago, mentioned the heavy pressure of publishing in top-tier journals more than once. According to the university's research policy, professors like him needed to have scholarly publications in Chinese Social Science Citation Index (CSSCI) or Social Science Citation Index (SSCI) journals to pass the key performance appraisal. Thus, he felt frustrated and anxious when "it's getting harder and harder to publish papers in high-level journals" (T1, narrative frame). Compared with his smooth publishing experiences in his Ph.D. studies at a prestigious university, he attributed part of his setbacks and frustrations in publishing to the platform of his current work institution.

"The school's platform is limited because it is not among the universities of Project 211 and 985, which means it provides us with insufficient space for academic development. When I was a Ph.D. candidate at University X (pseudonym), I basically got papers published in all the CSSCI foreign language journals. But now, I think the quality of my manuscripts may be better than before, but the difficulty of being accepted by the CSSCI journals has increased. I think a large part of the reason is the limitations of the platform. The editors have a certain judgment when they see the name of our school" (T1, interview).

While the platform of the non-elite university proved to be a discouraging factor in academic publishing, the participants also noticed that the power of social networks had similar negative impact on them. As previous studies have pointed out, social networking sometimes played an important role in publishing in some Chinese foreign language journals, which tended to favor manuscripts from their acquaintances or established scholars rather than follow the blind review system (Xu, 2014; Yuan et al., 2020). This might increase difficulties in publishing for EFL academics without prestigious academic status or strong social networks. Based on years of submitting manuscripts to top-tier journals, T2, a newly promoted professor with publications in one CSSCI journal and several SSCI journals, made such comments,

"I feel that the academic circle culture of foreign language journals, especially high-level journals in China, is still too important. But there is no such thing in foreign journals of neurolinguistics. Comparatively speaking, they are fair and transparent" (T2, interview).

In addition to the academic circle culture, in some Chinese journals, editors have great power in selecting submitted articles. This could also pose challenges to some EFL academics whose research topics might not be appreciated by the editors. As T6 recalled, once he applied the teaching method of the flipped classroom in his course, then he wrote an article about the improved teaching effects based on the application, but his manuscript was immediately rejected after initial screening because "that teaching method is out of date" according to the editor of the journal he submitted (T6, interview). He felt that the ultimate reason for the rejection was the editor's preference.

"The journal I submitted my manuscript to is a non-CSSCI journal. Still, the editors-in-chief of these journals are very picky now. Too many manuscripts are submitted to them every day. He glances at the research topic to see if it's new or if he is interested in it. Their preferences matter so much" (T6, interview).

As a result, T6 felt there was practically little hope for him to have professional growth in terms of research achievements. Given that the platform provided by the university was so mediocre that there would be "no invitations from journals for manuscripts" (T6, interview), it was very challenging for EFL researchers like him without senior professional titles or a doctoral degree to get manuscripts published in CSSCI journals. Even some non-CSSCI journals reject his manuscripts due to a lack of interest in his research focus on English language teaching. T6 felt that he was "struggling at the bottom of academia" (T6, interview) as an EFL teacher at a non-elite university in academic publishing. In a similar vein, T5, a senior lecturer with a Ph.D. who had persevered in doing research for many years, expressed a similar sense of struggle when he made comments on the insufficient institutional support in his research practice.

"The big environment can't help much. No supporting policies, no institutional supporting resources, nothing. I think the big environment, to be honest, the department didn't help me at all. Basically, I am struggling desperately alone" (T5, interview).

Facing the dim reality of publishing in prestigious journals such as CSSCI journals, the participants felt that they were struggling helplessly with their peripheral academic status as EFL teachers from non-elite universities. They admitted that sometimes their failures in publishing were because "the quality of the manuscript was not good enough" (T4, interview) or "it was of low quality" (T5, interview). However, they also experienced the obstacles inflicted on them by the issue of power relations from the academic circle, the journal editors, or the institutional platform. Their disadvantaged status as marginalized academics from a non-elite university intensified the tensions in their publishing experiences. A combination

of various factors led to their frequent failures in academic publishing. As T4 shared,

"At the beginning, when my applications were unsuccessful or my papers were rejected, I felt that the blow was quite large. But now, maybe I've had too many failures. I think I have grown accustomed to being rejected" (T4, interview).

Exercising Teacher Agency With Micropolitical Literacy

The participants' years of participation and reflection in research grant applications and academic publishing aided in the development of their micropolitical literacy (Kelchtermans, 2005), which guided their ongoing research practice as striving and struggling EFL academics. Based on the participants' responses, on the one hand, they admitted that "it is human nature to feel depressed" (T1, interview) when they suffered from failures in grant applications and manuscript publications. On the other hand, they calmly accepted that there may be "some uncertain factors, such as reviewers' preferences" (T3, interview) causing potential bias against their research work in the process. Focusing on her research area of British literature, T3 diligently applied for the national research grant and others in this field on a regular basis. In spite of her many failures in grant applications, she rationally commented,

"It is normal that people don't see eye to eye regarding grant applications. Maybe the reviewers have disciplinary tendencies. In terms of practicality, applications relating to translation definitely hold a certain advantage over those of literature. There is also linguistics; they are more pragmatic in the first place. Then they may have a certain advantage on the reviewers' side, and I can understand this" (T3, interview).

The above quote suggests the participants' awareness of the existence of the issue of power relations and its impact on their research practice. As part of their micropolitical literacy, such an awareness helped them deal with the tensions caused by power relations in a rational manner. Instead of solely blaming the potential bias and feeling sorry for themselves, the participants focused on improving themselves to increase the chances of getting more research outcomes. This was most likely influenced by their pragmatic mindset for success in the performativity (Perryman, 2009) and publish-or-perish culture (Lee, 2014). As T6 stated,

"Only when your manuscript is published can you prove your success. If you write a lot, but you can't get them published, then it's all useless. Nobody cares about your research and gives you their approval" (T6, interview).

Evident in the above quote was the participants' desire for research outcomes. Socio-culturally and institutionally driven, the participants naturally set research outcomes as the goal of their endeavors. Their micropolitical literacy made them aware that basically there was nothing they could do about their academic discipline's marginal status; thus, they exerted their agency to take proactive steps to improve their research competence. For example, some participants admitted that they lacked systematic doctoral training or sufficient research knowledge and skills to write high-quality research grant applications and manuscripts. As T4 revealed,

"In terms of difficulty in research, I think my theoretical knowledge is very weak because I basically read theories by myself, and no one guides me on how to understand them. I think there must be some misconceptions in my understanding, and even some that are completely wrong. I think this is probably a very important reason why there has been no big breakthrough in my research for so many years" (T4, interview).

Therefore, hoping to improve the theoretical understanding of English teaching pedagogy, she applied for an overseas Ph.D. program in education. In this way, she felt that she could improve her research competence by receiving systematic academic training in the forthcoming Ph.D. studies. In addition, many participants frequently attended lectures on research grant applications and academic writing given by leading experts in academia to keep up with the frontline trends in EFL research. In narrative frames, more than half of the participants expressed their wish to "invite more experts to deliver seminars and lectures" in terms of institutional support to improve their research competence (T1, T3, T4, T6, narrative frames).

As for the participants with a doctoral degree, the common practice they adopted was to constantly revise their research grant applications and manuscripts on their own or seek constructive comments from other academics. When asked about how he handled the failures in grant applications and academic publishing, T1 emphasized that the most important thing was to locate the deficiencies and make improvements.

"Take time to locate the deficiencies in our research grant applications and manuscripts. Then carefully try to figure out which problems can be solved by ourselves and which can be solved by asking for help from others, so that we can solve the problems as much as possible to polish and improve the quality of our work" (T1, interview).

This self-improving practice was also shared by T5, another participant with a Ph.D. who felt that "writing a research grant application is like cooking" (T5, interview). He further elaborated,

"Writing a research grant application is not the same as writing a thesis. Writing an application is like writing a research plan, right? After you write the application, if you put it away for a week or two and read it again, you will feel that the original writing is not satisfactory and you can improve it. Because writing a research grant application is like cooking, it can never be done too carefully" (T5, interview).

Confronting the potential bias and tensions caused by power relations in the Chinese academic circle, the participants also tried to seek an alternative as a way out of the contextual constraints. For example, having experienced the different degrees of difficulties in publishing in local and international journals, T2 began to shift her focus to submitting manuscripts to SSCI journals. She recalled that, despite the fact that publishing in international journals was also difficult, the reviewers' comments were very constructive, which helped "increase the rigor" of her manuscripts (T2, interview). In contrast to T2, T1

adopted a more balanced approach to academic publishing. While he kept submitting to CSSCI journals at the current rate of several times a year, he began to submit English manuscripts to international journals to increase his chance of having scholarly publications in prestigious journals. In 2021, he managed to get one manuscript published in a CSSCI journal and one in an SSCI journal as a result of collaborative writing with an academic from another university. No matter what form of agency the participants took, these were all their endeavors under the influence of micropolitical literacy to have as many research outcomes as they could to meet the institutional requirements.

DISCUSSION

Echoing Foucault's account of power relations (Foucault, 1980), this study found that power relations were omnipresent in the research practice of EFL academics, an academically marginalized group, regardless of their professional titles. Professors, associate professors, and lecturers all reported experiencing tensions in power relations to varying degrees. Moreover, consistent with previous studies (Borg and Liu, 2013; Yuan, 2017; Yang et al., 2021a), this research found that the participants were under immense pressure to be engaged in research in their situated socio-institutional context. Under the influence of the publish-or-perish (Lee, 2014) and performativity culture (Perryman, 2009), their work institution imposed stringent research requirements not only in the promotion system, but also in the key performance appraisal system. As a result, like academics from other disciplines, the participants who were traditionally focusing on EFL teaching needed to be actively engaged in research and have required research outcomes for career advancement. However, as some previous research pointed out, EFL teachers' marginalized academic status might bring about hindrances to their research engagement and productivity (Liu, 2009; Liu and Borg, 2014; Yuan, 2021). The participants in this study also experienced the potential bias and tensions induced by their disadvantaged status as a marginalized academic community in higher education.

To comply with stringent institutional requirements on research grants and scholarly publications, the participants in this study were mainly engaged in these two research activities. The potential bias and tensions caused by power relations they encountered were, accordingly, in these two aspects. When in publishing, some tensions experienced by the participants were derived from the potential bias against their institutional platform, the unfavorable treatment of the journal editors' preferences on research topics, and their lack of strong social networks in academia. While some of these research findings have been reported in previous studies, such as the center academia's dismissal attitude toward EFL academics' research topics and contexts (Braine, 2005; Yuan, 2017), the important role played by social networking in publishing when there was a lack of a transparent and fair double-blind review system (Xu, 2014; Yuan et al., 2020), the potential bias against the platform of academics' work institutions has been seldom mentioned in existing literature. This is probably because insufficient attention has been paid to the group of EFL academics from non-elite universities. While previous studies reported that general socio-institutional culture played a significant role on EFL teachers' research practice (Xu, 2014; Negash et al., 2019; Yuan, 2021; Yuan et al., 2020; Yang et al., 2021a; Bao and Feng, 2022), this study found that the specific factor of power relations exerted an undeniable negative impact on the research productivity of EFL academics from non-elite universities. Given that this particular group constitutes the majority of EFL academics (Wang, 2018), this research finding contributes to our understanding of the obstacles and potential bias caused by power relations that common EFL academics face in their research practice.

This study also found that there were tensions caused by power relations in the participants' research practice of research grant applications. In the process of applying for various grants, they have encountered tensions induced by the potential bias against teaching research focuses and topics, reviewing experts' preferences, and applicants' academic status. However, this research finding of potential bias in academics' research grant applications seems to have not been previously reported. A possible explanation for this may be the participants' situated socio-institutional contexts. While getting manuscripts published in prestigious journals seems to be a universal research requirement in almost all higher education institutions around the world (Lee, 2014; Tian et al., 2016; Yuan, 2021; Yuan et al., 2020), some universities additionally list requirements for research grants in their institutional policies. Subject to the trends of marketization (Mok, 2009) and new managerialism (Deem et al., 2008), higher education institutions in China value the facilitative role played by research grants, especially the high-level ones, in promoting institutional development. The participants' work institution is no exception. In fact, given that it is a non-elite public university with insufficient funding and resources, getting as much funding as possible through research grants seems to be a practical exercise to adopt. Situated in the culture of performativity and accountability (Perryman, 2009), the participants naturally follow the institutional requirements to focus on research grant applications in spite of their slim chances of being successful.

Even though the participants in this research experienced the potential bias caused by power relations in their research practice, surprisingly, most of them were found to accept this phenomenon with calmness, which is contrary to what has been found in previous studies. Prior research reported that potential bias in academia could trigger academics' negative emotions such as complaint (Xu, 2014), upset (Yuan, 2021), disappointment (Yuan et al., 2020), and self-doubt (Yuan et al., 2020). However, the findings of the current study do not support the previous research. The participants did not indulge in negative emotions; instead, they cultivated their micropolitical literacy (Kelchtermans, 2005) and exercised teacher agency as a coping strategy to find a way out of their current unfavorable situation. This rather interesting finding might

be related to the participants' self-positioning and pragmatic mindset. Being EFL teachers at a non-elite university, they were aware of their institution's middle ranking and their marginalized academic status. One distinct example was T6, who used a metaphor to describe their status; they were struggling "at the bottom of the pyramid in academia" (T6, interview). The feeling of struggling and failing in research practice was so common that they had become "accustomed to being rejected" (T4, interview). Having said that, driven by a pragmatic mindset for research outcomes as career success, the participants continuously exerted their agency to improve their own research competence with the intention of achieving as many research outcomes as required. The challenges and setbacks in their unfavorable research environment actually activated their psychological and cognitive resources to a certain degree (Xue, 2021).

Therefore, echoing previous research results (Yuan, 2017; Teng, 2020b; Xu, 2020), teacher agency was found to be a crucial factor in the participants' coping strategies to be more research engaged and research competent. However, the participants' specific coping strategies concerning the potential bias of power relations varied. While some focused on enhancing their own research competence by attending academic lectures, enrolling in a doctoral program, and revising their manuscripts and research grant applications, others began to submit manuscripts to international journals as an alternative way out of the contextual constraints. These individualized coping strategies were also part of their micropolitical literacy, which not only helped them look at their marginalized academic status in a rational manner, but also helped them survive the potential bias of power relations in their research practice.

CONCLUSION AND IMPLICATIONS

This study explores the influence of power relations on the research practice of EFL academics from a non-elite Chinese university. It found that while EFL academics were driven to be research-active and research-productive by intrinsic and extrinsic motivations, they encountered tensions and potential bias in power relations against their marginalized academic status in academia. Despite that, EFL academics exercised self-agency with micropolitical literacy to find a way out of the unfavorable environment. The contribution of the study lies in exploring perspectives on the issue of power relations in the research practice of EFL academics from a non-elite university without research prestige or sufficient support, which represents the general situation of the majority of EFL academics in China. Therefore, the research findings may be of relevance to academics in similar contexts around the world. Further, it sheds light on common EFL academics' research experiences in relation to their self-agency and external factors such as institutional requirements and the issue of power relations, which may also exert significant influence on EFL academics' research practice and research productivity.

This study has some practical implications for EFL academics from non-elite universities in unfavorable socio-institutional contexts. First, in the publish-or-perish and performativity cultures, it is important for EFL academics to cultivate micropolitical literacy to be emotionally prepared for the possible setbacks and bias of power relations in the challenging process of research practice. Such micropolitical literacy could help them be aware of the potential bias at the socio-institutional level with a rational mentality. Given that their marginalized academic status cannot be changed overnight, there is also a need for EFL academics to exercise self-agency to enhance their research competence as a practical way out of the contextual constraints.

To promote EFL teachers' research competence, universities may consider providing material support and inviting leading experts in academia to deliver frequent training and lectures on how to conduct research. By providing such systematic guidance and research assistance, universities can not only facilitate EFL teachers' research competence through training and communication with experts, but also help them foster a sense of belonging in a supportive community. For non-elite universities with limited institutional resources, they may also consider cultivating a partnership with those research-intensive universities. In this way, the disadvantaged group of EFL academics may have a better chance of academic success if they can collaborate with their counterparts at prestigious universities.

Furthermore, given the marginalized academic status of EFL teachers and the potential bias of power relations in their research practice, university administrations and institutional policymakers may need to adopt encouraging and flexible policies to recognize EFL academics' research efforts rather than simply impose stringent requirements on their research output. For example, non-elite universities could take measures to give EFL researchers credit for their efforts in applying for research grants instead of only acknowledging the secured ones. In this way, EFL academics may stay perseverant and motivated in research engagement in the current culture of performativity in higher education.

This study also has two limitations. First, the study only focused on six EFL academics from a non-elite university with a middle ranking in China. Future research may select participants from various types of universities to make a comparative study on the issue of power relations in EFL academics' research practice. Second, the participants in this study were already active academics since they have been engaged in research non-stop for years. Future research may take novice researchers as participants and explore how they deal with the issue of power relations in their specific socio-institutional settings.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors upon request.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by School of Foreign Studies, Anhui Polytechnic University. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

HL was mainly in charge of research methodology, data collection, data analysis, and drafting and revision of the manuscript. SY contributed to data analysis and revision of the manuscript. Both authors contributed to the article and approved the submitted version.

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REFERENCES

Alhassan, A., and Ali, H. I. H. (2020). EFL teacher research engagement: towards a research-pedagogy nexus. *Cogent Arts Humanit.* 7:1840732. doi: 10.1080/23311983.2020.1840732

Allison, D., and Carey, J. (2007). What do university language teachers say about language teaching research? *TESL Can. J.* 24, 61–81.

Awadelkarim, A. A. (2022). Researcher/writer identity: exploring awareness, manifestations and implications of EFL scholars' and applied linguists' identities. *Arab World English J.* 3, 495–524.

Bai, L. (2018). Language teachers' beliefs about research: a comparative study of English teachers from two tertiary education institutions in China. *System* 72, 114–123. doi: 10.1016/j.system.2017.11.004

Bai, L., and Hudson, P. (2011). Understanding Chinese TEFL academics' capacity for research. *J. Further High. Educ.* 35, 391–407.

Bai, L., Millwater, J., and Hudson, P. (2012). Chinese Teaching English as a foreign language (TEFL) academics' perceptions about research in a transitional culture. *J. High. Educ. Policy Manage.* 34, 91–102. doi: 10.1080/1360080X.2012.642336

Bai, L., Millwater, J., and Hudson, P. (2013). Factors that influence Chinese TEFL academics' research capacity building: an institutional case study. *Asia Pac. Educ. Res.* 22, 119–126. doi: 10.1007/s40299-012-0004-6

Bai, L., Millwater, J., and Hudson, P. (2014). Chinese TEFL teachers' perceptions about research and influences on their research endeavours. *Teach. Dev.* 18, 349–368. doi: 10.1080/13664530.2014.919344

Bao, J., and Feng, D. W. (2022). "Doing research is not beyond my reach": the reconstruction of College English teachers' professional identities through a domestic visiting program. *Teach. Teach. Educ.* 112:103648. doi: 10.1016/j.tate.2022.103648

Barkhuizen, G. (2009). Topics, aims, and constraints in English teacher research: a Chinese case study. *TESOL Q.* 43, 113–125.

Barkhuizen, G. (2014). Revisiting narrative frames: an instrument for investigating language teaching and learning. *System* 47, 12–27. doi: 10.1016/j.system.2014.09.014

Beijaard, D., and Meijer, P. C. (2017). Developing the personal and professional in making a teacher identity. *SAGE Handbook Res. Teach. Educ.* 2, 177–192.

Beijaard, D., Meijer, P. C., and Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teach. Teach. Educ.* 20, 107–128. doi: 10.1016/j.tate.2003.07.001

Boran, G. S. (2018). Effect of research engagement on EFL teachers'. motivation for and efficacy in teacher-research. *Educ. Sci.* 43, 193–221. doi: 10.15390/EB.2018.7499

Borg, S. (2009). English language teachers' conceptions of research. *Appl. Linguist.* 30, 358–388. doi: 10.1093/applin/amp007

Borg, S., and Liu, Y. D. (2013). Chinese college English teachers' research engagement. *TESOL Q.* 47, 270–299. doi: 10.1002/tesq.56

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qual. Res. J.* 9, 27–40. doi: 10.3316/QRJ0902027

Braine, G. (2005). The challenge of academic publishing: a Hong Kong perspective. *TESOL Q.* 39, 707–716. doi: 10.2307/3588528

Chetty, R., and Lubben, F. (2010). The scholarship of research in teacher education in a higher education institution in transition: issues of identity. *Teach. Teach. Educ.* 26, 813–820. doi: 10.1016/j.tate.2009.10.018

Dai, H. M., Ju, B., Teo, T., and Rappa, N. A. (2021). Understanding Chinese female university teachers' intention to pursue a Ph.D. degree: some insights from a Chinese university. *High. Educ.* 81, 1347–1366. doi: 10.1007/s10734-020-00616-0

Dai, W. (2009). Review and prospect of 60-year foreign language education in China. *Foreign Lang. China* 6, 10–15.

Deem, R., Mok, K. H., and Lucas, L. (2008). Transforming higher education in whose image? Exploring the concept of the 'world-class' university in Europe and Asia. *High. Educ. Policy* 21, 83–97. doi: 10.1057/palgrave.hep.8300179

Dussel, I. (2010). "Foucault and education," in *The Routledge International Handbook of the Sociology of Education*, eds M. W. Apple and S. J. Ball (London: Routledge), 27–36.

Fairclough, N. (2001). Critical discourse analysis as a method in social scientific research. *Methods Critic. Discourse Anal.* 5, 121–138.

Fairclough, N., Mulderrig, J., and Wodak, R. (2011). "Critical discourse analysis," in *Discourse Studies: A Multidisciplinary Introduction*, ed. T A Van Dijk (Thousand Oaks, CA: SAGE), 357–378.

Farrell, T. S. C. (2012). Novice-service language teacher development: bridging the gap between preservice and in-service education and development. *TESOL Q.* 46, 435–449. doi: 10.1002/tesq.36

Farsani, M. A., and Babaii, E. (2019). EFL faculty members' research engagement: voices from Iran. *Res. Post-Compulsory Educ.* 24, 37–59. doi: 10.1080/13596748.2019.1584437

Foucault, M. (1980). *Power/Knowledge: Selected Interviews and other Writings*. New York, NY: Pantheon Books, 1972–1977.

Gao, X., and Zheng, Y. (2020). 'Heavy mountains' for Chinese humanities and social science academics in the quest for world-class universities. *Compare* 50, 554–572. doi: 10.1080/03057925.2018.1538770

Gore, J. M. (1995). "Foucault's poststructuralism and observational education research: a study of power relations," in *After Postmodernism: Education, Politics and Identity*, (Hove: Psychology Press), 98–111.

Hatch, J. A. (2002). *Doing Qualitative Research in Education Settings*. Albany: Suny Press.

Huang, Y.-T., and Guo, M. (2019). Facing disadvantages: the changing professional identities of college English teachers in a managerial context. *System* 82, 1–12. doi: 10.1016/j.system.2019.02.014

Kelchtermans, G. (2005). Teachers' emotions in educational reforms: self-understanding, vulnerable commitment and micropolitical literacy. *Teach. Teach. Educ.* 21, 995–1006. doi: 10.1016/j.tate.2005.06.009

Lee, I. (2014). Publish or perish: the myth and reality of academic publishing. *Lang. Teach.* 47, 250–261. doi: 10.1017/S0261444811000504

Liu, Y. (2009). *Professional Identity Construction of College English Teachers: A Narrative Perspective*. Beijing: Peking University.

Liu, Y., and Borg, S. (2014). Tensions in teachers' conceptions of research: insights from college English teaching in China. *Chin. J. Appl. Linguist.* 37, 273–291. doi: 10.1515/cjal-2014-0018

Liu, Yongcan, and Xu, Y. (2011). Inclusion or exclusion?: a narrative inquiry of a language teacher's identity experience in the 'new work order'of competing pedagogies. *Teach. Teach. Educ.* 27, 589–597. doi: 10.1016/j.tate.2010.10.013

Long, N., and Huang, J. (2017). Exploring researcher identity construction of university EFL teachers in China. *Chin. J. Appl. Linguist.* 40, 371–391. doi: 10.1515/cjal-2017-0022

Merriam, S. B., and Tisdell, E. J. (2015). *Qualitative Research: A Guide to Design and Implementation*. Hoboken, NJ: John Wiley and Sons.

Miles, M. B., Huberman, A. M., and Saldaña, J. (2018). *Qualitative Data Analysis: A Methods Sourcebook*. Thousand Oaks, CA: Sage publications.

Mok, K. H. (2009). "Globalisation and higher education restructuring in Hong Kong, Taiwan and Mainland China," in *The Routledge International Handbook of Higher Education*, eds M. Tight, K. H. Mok, and J. Huisman (Abingdon: Routledge), 285–296.

Molina, S. C. (2022). *Transnational Identities and Practices in English Language Teaching: Critical Inquiries from Diverse Practitioners, Language and Education*. Bristol: Multilingual Matters. doi: 10.1080/09500782.2022.2032732

Nakata, Y., Tokuyama, M., and Gao, X. (2021). From teacher to teacher-researcher: a narrative inquiry into a language teacher becoming an agent of motivational strategies. *Asia Pac. J. Teach. Educ.* 1–14. doi: 10.1080/1359866X.2021.1940841

Negash, M., Lemma, T. T., and Samkin, G. (2019). Factors impacting accounting research output in developing countries: an exploratory study. *Br. Account. Rev.* 51, 170–192. doi: 10.1016/j.bar.2018.09.003

Norton, B., and Early, M. (2011). Researcher identity, narrative inquiry, and language teaching research. *TESOL Q.* 45, 415–439. doi: 10.5054/tq.2011.261161

Patton, M. Q. (2014). *Qualitative Research and Evaluation Methods: Integrating Theory and Practice*. Thousand Oaks, CA: Sage publications.

Peng, J.-E., and Gao, X. (2019). Understanding TEFL academics' research motivation and its relations with research productivity. *Sage Open* 9:2158244019866295. doi: 10.1177/2158244019866295

Perryman, J. (2009). Inspection and the fabrication of professional and performative processes. *J. Educ. Policy* 24, 611–631.

Quimbo, M. A. T., and Sulabo, E. C. (2014). Research productivity and its policy implications in higher education institutions. *Stud. High. Educ.* 39, 1955–1971. doi: 10.1080/03075079.2013.818639

Selvi, A. F., Rudolph, N., and Yazan, B. (2022). Navigating the complexities of criticality and identity in ELT: a collaborative autoethnography. *Asian Englishes* 1–12. doi: 10.1080/13488678.2022.2056798

Sikes, P. (2006). Working in a 'new'university: in the shadow of the research assessment exercise? *Stud. High. Educ.* 31, 555–568. doi: 10.1080/03075070600922758

Silverman, D. (2013). *Doing Qualitative Research: A Practical Handbook*. Thousand Oaks, CA: Sage.

Taylor, L. A. (2017). How teachers become teacher researchers: narrative as a tool for teacher identity construction. *Teach. Teach. Educ.* 61, 16–25. doi: 10.1016/j.tate.2016.09.008

Teng, F. (2018). *Autonomy,Agency,and Identity in Teaching and Learning English as a Foreign Language*. New York, NY: Springer.

Teng, F. (2019). *Understanding Identities in Practice, Discourse, and Activity: English Lecturers' Experiences in the Context of Mainland China Higher Education Reform*. Hong Kong: Hong Kong Baptist University.

Teng, F. (2020a). A narrative inquiry of identity construction in academic communities of practice: voices from a Chinese doctoral student in Hong Kong. *Pedagog. Int. J.* 15, 40–59. doi: 10.1080/1554480X.2019.1673164

Teng, F. (2020b). Understanding TEFL teacher identity: agency, authority, and vulnerability. *TESOL J.* 11:e00511. doi: 10.1002/tesj.511

Tian, M., Su, Y., and Ru, X. (2016). Perish or publish in China: pressures on young Chinese scholars to publish in internationally indexed journals. *Publications* 4:9. doi: 10.3390/publications4020009

Tran, A., Burns, A., and Ollerhead, S. (2017). ELT lecturers' experiences of a new research policy: exploring emotion and academic identity. *System* 67, 65–76. doi: 10.1016/j.system.2017.04.014

Trent, J. (2011). 'Four years on, I'm ready to teach': teacher education and the construction of teacher identities. *Teach. Teach.* 17, 529–543. doi: 10.1080/13540602.2011.602207

Trent, J. (2012). Research engagement as identity construction: Hong Kong preservice teachers' experiences of a compulsory research project. *Teach. Dev.* 16, 145–160. doi: 10.1080/13664530.2012.688677

Trent, J. (2014). When communities collide: the shared construction and defence of community and identity during a teaching practicum. *Teach. Dev.* 18, 29–45. doi: 10.1080/13664530.2013.867896

Tsui, A. B. M. (2007). Complexities of identity formation: a narrative inquiry of an EFL teacher. *TESOL Q.* 41, 657–680. doi: 10.1002/j.1545-7249.2007.tb00098.x

Van Dijk, T. A. (2005). "Critical discourse analysis," in *The Handbook of Discourse Analysis*, eds D. Schiffrin and D. Tannen (Hoboken, NJ: Wiley), 349–371.

Van Dijk, T. A. (2013). "Discourse, power and access," in *Texts and Practices*, ed. M. Coulthard (London: Routledge), 93–113.

Wang, S. (2018). Thoughts on the development of foreign language teachers in universities. *Foreign Lang. World* 187, 13–17.

Wang, X., and Han, J. (2011). On the present conditions and development bottleneck of foreign language teachers academic research in Chinese institutions of higher learning from an empirical perspective. *Foreign Lang. World* 3, 44–51.

Wodak, R., and Meyer, M. (2009). Critical discourse analysis: history, agenda, theory and methodology. *Methods Crit. Discourse Anal.* 2, 1–33.

Xu, H. (2012). Imagined community falling apart: a case study on the transformation of professional identities of novice ESOL teachers in China. *TESOL Q.* 46, 568–578.

Xu, J. (2020). Autonomous professional development of college English teachers. *Shandong Foreign Lang. Teach.* 41, 19–26.

Xu, Y. (2014). Becoming researchers: a narrative study of Chinese university EFL teachers' research practice and their professional identity construction. *Lang. Teach. Res.* 18, 242–259. doi: 10.1177/1362168813505943

Xu, Y. (2016). "Becoming a researcher: a journey of inquiry," in *In Reflections on Language Teacher Identity Research*, ed. G. Barkhuizen (London: Routledge), 128–133.

Xue, L. (2021). Challenges and resilience-building: a narrative inquiry study on a mid-career Chinese EFL Teacher. *Front. Psychol.* 12:758925. doi: 10.3389/fpsyg.2021.758925

Yang, S., Shu, D., and Yin, H. (2021a). Teaching, my passion; publishing, my pain": unpacking academics' professional identity tensions through the lens of emotional resilience. *High. Educ.* 1–20. doi: 10.1007/s10734-021-00765-w

Yang, S., Shu, D., and Yin, H. (2021b). 'Frustration drives me to grow': unraveling EFL teachers' emotional trajectory interacting with identity development. *Teach.Teach. Educ.* 105:103420. doi: 10.1016/j.tate.2021.103420

Yuan, R. (2017). 'This game is not easy to play': a narrative inquiry into a novice EFL teacher educator's research and publishing experiences. *Prof. Dev. Educ.* 43, 474–491. doi: 10.1080/19415257.2016.1182936

Yuan, R. (2021). "Living in parallel worlds": investigating teacher educators' academic publishing experiences in two Chinese universities. *Compare* 51, 787–805. doi: 10.1080/03057925.2019.1681260

Yuan, R., Bai, B., and Hou, S. (2020). Unpacking vulnerability in academic writing and publishing: a tale of two non-native English speaker scholars in China. *High. Educ. Res. Dev.* 41, 981–995. doi: 10.1080/07294360.2020.1865282

Yuan, R., Sun, P., and Teng, L. (2016). Understanding language teachers' motivations towards research. *TESOL Q.* 50, 220–234.

Zhang, X. (2014). *Factors that Motivate Academic Staff to Conduct Research and Influence Research Productivity in Chinese Project 211 Universities*. Canberra, NSW: University of Canberra.

Zhou, Y., and Zhang, J. (2016). Academic development of young university teachers of foreign languages: a case study. *Shandong Foreign Lang. Teach.* 37, 55–61.

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Chin-Hsi Lin,
The University of Hong Kong,
Hong Kong SAR, China

REVIEWED BY
Lawrence Jun Zhang,
University of Auckland, New Zealand
Hamid Ashraf,
Islamic Azad University Torbat-e Heydarieh, Iran

*CORRESPONDENCE
Chunxiu He
chunxiuhe@126.com

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Students' motivation for rubric use in the EFL classroom assessment environment

Chunxiu He[1]*, Jiayan Zeng[2] and Jianlin Chen[3]

[1]School of English Studies, Shanghai International Studies University, Shanghai, China, [2]School of Education, Shanghai International Studies University, Shanghai, China, [3]China Center for Language Planning and Policy Studies, Shanghai International Studies University, Shanghai, China

The effectiveness of a rubric depends on how it is enacted. Although students' efforts in rubric use vary, few studies have investigated the hidden motivations when rubrics are utilized for classroom assessment. This qualitative study attempts to categorize students' effort in rubric use and identify personal differences and contextual factors influencing the effort in the EFL classroom assessment environment. A total of 79 students at a Chinese university participated in the study. The data collected included their classroom oral presentation results and nine case study informants' retrospective interviews on their processes of rubric use. Focuses were drawn upon students' perceptions and practices of rubric use throughout the task process. Totally, three types of effort patterns emerged in light of students' self-ratings and descriptions of the use. The intense kind held firm trust in rubric utility and thus utilized the rubric to develop the targeted competence throughout the whole process. The medium type either selectively followed the rubric in optional phases of the process due to their judgments of the rubric and the task. The loose type was least responsive to the rubric since their actions seemed largely affected by their self-efficacy and prior experience. Results showed that students' effort in rubric use in classroom assessment was the outcome of cognitive appraisals of a rubric, students themselves, and a task. The study highlights trait motivation and task motivation in the effectiveness of rubric use in assessment practices. Implications on rubric employment and task design are drawn to tap students' motivation for rubric use to achieve assessment for learning.

KEYWORDS

rubric use, effort, task motivation, trait motivation, EFL classroom assessment, assessment for learning

Introduction

Rubrics are widely used in both summative and formative assessments at different education levels (Reddy, 2007; Brookhart and Chen, 2015) and in a range of disciplines in higher education (Reddy and Andrade, 2010). Although rubrics could be flexible in format and content in practice (Dawson, 2015), typical rubrics are embedded with three essential features of rubrics, that is, evaluative criteria, matching quality definitions, and a scoring strategy (Popham, 1997). Assessment criteria like rubrics could enable teachers

to make justifiable evaluations (Popham, 1997; Andrade, 2000; Panadero and Jonsson, 2013) and help students understand the desired performance and make an improvement (Andrade and Du, 2005; Panadero and Jonsson, 2013; Wu et al., 2021) and thus bear evaluative and instructional value (Popham, 1997; Andrade, 2005) and contribute in the paradigm of assessment for learning (Black and Wiliam, 2009; Zhou and Deneen, 2016).

In language teaching and learning, rubrics are particularly important instruments for classroom performance tasks such as speaking and writing (Lane and Tierney, 2008; Sadler, 2009; Wang, 2017) since rubrics could promote the alignment between task design and curriculum objectives (Zhou and Wang, 2019) and the development of students' integrated skills (Popham, 1997). However, the promise does not come along with the launch of rubrics since they might feature "the good" and "the bad" and "the ugly" depending on "how they are created and how they are used" ((Andrade, 2005), p. 27). The effectiveness of rubric use may at worst go null if students disregard the rubric for an assessment task (e.g., Hafner and Hafner, 2003; Andrade and Du, 2005). Thus, it is of significance to understand students' effort in rubric use for a particular task, that is, how students devote their efforts to rubric use and what urges them to do so. The unique situation of students "is integrated into the task at hand" (Bearman and Ajjawi, 2019, p. 3). Understanding students' motivation for rubric use for a particular task could provide insights into "how to successfully implement the use of rubrics for formative purposes" (Panadero and Jonsson, 2013, p. 142) and facilitate assessment for learning. Hence, the present study aims to explore students' effort in rubric use and illuminate the factors that may motivate (or demotivate) the effort in the use in the EFL classroom assessment environment. Specifically, it addresses two questions: (1) How do students report their efforts in rubric use in an oral presentation task? (2) What motivational factors moderate students' effort in rubric use in the EFL classroom assessment environment?

Literature review

Students' effort in rubric use

The immediate purpose of rubric use is to facilitate assessment and improve performance (Popham, 1997), and the long-term goal is to promote sustained learning (Bearman and Ajjawi, 2019). Sustained engagement with rubrics has to be committed for better performance when students treat rubrics as references in the self-regulatory process and activate self-assessment as a learning strategy (Andrade, 2001; Panadero and Alonso-Tapia, 2013). Rubrics could promote meaning-making, coordinate sustained learning, and develop reflective knowing when students receive rubrics as invitations to activity (Bearman and Ajjawi, 2019) and become active participants in the learning process to get aligned with "the dominant educational ethos" of assessment for learning (Davison, 2019, p. 439).

To steer assessment for learning, rubrics should become materials and utilized fully as instructions, goals, and memos throughout the process of task implementation for recursive planning, implementation, and evaluation (Zimmerman and Moylan, 2009; Panadero and Alonso-Tapia, 2013; Wang, 2017). In practice, it exists that rubrics are utilized by students in the classroom to the extremes: unfathomable worship regardless of a mismatch in their understanding and teacher expectations (Andrade and Du, 2005), and overt neglect in instructional situations (Schafer et al., 2001; Lim, 2013; Jonsson, 2014). For those students, rubrics are either criteria compliance (Sadler, 2007) or of limited instructional value (Lim, 2013). But the reality is not clear-cut yet, that is, how students utilize rubrics and what they are considering in the process remain afloat. Given the importance of rubrics in supporting students' active learning, it is worthwhile to probe into students' rubric use.

Factors for students' rubric use

A couple of factors have been identified to moderate students' rubric use and are categorized into with-in rubric factors and rubric-user factors (Wang, 2017). With-in rubric factors are design features of rubrics, such as language, content/coverage/criteria, structure, descriptors, and score range (Reddy and Andrade, 2010; Jonsson, 2014; Wang, 2017). These are matters of construct validity of a rubric because any assessment form needs to accurately and consistently assess what it intends to evaluate (Reddy and Andrade, 2010).

Rubric–user factors refer to student characteristics, among which learners' domain knowledge of the assessed skill, length of intervention, and learner profiles like educational level and gender have been discussed (e.g., (Panadero and Jonsson, 2013; Wang, 2017)). However, motivation on students' rubric use is not sufficiently expounded (Panadero and Jonsson, 2013). In general, motivation determines students' effort in rubric use and influences the performance quality. For instance, (Reddy and Andrade, 2010) investigated the function of rubrics in directing students' motivation and effort toward performance enhancement in two different sets of students. It found that the rubric developed initially for one set of students motivated toward higher pay or a better job did not bring about the required effort and quality of responses from the other set of students with a short-term goal of passing a course. Thus, the rubric had to be revised to include it for the appropriate use by both sets. In other cases, students might be fettered by criteria and act in compliance when they are overconcerned with the presumed expectations (e.g., Boud and Falchikov, 2006; Sadler, 2007; Torrance, 2007; Zhou and Deneen, 2016). Yet, how personal differences, such as goal orientation, prior experience, and academic performance, shape students' motivation that

directs their effort in rubric use, remains largely unknown (Panadero and Jonsson, 2013).

In addition, contextual factors, or analogically named rubric-used factors, are found to interfere with the effects of rubric use (Green and Bowser, 2006), and thus, a rubric has to be adapted to the situated context (Reddy and Andrade, 2010). In Green and Bowser (2006), the same rubric encountered validity issues when being used by two groups of students who were either concluding their literature reviews or just beginning the literature review process for the master's thesis in two universities. Hamp-Lyons (2016) draws on Broad (2003) argument that many traditional rubrics are problematic "because of their lack of contextual relevance and failure to grow organically from contexts and purposes" (p. A2). Context-bound studies of rubric use are necessary to identify any pattern or draw any conclusions and propagate its utility in diverse contexts (Reddy and Andrade, 2010; Panadero and Jonsson, 2013). Effort and motivational considerations upon rubric utilization would bring close attention to the person and the context involved.

Effort and motivation in the classroom assessment environment

A classroom assessment environment is defined as a context in which particular assessments occur, and it is set up by assessment-related factors (Brookhart et al., 2006). The classroom assessment environment is viewed as a sociocultural reality experienced and interpreted by individuals, and learners' internal thoughts and feelings form part of that experience (Brookhart, 1997).

Effort refers to post-decisional commitment, including willful persistence and adaptive strategy use (Corno, 1993; Brookhart et al., 2006). Efforts could be mental and behavioral endeavors guided by motivational factors (Brookhart et al., 2006). Motivation, although a complex and multifaceted construct, is defined as a disposition toward something in educational psychology (Brookhart et al., 2006). In the classroom context, motivation plays a main role in controlling and directing an activity or a task (Julkunen, 2001). Motivation could be distinguished according to the task and learner, that is, *motivation as a state* or *task motivation* to refer to situation-specific motivation, and *motivation as a trait* or *trait motivation* with a general orientation in learners (c.f. Boekaerts, 1987; Julkunen, 2001; Mozgalina, 2015).

When it comes to a situated context, task motivation projects the importance of the characteristics of a task (Julkunen, 2001). An individual's task motivation is regarded as 'the composite dynamic outcome of a complex range of contextual influences as well as learner internal factors and the intrinsic properties of the task' (Dörnyei and Ushioda, 2011, p. 60). Since sustained task engagement provides students with more opportunities to interact and thus learn the language, it is important for researchers and teachers to find out task features that can enhance students' task motivation and, as a consequence, language learning (Mozgalina, 2015). Task motivation should be optimally studied in three stages: the initial stage, the actual performance stage, and the evaluation stage (Boekaerts, 1987; Julkunen, 1989). Learners' cognitive appraisals of tasks and encounters regulate the choice of appropriate strategies and the effort expenditure on a task (Julkunen, 2001). Task motivation is found to vary depending on factors such as students' attitudes toward a task, student characteristics, and the relationship between academic achievement and students' affective response (Dornyei, 2001; Julkunen, 2001).

In terms of trait motivation, assessment-related motivational factors cluster into three categories of student characteristics: learners' general learning disposition (self-concept as a learner), task-specific attitude (interest and enthusiasm), and task-specific learning disposition (goal orientation and self-efficacy) (Harlen and Crick, 2003). Keller (1983, 1994) formulates four determinants of motivation that influence an individual's degree of effort that he/she will exert in learning: interest, relevance, confidence, and outcomes. Learners generally deviate in two types of goal orientations connected to the task such as performance orientation and mastery orientation (Ames and Archer, 1988). Performance orientation highlights the accomplishment of the learning task, while mastery orientation emphasizes the mastery of skills and improvement of abilities. Bandura (1997) connects confidence with outcomes in self-efficacy, which is defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Self-efficacy is found to be an element of language learning motivation and positively relates to effort and performance (Brookhart et al., 2006; Kormos et al., 2011).

Given students' divergent attitudes toward rubrics, the complex factors that may influence their practices, and the significance of motivation in controlling effort, it is necessary to gain insights into students' effort patterns and motivational factors in rubric use in the ongoing classroom assessment environment.

The study

The study takes oral presentation tasks in the EFL classroom assessment environment for discussion as oral presentations are a prevalent mode of activity and assessment in tertiary settings across the globe (Tsang, 2018), and presenting is universally acknowledged as an essential qualification of highly educated graduates (van Ginkel et al., 2017). The research questions for this study are formulated to feature the source of the major data (Maxwell, 2012) as follows: (1) How do students report their efforts in rubric use in an oral presentation task? (2) What motivational factors moderate students' effort in rubric

use in the EFL classroom assessment environment? To address the questions, in-depth semi-structured interviews serve as the major approach as qualitative exploratory investigations of learners' self-reports could be employed to retrieve perspectives on motivated behavior (Dörnyei and Ushioda, 2011). No intervention is imposed on the instructional design of the course as real classroom practices should be the domains of field studies for classroom assessment, although the range of quality levels may vary to a large extent (Brookhart et al., 2006).

Context and participants

The sampling pool was from a class of 79 senior students at a top language-featured university in China. The course students attended was entitled *Comprehensive English*, by which students could earn credits by accomplishing assessment tasks for the enhancement of language skills and proficiency. Specifically, the students were required to accomplish five formative assessment tasks, accounting for 50% of the final score for the course, composed of two oral English presentations—one written English book reviews and two English writings (each 10%), and a summative assessment task of a final test constituting another half of the final score. As for the presentation tasks related to this study, the first was on a self-select topic, and the second was a book review from a book list offered by the instructor. For this, two analytical task-specific rubrics in English were created on the Internet (http://rubistar.4teachers.org); (www.teach-nology.com) by the instructor and posted in the class group on WeChat (a popular social network service in China) when the tasks were assigned, with a caution that the performances would be evaluated accordingly and questions regarding the rubrics would be welcomed anytime. The focus of our study, the second rubric for the book review report, consisted of 10 categories: *posture and eye contact, speaks clearly, preparedness, content, enthusiasm, vocabulary, stay on topic and understanding, volume, knowledge base*, and *critical thinking*, each having four descriptor levels (see Appendix). The schedule to perform the tasks was negotiated between the students and the tutor. The students performed the tasks individually, and their performances were video recorded by their classmates. Meanwhile, two raters (the first author and the instructor) independently marked on the copies of the rubrics with written comments and returned oral feedback to the students by referring to the rubrics, the scores being withheld. To check the quality of the rubrics, inter-rater reliability was measured in the quality processes (Johnson et al., 2000), with the first presentation task $r_{\text{rater1}-\text{rater2}} = 0.734$ ($p < 0.05$, $n = 79$) and the second $r_{\text{rater1}-\text{rater2}} = 0.850$ ($p < 0.05$, $n = 79$).

Purposive sampling was used to screen participants, and gender, on-stage performance, and performance results were attended to, for the purpose of balance and heterogeneity. Totally, 10 (five male and five female) students were contacted to participate in the in-depth semi-structured interviews. Except that one female student quit before the interview, nine students (from five provinces/municipalities) joined the one-on-one interviews coordinated by the first author. Anonymous names were assigned to the participants in the report of the study to protect privacy. The nine informants' profiles and performances are summarized in Table 1.

Data collection and analysis

The interviews were conducted at the end of the semester in January 2020 soon after the students had finished the course. Before the interview, the participants were explicitly informed of the research purpose and the fact that no alteration to the scores

TABLE 1 Learner profiles and performances of the participants.

Student	Gender	Age	Major	Self-rating/effort pattern	Performance achievement			
					Presentation 1		Presentation 2	
					Rater 1	Rater 2	Rater 1	Rater 2
Julie	F	21	French	*/intense	9	9.5	9.2	9
Laurie	M	22	Arabic	*/intense	9	9.6	9.5	9.7
Philip	M	22	Arabic	4/medium	8.5	9.8	9	9.4
Brian	M	21	Vietnamese	5/medium	8.8	8.5	7.5	7.5
Tim	M	23	Italian	7/medium	8	9	8.5	9
Kelly	F	22	Korean	9/intense	8.5	9	7.5	8.2
Sue	F	22	Spanish	4/loose	7.4	8.5	8	7.4
Ruth	F	22	Portuguese	*/loose	7.5	6	7	7.2
Gary	M	21	Italian	7/medium	7.5	7.5	8	7.5

*means students did not give a self-rating score.

would incur. In the interviews, the participants were reminded to focus on their rubric use for the second presentation task since they could recall more clearly owing to the closer due date (c.f. Gass and Mackey, 2000). The stimulated questions centered on students' opinions on oral presentation competence and the tasks, their perceptions of rubrics, detailed descriptions of their use of the second rubric, and their considerations in the process. The participants were also required to give a score out of 10 to measure their effort in the rubric use. Each interview lasted about 30–50 min. Interview audios, video recordings of the presentations, and assessment results of all the tasks in the semester by the whole class were collected to provide triangulation for qualitative inquiry (c.f. Miles et al., 1994; Maxwell, 2012).

All of the audiotaped interviews (in L1/Chinese) were transcribed verbatim (63,523 Chinese characters in total) and double-checked. Maximal fidelity was pursued with care to the transcriptions of the opinions of the participants, and the participants were contacted through WeChat for confirmation and clarification in case of unclear points. The data were checked and analyzed through an abductive thematic analysis in response to epistemology and research questions (Patton, 2015). For the purpose of trustworthiness and credibility, the overall data analysis was recursively crosschecked by the authors, and suggestions were sought from two qualitative research experts in language assessment and education. Categories and themes were settled after a sequential and iterative procedure, ending in three a priori categories of *rubric utility*, *trait motivation*, and *task motivation*, highlighting students' perceived rubric utility, student characteristics, and perceived task features, respectively. An example is presented in Table 2 to illustrate how the data were analyzed.

Findings

In this section, the findings are presented on students' perceptions of rubrics and practices of rubric use. Effort patterns are summarized based on the analysis of students' reports of the utilization processes. Motivation for rubric use is illustrated in the categories of rubric utility, trait motivation, and task motivation.

TABLE 2 Steps of data analysis.

Steps	Actions taken	Examples
1st	Coding in detail	Interest toward the task form
		Interest toward the topic
2nd	Grouping codes and naming basic themes	Interest toward the task
3rd	Identifying illustrative excerpts	"I did the tasks more out of interest, because I had got a job commitment and the score was meaningless to me. It's like that if I do a project out of interest, I would like to spend more time on it."
4th	Identifying key themes	"Interest" under "task features"
5th	Joining key themes under overarching themes	"Task features" under "task motivation"

Effort patterns of students' rubric use

Students' self-rating scores were first referenced, among which 4 and 7 were tentatively taken as the dividing lines of effort patterns. Students' self-reports were then checked iteratively to modify the classification, and three effort patterns emerged in terms of two rules: whether students followed all of the criteria and whether they utilized the rubric in the whole process of preparation, performance, and after-thought. Totally, two students (Sue and Ruth) indicated that they seldom referred to the rubric, and they formed the loose effort group; four students (Philip, Brian, Tim, and Gary) from the medium effort group admitted that they made use of the rubric selectively, attempting to meet some of the criteria and follow the rubric in either one or two phases of the process. In total, three students (Julie, Laurie, and Kelly) fell into the intense effort group since they attended to all the criteria throughout the whole process. For instance, Kelly explained that she cautiously prepared her speech according to the rubric, recalled some of the criteria during the performance, and checked her performance against the rubric afterward.

Kelly: I read the rubric to understand the requirements before the preparation. I tried to adhere to all the requirements such as *stay on topic* in the drafting. When I finished my drafting, I checked it against the rubric to see whether I had gone astray. Then when I stood on the platform, I consciously made more eye contact with the audience as required. I also recalled the rubric in my mind when I watched the video, having an eye on fluency and postures.

It is noteworthy that mastery-oriented students (to be expounded later) from both the intense and the medium effort groups like Julie, Laurie, Philip, and Brian overtly explained that they did not pay equal attention to the criteria but approached them selectively by focusing on the ones that they valued. For instance, Laurie said that he was mainly concerned about the requirement for the inclusion of strength and weakness in *critical thinking* since in his perspective, the two were task-specific for a book review, whereas others were general tasks for oral presentations.

Laurie: In *critical thinking*, the rubric mentioned strengths and weaknesses. A hit for structure, I thought it was. I didn't do well at that when I began to write my draft. (In the draft)

I mentioned something not so good (about the book), for instance, I said there were some defects in the book but it was excellent as a whole, and then I explained some good points, but in the next part, I returned to its weak points. Later, I searched online for some (information) on how to do critical thinking and how to write an academic article. I also took some online classes, which highlighted logical order in academic writing or structure in this sense. I realized that the order in my draft was weakness first and strength afterward. So I changed the order.

Similarly, Philip also browsed online to include related information for criteria *content*, *knowledge base*, and *critical thinking*. However, unlike Julie and Laurie who went back to the rubric after the performance, Philip admitted that he did not utilize the rubric during and after the performance.

Philip: The rubric was effective. For instance, it required us to demonstrate knowledge base, so I searched on the Internet to gain more understanding of the book.... I used some criteria for preparation, especially I structured my speech according to the criteria such as *stay on topic and understanding*, and the descriptor on background understanding pushed me to make more preparations...but I did not care about the rubric during and after the performance either.

For the medium effort group, students did not believe that rubrics could convey the teacher's expectations fully. They thought that there must be something extra behind the evaluation of an individualized performance.

Philip: There were indeed some basics in the rubrics. Still, rubrics couldn't entail all the components for the skill measurement. So I didn't dance to the tune.

Brian: Even with the rubric, I was not sure about the teacher's criteria. The scoring must be subjective because the rubric was the same for all the students.

For the loose effort group, students tended to deal with the task according to their ingrained criteria developed from their previous experience, and the performances were mainly based on their knowledge about the assigned topics and English proficiency.

Sue: We had done many presentations before, and thus it was more likely that we just followed the old routine.

Ruth: The rubrics didn't confine me, nor help me. I simply did not think they affect me, good or bad, not too much. I just wrote what I wanted to write for the presentations. I seldom referred to the rubrics.

In summary, students made unleveled endeavors in rubric use. The intense effort group held a respectful attitude toward

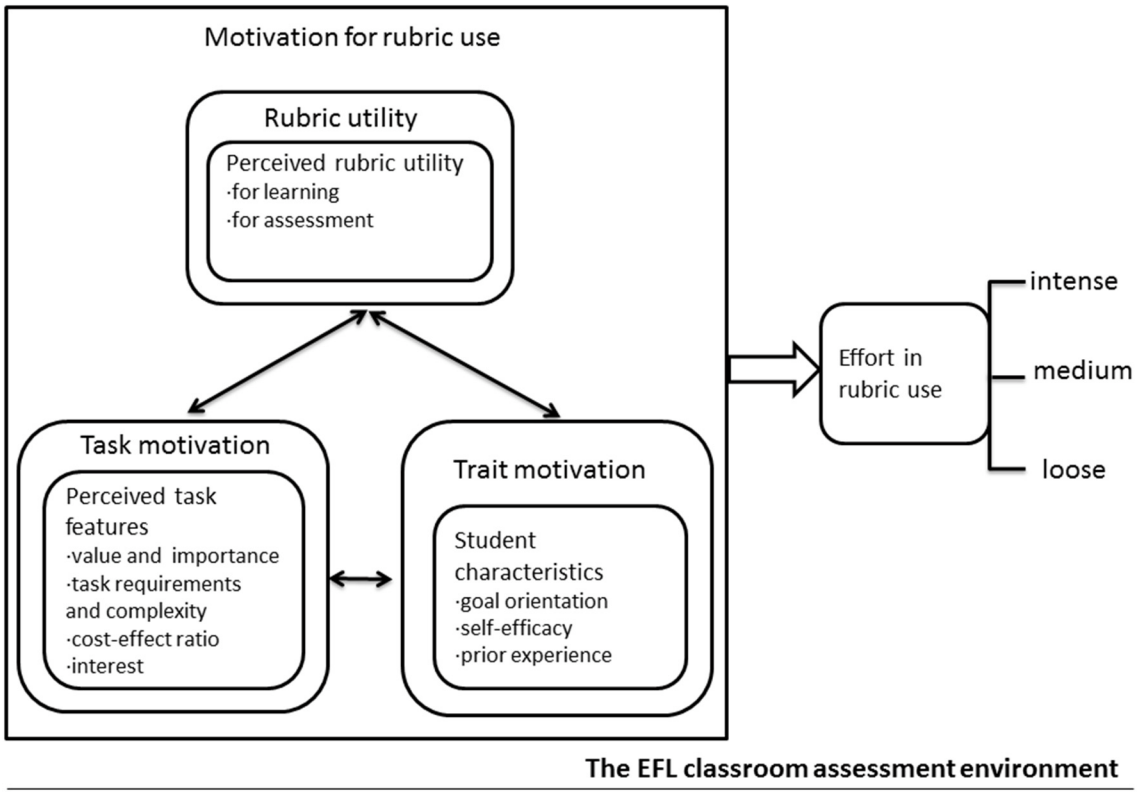

FIGURE 1
Students' motivation for rubric use in the EFL classroom assessment environment: A data-driven model.

the rubric and valued it throughout the whole process. The medium effort group showed reservations about the rubric and utilized it partially. The loose effort group was least responsive to the rubric and relied mainly on their previous experience and personal judgments. It could be inferred that rubric use is the end of complex cognitive processes.

Motivation for rubric use

Iterative analysis of the interviews found that students' motivation for rubric use in the EFL classroom assessment environment involves students' cognitive appraisals of rubrics, students themselves, and tasks. Hence, motivational factors are delineated into three overarching categories and subcategories (Figure 1): (1) rubric utility highlighting students' perceived rubric utility for learning and assessment; (2) trait motivation identifying student characteristics manifested in goal orientations, self-efficacy, and prior experience; and (3) task motivation related to students' perceived task features reflected in the value and importance of a task weighed against task requirements and complexity, cost-to-effect ratio, and personal interest in the task.

Perceived rubric utility

In general, rubrics were acknowledged as an effective learning guide by the students. Most of the participants held that rubrics explicitly convey requirements in a comprehensive framework and thus are of use to task implementation. For instance, Kelly from the intense effort group had a high opinion of the rubric.

Kelly: The rubric listed the criteria from many aspects, i.e., requirements for English public speaking. We could prepare to the point and in advance. . . .If we prepared carefully, I believe all of us could live up to the teacher's expectations.

Students from both the medium and loose effort groups did not think a rubric could fully entail the elements of public speaking, and they wanted to present something personal.

Brian: The rubric was quite comprehensive, but there was still a lot depending on impromptu performance, different forms, such as a picture. Some students were quite professional, for instance, they used many technical terms and included videos, songs, and others, something to your surprise. Those were not listed in the rubric, but audiences always look forward to novel expressions.

On the other hand, although the students agreed that the use of rubrics could lead to better performances and enhance presentation skills, they held reserved opinions on the evaluative role of the rubric. Uncertainty toward objectivity and fairness was the source of doubts.

Gary: We didn't know how the teacher would apply rubrics, because rubrics are expressed in words and words are arbitrary. For instance, as for "speak clearly," how to measure it must be personal. Therefore, the scoring is subjective.

Rubrics as unitary measurement standards were doubted whether they could fairly assess individualized performances.

Sue: I was not sure about the teacher's real intention, as rubrics are the same for all students.

To sum up, acknowledgment of the instructional value of rubrics convinced the students to take rubrics as references for task performance. Both the intense and medium effort groups believed the rubric could help them perform, but the latter seemed to act beyond the rubric and intended to construct the response with personal understanding, for instance, to impress with personality. It seemed that uncertainty toward the evaluative value refrained the medium and loose effort groups from identifying rubrics as trustworthy standards and led to increased personal understanding and judgments.

Student characteristics

In the study, goal orientations, self-efficacy, and prior experience were found to be salient student characteristics in underpinning trait motivation for rubric use.

1) Goal orientations

Students' goals deviated into performance orientation and mastery orientation in the study. Totally, three of the nine participants (Julie, Laurie, and Philip) confided their long-term goals of language learning and aspired to master public speaking competence. For instance, both Laurie and Julie were planning to further their education in the United Kingdom.

Julie: I always stress the improvement of oral presentation competence. I think I can express myself naturally and calmly (in public). My goal in foreign language learning is to communicate freely in public. Actually, I am planning to study in the UK.

Similarly, Philip articulated that he was going to practice English speaking in the approaching winter vacation as his prospective job involved international negotiation. Brian, although did not utter any long-term language learning goals, claimed that the firm belief in the competence and intense interest in the task drove him to devote himself to the task; thus, he was also mastery-orientated. Other students did not relate any specific goal for the skill enhancement, although also agreed on the importance of the competence. The tasks, in their perspective, were simply assignments from the teacher. They were more performance-oriented and consequently exhibited passiveness in task implementation.

Kelly: If there were no tasks, I would not initiate to improve my English.

The two kinds of goal orientations directed distinct self-regulation strategies in rubric use. Different from mastery-oriented students' endeavor to further their understanding of the criteria, performance-oriented students tended to focus on

accessible requirements but circumvented far-reaching ones in their pursuit of scores.

Tim: I didn't spare much concern on it (critical thinking), but just skipped it. It was too difficult to prepare, you know, but the score equaled with others.

These examples showed that goal orientation posed an important motivational variable for students' attitudes toward the tasks and directed their self-regulation strategies. It was noteworthy that students with mastery-oriented goals tended to go deep into the rubric to understand the criteria better. In addition, student characteristics such as self-efficacy and prior experience also moderated students' effort in rubric use.

2) Self-efficacy

Self-efficacy varies in students' belief in their capability. In all, three participants (Ruth, Julie, and Brian) in the study were typical in their self-reports of self-efficacy. Ruth's low self-efficacy made her ignore the rubric. She confessed that she felt incapable of making use of rubrics.

Ruth: The guiding function of rubrics was apparent, but I doubted I was able to apply them. Rubrics didn't help me much, because I could not satisfy the criteria at all. I knew they were there and I wish I could fulfill them, but I just could not make it.

Conversely, both Julie and Brian were quite conceited with their public speaking competence. Because of their high self-efficacy, they prepared for the tasks by incorporating the criteria into their understanding of a good speech.

Julie: My performance was quite natural, not timid. My mindset was quite balanced…I just took a look at the rubric once in a while but did not remember the criteria clearly. During the preparation and when I finished drafting, I resorted to the rubric to check and make some supplements.

Brian: I kept the rubric in mind, having a general idea about what the teacher expected from us and attempting to realize it. But I did not try to satisfy all the criteria.… Instead, I deliberately imitated some excellent or successful speeches.

It can be seen that self-efficacy is a salient factor in influencing students' effort in rubric use and might dominate their self-regulation strategies in case of extremes of high and low.

3) Prior experience

It was noticeable that the students reported limited encounters with detailed written rubrics, although they had a plentiful experience of being evaluated and assessed during their school years.

Ruth: Teachers seldom offered us written rubrics ahead of tasks.… They might vocalize emphatically in the classroom, things like to perform naturally or to offer more eye contact.

The students formed opinions on rubrics based on experience and acted accordingly. For instance, Sue disclosed that her class was asked to use a task-specific rubric for peer assessment in a former language learning class, but the rubric was not seriously treated because "*the task did not count much*." Philip recalled his experience in a project design competition, in which the judges rated the submitted projects according to a rubric. In his opinion, rubrics for oral presentation tasks were more liable to personal bias because the performances "*depend more on the audience's spontaneous feeling*."

Furthermore, unpleasant prior experiences may offset students' efforts. The fact that the endeavor that Brain invested in a previous task not paid off affected his attitude toward similar tasks in a negative way.

Brian: Last semester, I worked much harder on a presentation task. But later on I found what I carefully prepared, for instance, what I prepared for 1 day or half a day, did not make any difference from that, by my classmate just for 10 min. I don't think scores matched efforts.

Similarly, new experience with rubrics could accumulate to foster or recast students' perceptions, just as Kelly delineated:

When I finished the task, I saw that the teacher evaluated our performance strictly according to the rubric. It enhanced my knowledge about rubrics.

To sum up, students struck a balance between the rubric and their knowledge developed from the previous experience. Simultaneously, new experiences continued to develop the knowledge subtly.

Perceived task features

In the study, task value and importance, task requirements and complexity, cost-to-effect ratio, and interest emerged as subthemes of perceived task features. First and foremost, students commonly agreed that oral presentation competence was integral to study and career.

Julie: Public speaking skill is, English public speaking in particular, on one hand, a component of language competence, and on the other hand, a test of logic and expression. Besides, expressing in a foreign language is different from that in Chinese, and more challenging for sure. In my opinion, enhancing the ability to express in English is very important for study and work.

Since students valued public speaking competence, oral presentation tasks were regarded as opportunities to practice the skill.

Sue: English, thought as the most important foreign language, needs practicing. We need a large amount of input to keep up the level, or else there would be landslides. The tasks were opportunities to push me to improve my English.

In addition, concerns about task requirements and complexity impacted rubric use. Students might skip some of the criteria if the requirements were too complicated.

Philip: The rubric contained too many pea-sized bits, and each category had four levels.… I made a balance between what

I wanted to present and the requirements in the criteria. After all, one presentation took up only 10 points.

When requirements were perceived as too high to reach, perceived inaccessibility discouraged students from attempting.

Ruth: It is like the teacher gives you a perfect MA thesis and asks you to imitate it, but students would not trouble to read it. Anyway, if I can't reach it, I give up.

Moreover, the importance of a task was measured against the cost-to-effect ratio in the total score. Totally, five students admitted that scoring was critical in deciding their effort for the tasks and rubrics.

Gary: It was mainly an urge for the score, which was related to the grade point in the final. Scores are very important to students, and we would put in effort for the sake of scores.

Sue: The score would change something. You see, a rubric is a standard. If the ratio had gone down, we would have performed at will; if it had been higher, surely we would have abided by the rubrics more closely.

Students confessed that they would feel pitiful for a demanding task with limited prospective rewards. A low ratio would have impaired students' seriousness toward the task and the course.

Philip: I might prepare as hard, but the ratio would have impacted my attitude toward the course. Rational or irrational (the ratio was), but I had to take it.

Conversely, a high ratio might render an extra burden on students because that might pose a threat to the grade point average.

Tim: To do an oral book review is the most difficult of all the assessment tasks, and it would be fine if it counted the most in the final score. But in that case, it might pose a challenge for us to pass the course.

Students weighed the cost that the tasks might trigger in the whole picture of study loads. Alternative occupations might drag them away from the task if they valued others much more.

Gary: I didn't attempt hard to meet the criteria in the rubrics because I had to prepare for my postgraduate entrance examination. I had some concerns about energy and time.

By contrast, interest in an assessment task could somewhat offset the demands the task imposed. For instance, Tim admitted that he would have dealt with the task casually in case no option was offered to students. Brian confided that his motivation for the task mainly came from interest.

Brian: I did the tasks more out of interest because I had got a job commitment and the score was meaningless to me. It's like that if I do a project out of interest I would be happy to spend more time on it.

It can be summarized that task value and importance counted for all students, and performance-oriented students were more easily impacted by task requirements and complexity and cost-to-effect ratio, for which interest served as a lubricant.

Discussion

Through retrospective interviews on an oral presentation task, this study stratifies students' effort in rubric use and indicates that the effort is the outcome of students' cognitive appraisals of a rubric, themselves, and a task. Compared with Chinese EFL learners' unitary adoption of a rubric as an instructional tool throughout the task process in the literature (Wang, 2017), the study presents a pluralizing picture of effort patterns and strategies in rubric use. The study highlights trait motivation and task motivation in the effectiveness of rubric use in the EFL classroom setting (e.g., Hafner and Hafner, 2003; Panadero and Romero, 2014; Wang, 2017).

Understanding students' effort in rubric use for formative assessment

Findings from this study extend the present understanding of students as key rubric users for formative assessment (Stiggins, 2001). Although students' comments confirmed many of the arguments made to advocate the adoption of a rubric for formative classroom assessment, students' efforts in rubric use and strategies employed varied to a large extent. Ultimately, two rules were developed according to students' self-reports of the rubric use: whether students carefully followed all the criteria and whether they applied the rubric throughout the process of preparation, performance, and after-thought. In terms of the rules and students' self-rating scores, three groups of intense, medium, and loose effort patterns emerged. Students might treat the rubric carefully throughout the whole process of the task out of different motives and fall into the intense effort group. Students with performance orientation in the group might act in the way of "honor" and "uncritical acceptance" of the criteria (Andrade and Du, 2005, p. 7), but students with mastery orientation endeavored to deepen their understanding of the focused criteria by expanding information sources, which confirms students undertake "invitational enactments" in rubric use, and rubrics promote learning while inviting students into a "productive space" (Bearman and Ajjawi, 2019, p. 1). The medium effort group applied the criteria partially and selectively. Their efforts in rubric use relied on the judgment regarding the task and the rubric. When students harbored disagreement with the rubric, for instance, "too trivial" in Philip's comment, they chose to enact the criteria to emphasize what they valued. Hence, both the behaviors of the intense effort group with mastery orientation and the medium effort group challenge the claim that rubrics lead to criteria compliance and constrained learning experience (e.g., Boud and Falchikov, 2006; Sadler, 2007; Torrance, 2007). As for the loose effort group, however, students tended to put the rubric aside and act according to their long built-up understanding, resulting in the limited instructional value of a rubric (Lim, 2013).

Our study indicates that student characteristics are salient motivational factors in determining the strategies in rubric use, particularly goals and self-efficacy. It echoes that variables like "personal goals, including goal commitment, and self-efficacy are often, although not invariably, the most immediate, conscious motivational determinants of action" (Locke and Latham, 2002, p. 709). In the study, mastery-oriented students and performance-oriented students approached the rubric with different strategies out of distinct motives. The former like Laurie and Philip regarded the task as an opportunity to work on their oral competence, and the rubric functioned to invite them to extend their understanding through online learning. Conversely, the latter selected the criteria with an instrumental mindset, that is, to skip the difficult ones and work for the easy ones, and their efforts into the rubric were apt to fluctuate due to contextual factors such as task features. This suggests teachers should help students set up mastery-oriented goals of language learning to stimulate learner agency (c.f. Murphy, 1996). In addition, it evidenced that perceived self-efficacy and prior experience also impact students' decisions in rubric use. For instance, low-self-efficacy students like Ruth in the study overtly expressed her lack of self-confidence in complying with the rubrics owing to her unsatisfactory prior experience with similar tasks and thus performed free from the rubric. By contrast, high-self-efficacy students like Julie and Brian were determined about what constituted an excellent speech and acted confidently on the podium. The result corroborates previous studies that self-efficacy built upon prior experience is important in student confidence and performance (Pintrich and Schrauben, 1992; Brookhart et al., 2006). It also extends that extreme self-efficacy might reduce students' effort in rubric use in that it might devalue a rubric. Hence, self-efficacy should be observed in students to ensure rational rubric utilization. On the one hand, individuals with low self-efficacy need to be encouraged through persuasive communication in the possibility to attain the goal and strategy provision to facilitate the attainment (Locke and Latham, 2002), for which following rubrics/assessment criteria is a convenient and effective one. On the other hand, individuals with high self-efficacy need to be reminded of the value of a rubric in introducing reflection and creativity (Bearman and Ajjawi, 2019).

Encouraging explicit rubric use in the EFL classroom assessment environment

The study indicates that in the EFL context, opportunities to encounter explicit assessment criteria are insufficient to equip students with assessment literacy. For one thing, rubrics were deemed to be an effective instructional guide to task implementation and skill enhancement. For another, the evaluative value of rubrics was not harbored by students due to their doubts about the assessment process. This corroborates that students lack sustained exposure to explicit task-specific rubrics and knowledge of apt rubric use (Schafer et al., 2001; Lim, 2013) because teachers like Chinese tertiary language teachers displayed a preference for non-achievement criteria and regarded assessment criteria as teachers' tacit knowledge (Zhou and Deneen, 2016; Zhou and Wang, 2019). Nevertheless, students in the study understood that rubrics were the convergence of teachers' expectations and pathways to quality products. This challenges the claim that students appear to have little understanding of a connection between the teachers' expectation and "a broader definition of quality" (Andrade and Du, 2005, p. 7).

The literature endorses utilizing transparent and specific achievement-related criteria to construct a trustworthy classroom assessment environment to enhance student learning (Brookhart et al., 2006; Wiliam, 2010) in the paradigm of assessment for learning. Contrary to that, explicit assessment criteria were found to be commonly concealed from the participants from five provincial areas of the country during their school years and even the university. This rings a caution for the development of teacher assessment literacy and the scrutiny of teacher training programs (Wu et al., 2021), but the discussion is beyond the scope of our study. In this case, the study is incongruous with the opinion that students proceeding to higher educational levels are in less need of training and explanations for rubric use (Panadero and Jonsson, 2013; Jonsson, 2014). We claim that orientation to rubric use is necessary for all occasions of rubric-embedded assessment practices in learning settings. Dialogical interpretation of assessment criteria is helpful for students before embarking on a task. Students need to be encouraged to actively get involved in the assessment process (Sadler, 2009; Wu et al., 2021) including the design and use of explicit assessment criteria (Matshedisho, 2020). Assessment literacy, belief in rubric utility in particular, should be enhanced for students similar to those in the study.

Linking task features with student characteristics in task design

The study reveals the interplay between task features and student characteristics in shaping students' incentives for rubric use. In addition to the aforementioned nexus between the strategies and student characteristics, it underlines the influence of task features on students' attitudes toward a task and a rubric in formative assessment and confirms that "small decisions in task design can have a subtle but important influence on students' motivation" and behavior when it comes to a classroom setting (Mozgalina, 2015, p. 130). Contrary to the claim that constrained choice conditions are more beneficial for task motivation and task engagement (Mozgalina, 2015), freedom

to choose topics was appreciated as empowerment of personal interest, which might be owing to the different language levels that the participants were in: advanced and intermediate in this study vs. beginners in Mozgalina's. For beginners, ego depletion (c.f. Vohs et al., 2008, 2010) is more hazardous in that all acts of choice or self-control increase cognitive burdens and resource depletion. The comparison suggests that the higher language proficiency learners possess, the more autonomy they should be entitled to.

Instrumentalism that is found common in high-stake tests was also prominent in students' appraisals of task requirements and complexity and cost-to-effect ratio, and dominated self-regulation strategies in performance-oriented students, which echoes that specific decisions regarding task difficulty like topic, content, and format are related to task motivation and performance (Julkunen, 2001; Locke and Latham, 2002) and extends the influential factors to include the cost-to-effect ratio and interest. Consequently, task design should take student characteristics into account. For instance, task difficulty conveyed through the requirements in a rubric needs to be set tangible, and the cost-to-effect ratio of a task should be rationally controlled to mobilize learner agency. In sum, task design should feature students' concerns and demands to stimulate their task motivation as formative assessment tasks need to be carefully adopted to counterbalance the influence of summative assessment, particularly in grading-emphasized cultural settings (Carless, 2011; Wang, 2017).

Conclusion

This study contributes to the existing understanding of students' effort in rubric use by conducting a contextual analysis of tertiary students' perceptions and practices of rubric utilization in a local EFL learning context. It provides empirical support to illuminate effort patterns and motivation in rubric use. The study finds that students' effort in rubric use is the end of cognitive appraisals of a rubric, students themselves, and a task. These findings have practical implications for rubric employment and task design in classroom assessment to boost learner agency in utilizing a rubric in the paradigm of assessment for learning.

It should be noted that a limit regarding generalization is inevitable for an interpretative study with a small sample. Furthermore, the study uses a cognitive approach to motivation and centers on learners themselves, but it does not claim that motivation is immune to social contexts such as teachers and peers. Future research is warranted to study deeper into the present factors and expand others by adopting diversified methodologies and recruiting larger samples in similar or different contexts.

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

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

Author contributions

CH: conceptualization, methodology, investigation, data analysis, data collection, writing–original draft, and review and editing. JZ: conceptualization, methodology, data collection, and data analysis. JC: conceptualization, funding acquisition, review and editing, and supervision. 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

Supplementary material

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References

Ames, C., and Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *J. Educ. Psychol.* 80, 260–267. doi: 10.1037/0022-0663.80.3.260

Andrade, H., and Du, Y. (2005). Student perspectives on rubric-referenced assessment. *Pract. Assessment Res. Eval.* 10, 1–11. Available online at: https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1152&context=pare

Andrade, H. G. (2000). Using rubrics to promote thinking and learning. *Educ. Leadership* 57, 13–18. Available online at: https://www.researchgate.net/publication/285750862

Andrade, H. G. (2001). The effects of instructional rubrics on learning to write. *Educ. Ther Practice Faculty Scholarsh* 4:1630. Available online at: https://scholarsarchive.library.albany.edu/etap_fac_scholar/6

Andrade, H. G. (2005). Teaching with rubrics: The good, the bad, and the ugly. *College Teach.* 53, 27–31. doi: 10.3200/CTCH.53.1.27-31

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York, NY: W. H. Freeman and Company.

Bearman, M., and Ajjawi, R. (2019). Can a rubric do more than be transparent? Invitation as a new metaphor for assessment criteria. *Stud. Higher Educ.* 46, 359–368. doi: 10.1080/03075079.2019.1637842

Black, P., and Wiliam, D. (2009). Developing the theory of formative assessment. *Educ. Assess. Eval. Account.* 21, 5–31. doi: 10.1007/s11092-008-9068-5

Boekaerts, M. (1987). Individual differences in the appraisal of learning tasks: An integrative view on emotion and cognition. *Commun. Cogn.* 20, 207–224.

Boud, D., and Falchikov, N. (2006). Aligning assessment with long-term learning. *Assess. Eval. Higher Educ.* 31, 399–413. doi: 10.1080/02602930600679050

Broad, B. (2003). *What We Really Value: Beyond Rubrics in Teaching and Assessing Writing*. Logan, UT: Utah State Press. doi: 10.2307/j.ctt46nxvm

Brookhart, S. M. (1997). A theoretical framework for the role of classroom assessment in motiving student effort and achievement. *Appl. Measure. Educ.* 10, 161–180. doi: 10.1207/s15324818ame1002_4

Brookhart, S. M., and Chen, F. (2015). The quality and effectiveness of descriptive rubrics. *Educ. Rev.* 67, 343–368. doi: 10.1080/00131911.2014.929565

Brookhart, S. M., Walsh, J. M., and Zientarski, W. A. (2006). The dynamics of motivation and effort for classroom assessments in middle school science and social studies. *Appl. Measure. Educ.* 19, 151–184. doi: 10.1207/s15324818ame1902_5

Carless, D. (2011). *From Testing to Productive Student Learning: Implementing Formative Assessment in Confucian-Heritage Settings*. London: Routledge.

Corno, L. (1993). The best-laid plans: Modern coceptions of volition and educational research. *Educ. Res.* 22, 14–22. doi: 10.3102/0013189X022002014

Davison, C. (2019). "Using assessment to enhance learning in English language education," in: Second *Handbook of English Language Teaching*, ed X. Gao (New York, NY: Springer).

Dawson, P. (2015). Assessment rubrics: towards clearer and more replicable design, research and practice. *Assess. Eval. Higher Educ.* 42, 347–360. doi: 10.1080/02602938.2015.1111294

Dornyei, Z. (2001). *Teaching and Researching Motivation*. Harlow: Pearson Education.

Dörnyei, Z., and Ushioda, E. (2011). *Teaching and Researching Motivation*. Harlow: Pearson Education.

Gass, S. M., and Mackey, A. (2000). *Stimulated Recall Methodology in Second Language Research*. Mahwah, NJ: Lawrence Erlbaum Associates.

Green, R., and Bowser, M. (2006). Observations from the field: Sharing a literature review rubric. *J. Library Administ.* 45, 185–202. doi: 10.1300/J111v45n01_10

Hafner, J., and Hafner, P. (2003). Quantitative analysis of the rubric as an assessment tool: an empirical study of student peer-group rating. *Int. J. Sci. Educ.* 25, 1509–1528. doi: 10.1080/0950069022000038268

Hamp-Lyons, L. (2016). Farewell to holistic scoring? *Assessing Writing* 27, A1–A2. doi: 10.1016/j.asw.2015.12.002

Harlen, W., and Crick, R. D. (2003). Testing and motivation for learning. *Assess. Educ.* 10, 169–207. doi: 10.1080/0969594032000121270

Johnson, R. L., Penny, J., and Gordon, B. (2000). The Relation between score resolution methods and interrater reliability: An empirical study of an analytic scoring rubric. *Appl. Measure. Educ.* 13, 121–138. doi: 10.1207/S15324818AME1302_1

Jonsson, A. (2014). Rubrics as a way of providing transparency in assessment. *Assess. Eval. Higher Educ.* 39, 840–852. doi: 10.1080/02602938.2013.875117

Julkunen, K. (1989). *Situation and Task-Specific Motivation in Foreign-Language Learning and Teaching*. Joensuu: University of Joensuu.

Julkunen, K. (2001). "Situation- and task-specific motivation in foreign language learning," in: *Motivation and Second Language Acquisition*, eds Z. Dörnyei and R. Schmidt (Honolulu, HI: University of Hawaii Press).

Keller, J. M. (1983). "Motivational design of instruction," in: *Instructional Design Theories and Models*, ed C. M. Reigeluth (Hillsdale, NJ: Erlbaum).

Keller, J. M. (1994). "Motivation in instructional design," in: *The International Encyclopedia of Education*, eds T. Husen and T. N. Postlethwaite (Oxford: Pergamon).

Kormos, J., Kiddle, T., and Csizer, K. (2011). Systems of goals, attitudes, and self-related beliefs in second-language-learning motivation. *Appl. Linguistics* 32, 495–516. doi: 10.1093/applin/amr019

Lane, S., and Tierney, S. T. (2008). "Performance assessment," in: *21st Century Education: A Reference Handbook*, ed T. L. Good (Los Angeles, CA: Sage). doi: 10.4135/9781412964012.n50

Lim, J. M. A. (2013). Rubric-referenced oral production assessments: perceptions on the use and actual use of rubrics in oral production assessments of high school students of St. Scholastica's College, Manila. *Lang. Test. Asia* 3:4. doi: 10.1186/2229-0443-3-4

Locke, E. A., and Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year Odyssey. *Am. Psychol.* 57, 705–717. doi: 10.1037/0003-066X.57.9.705

Matshedisho, K. R. (2020). Straddling rows and columns: Students' (mis)conceptions of an assessment rubric. *Assess. Eval. Higher Educ.* 45, 169–179. doi: 10.1080/02602938.2019.1616671

Maxwell, J. (2012). *Qualitative Research Design: An Interactive Approach*. Thousand Oaks, CA: Sage.

Miles, M. B., and Huberman., A. M. (1994). *Qualitative Research: An Expanded Sourcebook*. Thousand Oaks, CA: Sage.

Mozgalina, A. (2015). More or less choice? The influence of choice on task motivation and task engagement. *System* 49, 120–132. doi: 10.1016/j.system.2015.01.004

Murphy, P. (1996). "Defining pedagogy," in: *Equity in the Classroom: Towards Effective Pedagogy for Girls and Boys*, eds P. F. Murphy and C. V. Gipps (London: Falmer Press).

Panadero, E., and Alonso-Tapia, J. (2013). Self-assessment:Theoretical and practical connotations.When it happens, how is it acquired and what to do to develop it in our students. *Electr. J. Res. Educ. Psychol.* 11, 551–576. doi: 10.14204/ejrep.30.12200

Panadero, E., and Jonsson, A. (2013). The use of scoring rubrics for formative assessment purposes revisited: A review. *Educ. Res. Rev.* 9, 129–144. doi: 10.1016/j.edurev.2013.01.002

Panadero, E., and Romero, M. (2014). To rubric or not to rubric? The effects of self-assessment on self-regulation, performance and self-efficacy. *Assess. Educ.* 21, 133–148. doi: 10.1080/0969594X.2013.877872

Patton, M. Q. (2015). *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*. Thousand Oaks, CA: SAGE publications, Inc.

Pintrich, P. R., and Schrauben, B. (1992). "Students' motivational beliefs and their cognitive engagement in classroom academic tasks," in *Student Perceptions in Classroom*, eds D. H. Schunk and J. L. Meece (Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.).

Popham, W. J. (1997). What's wrong and what's right with rubrics. *Educ. Leadership* 55, 72–75.

Reddy, Y. M. (2007). Effects of rubrics on enhancement of student learning. *Educate* 7, 3–17.

Reddy, Y. M., and Andrade, H. (2010). A review of rubric use in higher education. *Assess. Eval. Higher Educ.* 35, 435–448. doi: 10.1080/02602930902862859

Sadler, D. R. (2007). Perils in the meticulous specification of goals and assessment criteria. *Assess. Educ.* 14, 387–392. doi: 10.1080/09695940701592097

Sadler, D. R. (2009). Indeterminacy in the use of preset criteria for assessment and grading. *Assess. Eval. Higher Educ.* 34, 159–179. doi: 10.1080/02602930801956059

Schafer, W., Swanson, G., Bené, N., and Newberry, G. (2001). Effects of teacher knowledge of rubrics on student achievement in four content areas. *Appl. Measure. Educ.* 14, 151–170. doi: 10.1207/S15324818AME1402_3

Stiggins, R. J. (2001). *Student-Involved Classroom Assessment*. Upper Saddle River, NJ: Prentice-Hall.

Torrance, H. (2007). Assessment as Learning? How the use of explicit learning objectives, assessment criteria and feedback in post-secondary education and training can come to dominate learning. *Assess. Educ.* 14, 281–294. doi: 10.1080/09695940701591867

Tsang, A. (2018). Positive effects of a programme on oral presentation skills: High- and low-proficient learners' self-evaluations and perspectives. *Assess. Evaluat. High. Educ.* 43, 760–771. doi: 10.1080/02602938.2017.1407917

van Ginkel S., Gulikers, J., Biemans, H., and Mulder, M. (2017). The impact of the feedback source on developing oral presentation competence. *Stud. High. Educ.* 42, 1671–1685. doi: 10.1080/03075079.2015.1117064

Vohs, K. D., Baumeister, R. F., Schmeichel, B. J., Twenge, J. M., Nelson, N. M., and Tice, D. M. (2008). Making choices impairs subsequent self-control: a limited-resource account of decision making, self-regulation, and active initiative. *J. Pers. Soc. Psychol.* 94, 883–898. doi: 10.1037/0022-3514.94.5.883

Vohs, K. D., Finkenauer, C., and Baumeister, R. F. (2010). The sum of friends' and lovers' self-control scores predicts relationship quality. *Soc. Psychol. Pers. Sci.* 2, 138–145. doi: 10.1037/E634112013-147

Wang, W. (2017). Using rubrics in student self-assessment: Student perceptions in the English as a foreign language writing context. *Assess. Evaluat. High. Educ.* 42, 1280–1292. doi: 10.1080/02602938.2016.1261993

Wiliam, D. (2010). "The role of formative assessment in effective learning environments," in The *Nature of Learning: Using Research to Inspire Practice*, eds H. Dumont, D. Istance, and F. Benavides (Paris: OECD), 135–159.

Wu, X. M., Zhang, L. J., and Dixon, H. R. (2021). Implementing Assessment for Learning (AfL) in Chinese university EFL classes: Teachers' values and practices. *System* 101, 1–14. doi: 10.1016/j.system.2021.102589

Zhou, J., and Deneen, C. (2016). Chinese award-wining tutors' perceptions and practices of classroom-based assessment. *Assess. Evaluat. High. Educ.* 41, 1144–1158. doi: 10.1080/02602938.2015.1066306

Zhou, J., and Wang, J. (2019). Assessment criteria for assessing English oral presentations: An exploratory study based on the grounded theory. *Foreign Lang. Teach.* 40, 66–71 . doi: 10.16362/j.cnki.cn61-1023/h.2019.04.013

Zimmerman, B. J., and Moylan, A. R. (2009). "Self-regulation: When metacognition and motivation intersect," in *Handbook of Metacognition in Education*, eds D. J. Hacker, J. Dunlosky, and A. C. Graesser (New York, NY: Routledge), 299–315.

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EDITED BY
Meryem Yilmaz Soylu,
Georgia Institute of Technology,
United States

REVIEWED BY
Anna C. Brady,
Georgia Southern University,
United States
Ilija Milovanović,
University of Novi Sad, Serbia

*CORRESPONDENCE
Yining Zhang
yiningzhang@tsinghua.edu.cn

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A study of the impacts of motivational regulation and self-regulated second-language writing strategies on college students' proximal and distal writing enjoyment and anxiety

Yining Zhang* and Lianqi Dong

Department of Foreign Languages and Literatures, Tsinghua University, Beijing, China

Motivational regulation is crucial to explaining autonomous self-regulated learning, yet has received relatively little empirical attention. This study therefore examined how 230 college students' motivational-regulation strategies affected their proximal and distal second-language writing-achievement emotions (i.e., enjoyment and anxiety), and sought evidence of interactive effects of such strategies and self-regulated learning strategies on each of these two types of emotions. All the studied types of motivational-regulation strategy were found to directly predict both proximal and distal writing enjoyment, under a "the more the happier" principle, but only a performance-oriented motivational regulation strategy predicted proximal or distal writing anxiety. A social-behavior learning strategy was found to counteract the high proximal anxiety caused by heavy use of the performance self-talk motivational regulation strategy; and motivational-regulation predictors also emerged as stable predictors of both proximal and distal writing well-being. These findings are expected to be both theoretically valuable to the study of motivational regulation under the self-regulated learning framework, and of practical value to educators, learners, and curriculum designers.

KEYWORDS

motivational regulation, self-regulated writing strategies, enjoyment, anxiety, self-regulated learning

Introduction

Self-regulated learning (SRL) is an autonomous individual-level learning process that entails a combination of motivation, cognitive skills, and metacognitive skills (Zimmerman, 1986, 2011), along with active and purposeful management of one's own motivations, i.e., motivational regulation (Wolters, 1998). Although motivational

regulation is widely accepted theoretically, it remains a relatively under-studied component of SRL (Schwinger et al., 2009; Grunschel et al., 2016). Moreover, studies of it conducted among students have primarily examined its relationship to learning achievement, while ignoring its emotional impacts, despite findings that students' emotions during the learning process affect their subsequent learning experience (Pekrun, 2006; Pekrun and Perry, 2014). Although positive emotions generally tend to be correlated with higher achievement, and negative emotions with lower achievement, the relations among these four constructs are more complex than they at first appear (see Pekrun and Linnenbrink-Garcia, 2012 for a review). Therefore, it should not simply be assumed that what applies to learning performance will also apply to achievement emotions. Indeed, a more nuanced understanding of how motivational regulation and achievement emotions affect one another will help to refine the SRL framework.

In addition, although self-regulated second language (L2) writing strategies have been found to function as a mediator between motivational regulation strategies and writing performance (Teng and Zhang, 2018), it is not clear whether this additional role strengthens the relationship between motivational-regulation strategies and writing emotions. Thus, the secondary aim of this study is to test for any moderating role(s) of self-regulated L2 writing strategies in the prediction of emotions. And thirdly, this study will examine whether the identified predictors of L2 writing well-being can stably predict both proximal and distal well-being.

Literature review

Self-regulated learning strategies in writing

The 21st century is an era of autonomous and life-long learning, where learners advance with increasing technologies and expanded opportunities and are supposed to take more charge of their learning process. This has brought to the notion of self-regulated learning (SRL), or self-regulation pioneered by the work of Zimmerman (1986) in educational psychology. As defined, self-regulation refers to the processes whereby learners personally activate and sustain cognitions, affect, and behaviors that are systematically oriented toward the arraignment of personal goals (Zimmerman and Schunk, 2011). Accumulating research has evidenced that SRL strategies enable individuals to manage their strategic learning, achieve better and have other positive developmental outcomes (e.g., Zheng et al., 2018).

Self-regulation is domain- and context-dependent. One area that has drawn considerable scholarly attention in recent years is SRL strategies in writing. Reasons for empowering learners to self-regulate their writing process are well-grounded. As one of the most challenging tasks in learning, writing reflects not only learners' overall linguistic competence and knowledge repertoire (Anastasiou and Michail, 2013) but also is a hierarchically structured process subject to the dynamic interactions of a wide range of environmental and individual factors (Flower and Hayes, 1981). It is found that SRL writing strategies lead to enhanced writing engagement, products and skills (Hayes, 2000).

Whereas SRL writing strategies may be a familiar inquiry in L1 (first language), it is a relatively new concept in the context of L2. Drawing on the work from both educational psychology and applied linguistics, Teng and Zhang (2016b) first conceptualized SRL writing strategies as deliberate, goal-directed attempts to make writing enjoyable, less challenging, and more effective, and designed the SRL writing strategies questionnaire that measure three types of SRL writing strategies, including cognitive, metacognitive, and social behavior strategies (Teng and Zhang, 2018). Following Teng and Zhang (2016b, 2018), researchers attempted to identify SRL writing strategies' antecedents, moderators, and outcomes. Existing studies on SRL writing strategies in L2 settings have revealed that writing corrective feedback orientations and mindsets significantly predicted the use of SRL writing strategies (Xu, 2022); that SRL writing strategy use differed across gender, language proficiency, and grade level (Teng and Huang, 2019; Bai et al., 2020); and that SRL writing strategies contribute significantly to students' writing self-efficacy and proficiency (Teng and Huang, 2019; Sun and Wang, 2020). Although the role of SRL writing strategies has been sufficiently recognized, our interpretation of it is nevertheless limited in scope. To date, an overwhelming proportion of studies that followed this inquiry have concerned how the use of SRL writing strategies predicted writing performance as measured by cross-sectional data of mere writing scores, with scant attention paid to the nature of writing which is also an affective and social process under the influence of the interacting factors (Harris et al., 2011).

Motivational-regulation strategies

According to Wolters (1998), purposeful management of one's own motivations, namely, motivational regulation, is a key component in SRL. Wolters (2003) and Schwinger et al. (2009) define motivational regulation as deliberate actions taken to initiate, adjust, increase, or maintain one's own willingness to start, persist in, and complete a learning task. Motivational regulation helps mobilize cognitive, metacognitive, and social strategies, facilitate learning and improve academic achievement (Schunk and Zimmerman, 2008; Teng and Zhang, 2016b). Thus, it is believed to be an integral part of SRL, given that it addresses learners' active management of their learning experience in a variety of ways (Zimmerman, 2002; Sansone and Thoman, 2006), which are presumably not restricted to cognitive and metacognitive strategies only (Wolters, 1998). Inspired by the

need to understand the complete processes where students regulate their motivational states in academic goal pursuit, Miele and Scholer (2018) proposed a metamotivational model of motivation regulation by building on the work of previous theorists. As conceptualized, successful motivation regulation during task completion requires students to fully utilize metamotivational knowledge (i.e., accurate beliefs about how motivation functions) to initiate and maintain metamotivational monitoring and control processes which entail many reciprocal subprocesses that are cognitive, metacognitive, motivational and emotional (Miele and Scholer, 2018; Miele et al., 2020).

Prior SRL studies, however, have seldom treated motivational regulation as a distinct construct but rather as integral to students' processes of controlling and managing their learning (Wolters and Rosenthal, 2000). Thus, various strategies further described below, including self-consequating (Zimmerman and Martinez-Pons, 1986), environmental structuring (Zimmerman and Martinez-Pons, 1986; Pintrich, 1999), and self-handicapping (Garcia and Pintrich, 1994), have been presented as reflections of students' efforts to manage their motivation. Efforts to explicitly measure and study learners' acts of motivational regulation began with Wolter's (1998) development of a robust questionnaire for capturing the relevant strategies, which is grouped into five main areas. These were self-consequating (self-provided extrinsic stimuli); environmental control (the alleviation of distractions); performance self-talk (the tendency to focus motivation on external outcomes); mastery self-talk (the tendency to focus motivation on knowledge mastery); and interest enhancement (regulations to make learning tasks more enjoyable). The validity of the questionnaire was confirmed in a series of publications by Wolter and colleagues.

Explicit classifications of motivational regulation strategies have fueled the development of motivational regulation research in general education settings and other domain/task-specific fields. However, the debate on the effects of motivational regulation strategies seems raging for a long time, mostly expressed on whether and which motivational regulation strategies predict academic outcomes. Some researchers argued that motivational regulation strategies directly predict learning achievement (e.g., Wolters, 1999; Seker, 2016). For example, Seker (2016) found different motivational regulation orientations could positively or negatively impact Turkey students' academic performance. By contrast, other researchers believed the effects of motivational regulation strategies on learning achievement were more likely to be indirect (Schwinger et al., 2009; Schwinger and Stiensmeier-Pelster, 2012; Grunschel et al., 2016). While such differences may be pinned down to contextual variations, it is important to note that the working mechanism of motivational regulation strategies can be rather complex which may be influenced by other individual factors.

Regarding the impact of specific motivational-regulation strategies on learning, most research findings favor the use of mastery self-talk strategies over performance self-talk, in keeping with goal achievement theory (Hulleman et al., 2010; Schwinger and Stiensmeier-Pelster, 2012). Despite this, others argued that performance self-talk could also be an essential contributor to the learning process and successes since it is more concerned with learning outcomes (see in Teng and Zhang, 2016a) so that in specific learning context performance self-talk may serve as a strong motivational impetus. Similarly, in their recent discussion of metamotivational knowledge in motivation regulation, Miele et al. (2020) maintained that both promotion and prevention motivations can be conducive to task completion, with the former more helpful for associative, divergent, and flexible thinking while the latter more beneficial to concrete, convergent and careful thinking.

When viewing motivational regulation strategies in L2 writing, Teng et al. (2020) argued that they are crucial to L2 writing, because it is not likely that L2 learners could secure long-term success only with cognitive and metacognitive strategies given writing as a social cognitive process. For this reason, L2 writing needs to be situated within a dynamic motivational state (Troia et al., 2013). Teng and Zhang (2016a) validated a measurement instrument for motivational regulation in L2 writing that included four types of strategies: motivational self-talk, interest enhancement, emotional control and environment structuring. Empirical findings have evidenced that high writing proficiency students tended to use more motivational self-talk, interest enhancement, and emotional control than their low writing-proficiency peers (Teng et al., 2020) and that motivational regulation directly or indirectly predicted writing performance (Teng and Zhang, 2018). Despite increasing recognition of the role of motivational regulation in L2 writing, little is known about its effects on other variables that emerge in the dynamic process of writing except for academic outcomes, such as affective and social factors which are equally essential to the writing process regulation.

Interactions between self-regulated learning strategies and motivational regulation strategies

The crucial role of both self-regulated learning and motivational regulation in the learning process and the highlighted motivational regulation in most SRL frameworks reasonably warrant the possibility that aside from being integral to self-regulation, motivational regulation strategies may interact with SRL strategies in practice. As theoretically claimed by some researchers (e.g., Pintrich, 2004; Schwinger et al., 2009), motivational regulation strategies may work simultaneously with other SRL strategies to maintain and enhance the learning process and goal achievement. Empirically, research has indicated that the use of motivational regulation strategies could serve as an important antecedent of and account

for the variance of individuals' SRL strategy use (Wolters, 1999; Teng and Zhang, 2018). Therefore, it seems unarguable that SRL strategies and motivational regulation strategies contribute distinctly to the learning process and that their interaction merits further investigation.

The only study to date to have explicitly investigated the interaction between motivational regulation and SRL strategies, by Nguyen and Deci (2016), found an interactive effect of controlled motivational regulation and setting high standards on test anxiety. More specifically, setting high standards was correlated with high test anxiety when a student experienced high extrinsic motivational regulation. To our best knowledge, no research to date has examined the interactive effects of SRL strategies and motivational regulation strategies in the context of L2 learning. Given the important role of self-regulated strategies in the learning process, more studies of the possible moderating effects of motivational regulation strategies are warranted.

Achievement emotions as important indicators of learning and wellbeing

Learning is a multi-faceted activity. The exclusive pursuit of high achievement performance can be detrimental for the learning process to be fundamentally sustainable. Thus, it is paramount for educational practitioners to value learner development and wellbeing in which emotions play a backbone role (William and Hoffman, 2020). Achievement emotions are affective arousal tied directly to achievement activities (Pekrun and Perry, 2014). According to the control-value theory (Pekrun, 2006), individuals' experience of achievement emotions is the product of to what extent they feel in control of and subjectively value the task or activity. Interestingly, it seems evident that the two antecedental appraisals of achievement emotions correspond to some major components of established motivational models, such as expectancy-value theories of motivation. Hence, it is logical to speculate that the motivational regulation, apart from predicting the well-documented learning proficiency, may possibly predict achievement emotions, which, if adequately addressed, is likely to yield revealing pedagogical implications.

Yet, despite a range of literature showing that the use of particular motivational-regulation strategies can predict learning performance, very few studies have explored the relationship between motivational regulation and achievement emotions. Among the limited studies, Fritea and Fritea (2013) explored the relationship between motivational-regulation strategies and boredom, and found that the latter construct was correlated negatively with both regulations of value and regulation of performance goals. Park and Yun (2018) found that the adoption of a mastery self-talk strategy was the only significant predictor of online students' emotional engagement. However, the construct of emotional engagement in that study captured only the excitement and enjoyment of learning, and negative emotions such as anxiety were not investigated.

Indeed, both enjoyment and anxiety are important emotional indicators in L2 learning (Dewaele, 2021a). However, little is known about whether, how, or how much individual differences in motivational-regulation levels are correlated with differences in enjoyment and anxiety. Based on findings to date, it would appear that motivational regulation strategies which are saliently marked by achievement goal orientations are closely tied to both enjoyment and anxiety (King et al., 2012); that having mastery goals is correlated with positive emotions such as enjoyment (e.g., Linnenbrink-Garcia and Barger, 2014); and that having performance goals may or may not be correlated with negative emotions such as anxiety (Huang, 2011; Linnenbrink-Garcia and Barger, 2014). Due to the nature of motivational regulation, our study adopts these prior studies' conceptualizations of the relationship between achievement goals and discrete emotions. We expect to see a similar pattern emerge when testing motivational-regulation strategies. Moreover, given the interactions between motivational regulation strategies and SRL strategies as reviewed earlier, we are also interested in finding out whether such interactions exist in predicting learner emotions L2 writing.

The present study's main aim is to examine if, and to what degree, university EFL students' motivational-regulation strategies, as well as potential interactions between such strategies and their self-regulated writing strategies, predict L2 writing enjoyment and L2 writing anxiety. Its secondary aim is to obtain evidence about the patterns of predictive power of motivational-regulation strategies on both proximal and distal achievement emotions. Specifically, it will be guided by the following research questions:

(1) How do the various motivational-regulation strategies predict proximal and distal L2 writing emotion?
(2) Do self-regulated writing strategies moderate the relationship between motivational regulation strategies and the studied proximal and distal L2 writing emotions?

Materials and methods

Participants and context

This study was conducted in four EFL writing courses at a prestigious university in China. A total of 230 students participated, among whom 91 were female and 139, male. There were 56 undergraduates and 174 graduate students, and the average age was 23.43 (SD = 0.28). Arts majors made up 36% of the sample, and the rest were majoring in science. One-third (33.5%) self-rated English their writing proficiency at the beginning of the semester as poor or very poor; 53.4% rated it as average; 12.6% as good; and just one individual as very good.

Procedure

Writing-related course data were collected at two points during the semester. The first of these data-collection rounds (T1) was in week 8, the middle of the semester, and the second (T2) in week 16, its final week. On each occasion, a gatekeeper passed hard copies of our questionnaire to students and collected them once they had been completed.

Measures

The same questionnaire was administered in each data-collection round, and was composed of three parts, (1) a consent form, (2) 71 items on the respondents' self-regulated English writing, all answered using a 5-point Likert scale ranging from 1 = "very unlikely" to 5 = "very likely"; and their background information. **Supplementary Appendix I** provides a copy of the questionnaire.

Motivational-regulation strategies

Our study's focal motivational-regulation strategies were the same as those studied by Teng and Zhang (2018), from whose survey and informed by Teng et al. (2020) who found motivational self-talk, interest enhancement, and emotional control to be the most relevant and proficiency distinguishing dimensions in L2 writing motivation regulation, we also adapted our 14 survey items about such strategies. These items collectively covered four dimensions: mastery self-talk (three items, α = 0.73), performance self-talk (four items, α = 0.81), interest enhancement (four items, α = 0.90), and emotional control (three items, α = 0.66).

Second-language self-regulated writing strategies

Our 21 items for measuring L2 students' self-regulated writing strategies were also adapted from Teng and Zhang's (2018) instrument. These items covered five dimensions: text processing (five items, α = 0.79), idea planning (three items, α = 0.64), goal-oriented monitoring (six items, α = 0.85), peer learning (three items, α = 0.76), and feedback-handling (four items, α = 0.76). Of these five dimensions, text processing is a cognitive strategy; idea planning and goal-oriented monitoring, metacognitive strategies; and peer learning and feedback-handling, social-behavior strategies.

Writing-achievement emotions

Our seven items for measuring achievement emotions were adapted from the Academic Emotions Questionnaire (AEQ) developed by Pekrun et al. (2005). As well as translating them into Chinese, we reworded some of these items to make them more appropriate for measuring emotions about writing. The original AEQ covers achievement emotions in three domains (i.e., class, learning, and test), but we only included learning-related items, as most closely reflecting our study's primary goal. Anxiety was measured by three items (α = 0.70 at T1, α = 0.72 at T2), and enjoyment was measured by four (α = 0.73 at T1, α = 0.77 at T2).

Data analysis

Before statistical analyses, we ran power analysis in G*Power software (Version 3.1.9.6) to test whether our sample size (n = 230) was large enough to allow subsequent statistical inference by keeping the rigorous threshold of effect size, significant level and power (Cohen's d = 0.5, α = 0.05, $1 - \beta$ = 0.95) (Faul et al., 2009), respectively. The result showed that to meet these standards, a sample had to contain at least 176 participants, meaning that our sample size was suitable for statistical analyses. Prior to answering our research questions, we explored the factor structure of the two independent variables, i.e., 14 motivational-regulation strategies and 21 self-regulated writing strategies. This enabled us to reduce multicollinearity when conducting multiple regressions. Principal component analysis (PCA) with varimax rotation was used to extract the major components of the measures of each strategy. The results of PCA are presented in the "Results" section, following the discussion of the descriptive statistics.

Once we had established the major components of the motivational-regulation and self-regulated writing strategies, we used hierarchical multiple regression analysis to answer our research questions. Interaction terms, created to capture the moderating process of interest, were entered into the regression models. Following the finding of a significant interaction, we conducted additional simple slope analysis (Cohen et al., 2013).

Results

Descriptive statistics

Table 1 shows the means, standard deviations, and correlations of the composite scores of motivational-regulation strategies, self-regulated writing strategies, writing anxiety at T1 and T2, and writing enjoyment at T1 and T2. All six variables showed moderately high scores. We then observed the first-order correlations among them. In keeping with previous research, students who used motivational-regulation strategies more often also tended to report more use of self-regulated writing strategies, as well as higher enjoyment at both time points. There was no association between motivational-regulation strategies and anxiety at either time point, but enjoyment and anxiety were negatively correlated with each other. Additionally, self-regulated writing strategies correlated negatively with anxiety and positively with enjoyment. The correlations between enjoyment at two time points, and between

TABLE 1 Descriptive statistics and correlations before principal component analysis (N = 230).

Variable	M	SD	Skewness	Kurtosis	1	2	3	4	5	6
(1) T1 MR	3.72	0.53	−0.10	3.52	1					
(2) T1 SRL	3.83	0.43	0.18	0.21	0.79***	1				
(3) T1 ANX	3.23	0.76	−0.43	3.17	−0.09	−0.18**	1			
(4) T1 ENJ	3.55	0.64	−0.08	3.44	0.77***	0.65***	−0.16*	1		
(5) T2 ANX	3.24	0.78	−0.15	2.72	−0.02	−0.09	0.58***	−0.09	1	
(6) T2 ENJ	3.68	0.64	−0.17	3.31	0.70***	0.64***	−0.21**	0.75***	−0.09	1

MR, motivational-regulation strategies; SRL, self-regulated writing strategies; ANX, writing anxiety; ENJ, writing enjoyment.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

anxiety at two time points were positive and significant, indicating the stability of the emotion over time.

Principal component analysis

Two sets of PCA analyses with varimax rotation were conducted, one to find factor solutions for motivational-regulation strategies, and the other to find them for self-regulated writing strategies. The first set of PCA results yielded a two-component solution with both factors' eigenvalues larger than 1 (i.e., 6.12 and 1.35), which explained 53.38% of the total variance. The factor loadings for motivational-regulation strategies are displayed in **Table 2**. We used a loading criterion of 0.40, as recommended by Floyd and Widaman (1995), to decide which items should be included under each factor. The first component contained all items designed for measuring the students' interest enhancement, mastery self-talk, and emotional control, with factor loadings ranging from 0.49 to 0.78. We labeled this component as *Intrinsic and mastery motivational-regulation strategies*. The second component included the four items for measuring Performance self-talk, with factor loadings ranging from 0.63 to 0.87, and was labeled as *Performance self-talk*.

Similarly, we conducted PCA on all the items measuring self-regulated writing strategies (see **Table 3**). The results suggested a four-component solution with all eigenvalues greater than 1 (i.e., 6.98, 2.44, 1.80, and 1.13), which explained 58.81% of the variance. The first component contained all six variables from goal-oriented monitoring, plus Idea planning 3 and Peer learning 1. However, both Idea planning 3 and Peer learning 1 loaded onto more than one component with factor loadings larger than 0.4, and had higher factor loadings on the fourth component and third component, respectively. Therefore, Idea planning 3 and Peer learning 1 were excluded from the first component. We labeled component 1 as *Goal-oriented monitoring strategy*. Following Teng and Zhang (2018), we named the second component *Cognitive strategy*, as it mostly involved students' abilities to process cognitive information in writing: i.e., consisted of all five items for measuring text processing, plus Feedback-handling 2 and 4. The third component included all items designed to measure Peer learning and Feedback-handling. Again, as this component echoed Teng and Zhang's (2018) findings, we used their label for it: *Social-behavior strategy*. The last component contained all items from Idea planning strategy, and we therefore decided to label it with that term.

The main effects of motivational-regulation strategies on writing-achievement emotions

A series of stepwise multiple regression analyses were conducted to find main effects of motivational regulation and self-regulated writing strategies on writing emotion. We computed eight variables that captured the interaction between, on the one hand, two motivational-regulation variables (i.e., *intrinsic and mastery motivational-regulation strategies* and performance self-talk), and on the other, four self-regulated

TABLE 2 Principal component analysis factor loadings for motivational regulation.

Item	Component 1	Component 2
Interest enhancement 1	**0.49**	0.30
Interest enhancement 2	**0.76**	0.10
Interest enhancement 3	**0.78**	0.15
Interest enhancement 4	**0.71**	0.16
Mastery self-talk 1	**0.53**	0.37
Mastery self-talk 2	**0.67**	0.39
Mastery self-talk 3	**0.61**	0.35
Emotional control 1	**0.55**	0.24
Emotional control 2	**0.68**	0.32
Emotional control 3	**0.56**	0.33
Performance self-talk 1	0.32	**0.63**
Performance self-talk 2	0.36	**0.68**
Performance self-talk 3	0.10	**0.87**
Performance self-talk 4	0.15	**0.83**

|Loadings| > 0.40 are displayed in bold. Each measurement item can be seen in the **Supplementary Appendix I**.

TABLE 3 Principal component analysis factor loadings for self-regulated writing strategies.

Item	Component 1	Component 2	Component 3	Component 4
Text processing 1	0.04	**0.68**	0.07	0.22
Text processing 2	0.08	**0.63**	0.02	0.08
Text processing 3	0.17	**0.66**	0.19	0.11
Text processing 4	0.16	**0.71**	0.00	0.19
Text processing 5	0.22	**0.73**	0.11	0.04
Idea planning 1	0.35	0.24	0.01	**0.65**
Idea planning 2	0.08	0.19	0.20	**0.74**
Idea planning 3	**0.49**	0.38	0.06	**0.40**
Goal-oriented monitoring 1	**0.74**	0.07	0.04	0.15
Goal-oriented monitoring 2	**0.69**	0.07	0.19	0.33
Goal-oriented monitoring 3	**0.69**	0.24	0.16	0.03
Goal-oriented monitoring 4	**0.67**	0.29	0.17	0.12
Goal-oriented monitoring 5	**0.60**	0.38	0.19	−0.21
Goal-oriented monitoring 6	**0.75**	0.00	0.25	0.08
Peer learning 1	**0.46**	−0.14	**0.57**	0.23
Peer learning 2	0.43	−0.14	**0.56**	0.29
Peer learning 3	0.32	0.08	**0.74**	−0.08
Feedback-handling 1	−0.05	0.25	**0.74**	0.29
Feedback-handling 2	−0.14	**0.49**	**0.56**	0.13
Feedback-handling 3	0.27	0.11	**0.77**	−0.07
Feedback-handling 4	0.14	**0.58**	**0.44**	0.13

|Loadings| > 0.40 are displayed in bold. Each measurement item can be seen in the Supplementary Appendix I.

writing strategies (i.e., goal-monitoring, cognitive strategies, social-behavior, and idea planning). The complete regression model's set of independent variables thus consists of two motivational-regulation variables, four self-regulated writing strategies, and eight interaction variables, as well as four control variables: i.e., gender, major, grade, and self-rated writing proficiency. The four dependent variables were T1 enjoyment, T2 enjoyment, T1 anxiety and T2 anxiety, respectively. All independent variables were centered to avoid non-essential multicollinearity (Cohen et al., 2013).

In the case of T1 enjoyment, as shown in Table 4, Model 1 – which included motivational-regulation strategies and self-regulated writing strategies but not the interaction between the two – was found to be significant, with $R^2 = 0.64$, $F(10, 197) = 34.54$, $p < 0.001$. *Intrinsic and mastery motivational-regulation strategies* ($b = 0.37$, $p < 0.001$) and *Performance self-talk* ($b = 0.20$, $p < 0.001$) both predicted T1 enjoyment positively, and these effects remained significant after the eight interaction variables were added, in Model 2 (*Intrinsic and mastery motivational-regulation strategies* $b = 0.37$, $p < 0.001$, and *Performance self-talk* ($b = 0.21$, $p < 0.001$). Model 2 yielded $F(18, 189) = 19.53$, $p < 0.001$ with $R^2 = 0.65$.

In the case of T2 enjoyment, Model 1 suggested that *Intrinsic and mastery motivational-regulation* ($b = 0.28$, $p < 0.001$) and *Performance self-talk* ($b = 0.16$, $p < 0.001$) again were positive and significant predictors (see Table 4). And, after adding the interaction variables in Model 2, *Intrinsic and mastery motivational-regulation* ($b = 0.28$, $p < 0.001$) and *Performance self-talk* ($b = 0.19$, $p < 0.001$) remained significant predictors of this dependent variable.

We then tested the main effect of motivational-regulation strategies on T1 anxiety. As shown in Table 5, both Model 1 and Model 2 suggested that T1 anxiety was only linked to *Performance self-talk* ($b = 0.18$, $p < 0.01$ in Model 1, and $b = 0.15$, $p < 0.05$ in Model 2), and not to *Intrinsic and mastery motivational-regulation*. The same pattern also applied in the prediction of T2 anxiety, with $b = 0.22$, $p < 0.01$ in Model 1, and $b = 0.17$, $p < 0.05$ in Model 2.

The moderating effect of self-regulated writing strategy

To test whether self-regulated writing strategies moderated the relationship between motivational-regulation strategies and writing emotions, the interaction effects were added as Model 2 when predicting enjoyment and anxiety, respectively. As shown in Table 5, there was a marginally significant interaction effect of *Performance self-talk* and *Social-behavior strategy* on the prediction of writing anxiety at T1 ($b = -0.10$, $p < 0.05$).

We then conducted simple slope analysis (Cohen et al., 2013) to test the significance of the slopes of *Performance self-talk* in relation to T1 anxiety at one standard deviation below and above the mean of *Social-behavior strategy*. The results suggested that, when a given student's *Social-behavior strategy* and *Performance self-talk* were both high, this was associated

TABLE 4 The main and interaction effects of motivational-regulation strategies and self-regulated writing strategies on writing enjoyment at two time points.

	T1 Enjoyment				T2 Enjoyment			
	Model 1		Model 2		Model 1		Model 2	
	b	*SE.b*	*b*	*SE.b*	*b*	*SE.b*	*b*	*SE.b*
MS	0.37***	0.05	0.37***	0.05	0.28***	0.05	0.28***	0.06
PS	0.20***	0.03	0.21***	0.04	0.16***	0.04	0.19***	0.04
GM	0.06	0.04	0.06	0.04	0.09	0.05	0.07	0.05
COG	−0.01	0.03	−0.01	0.04	0.08	0.04	0.06	0.04
SB	−0.00	0.03	0.01	0.04	0.08	0.04	0.09*	0.04
IP	0.05	0.03	0.03	0.03	0.07*	0.04	0.05	0.04
MS × GM			0.01	0.03			−0.01	0.03
PS × GM			0.00	0.02			0.02	0.03
MS × COG			0.02	0.03			0.01	0.03
PS × COG			−0.04	0.03			−0.06	0.03
MS × SB			0.03	0.02			0.05	0.03
PS × SB			0.01	0.03			0.00	0.03
MS × IP			−0.04	0.02			−0.04	0.03
PS × IP			0.01	0.02			0.04	0.03
R^2	0.64		0.65		0.54		0.56	

COG, cognitive strategy; GM, goal-oriented monitoring strategy; IP, idea planning strategy; MS, intrinsic and mastery motivational-regulation; PS, performance self-talk; SB, social-behavior strategy. Control variables: gender, age, major, and self-rated writing proficiency.
*$p < 0.05$; ***$p < 0.001$.

TABLE 5 The main and interaction effects of motivational-regulation strategies and self-regulated writing strategies on writing anxiety at two time points.

	T1 anxiety				T2 anxiety			
	Model 1		Model 2		Model 1		Model 2	
	b	*SE.b*	*b*	*SE.b*	*b*	*SE.b*	*b*	*SE.b*
MS	0.02	0.08	0.01	0.16	−0.01	0.09	−0.00	0.09
PS	0.18**	0.06	0.15*	0.10	0.22**	0.07	0.17*	0.07
GM	−0.07	0.07	−0.03	0.07	0.00	0.08	0.06	0.08
COG	−0.12*	0.06	−0.13*	0.06	−0.19**	0.07	−0.19**	0.07
SB	0.03	0.06	0.03	0.06	−0.03	0.06	−0.02	0.07
IP	−0.12*	0.05	−0.08	0.05	0.08	0.06	0.12*	0.06
MS × GM			0.00	0.11			0.07	0.05
PS × GM			−0.06	0.10			−0.08	0.04
MS × COG			−0.02	0.11			−0.04	0.05
PS × COG			−0.02	0.10			−0.03	0.05
MS × SB			−0.07	0.08			−0.06	0.04
PS × SB			−0.10*	0.08			−0.07	0.05
MS × IP			0.04	0.10			0.03	0.04
PS × IP			−0.06	0.08			−0.08	0.04
R^2	0.26		0.31		0.19		0.25	

COG, cognitive strategy; GM, goal-oriented monitoring strategy; IP, idea planning strategy; MS, intrinsic and mastery motivational-regulation; PS, performance self-talk; SB, social-behavior strategy. Control variables: gender, age, major, and self-rated writing proficiency.
*$p < 0.05$; **$p < 0.01$.

with a slight increase in T1 anxiety ($t = 0.65$, $p > 0.05$). However, that relation was not significant. On the other hand, when a student's *Social-behavior strategy* was low, the link between that person's *Performance self-talk* and his/her T1 anxiety was positive and significant ($t = 2.37$, $p < 0.05$).

The interaction relationships are further illustrated in **Figure 1**. Although one of the two slopes is not significant, the overall pattern suggests that the less *Social-behavior strategy* students used, the stronger was the positive relationship between their *Performance self-talk* and their T1 anxiety. Conversely, if two students both reported low levels of *Performance self-talk*, the one with the higher level of *Social-behavior strategy* tended to show a higher level of T1 anxiety. However, this situation was reversed when both students' use of *Performance self-talk* was rated as high: with the one having a lower level of *Social-behavior strategy* also exhibiting a higher level of T1 anxiety.

Change over time

We then examined patterns of stability in the prediction of enjoyment and anxiety. Both *Intrinsic and mastery motivational-regulation strategies* and *Performance self-talk* showed decreases over time in their power to predict enjoyment. However, these decreases in effect size were slight: i.e., from $b = 0.37$ at T1 to $b = 0.28$ at T2 for the former, and from $b = 0.21$ at T1 to $b = 0.19$ at T2 for the latter (see **Table 4**). In addition, *Social-behavior strategy* was not associated with enjoyment at T1, but nevertheless emerged as a significant predictor of distal enjoyment ($b = 0.09$, $p < 0.05$).

The pattern of stability in the prediction of anxiety is somewhat different. Of the two motivational-regulation variables, only *Performance self-talk* predicted anxiety at both time points, and showed a slight increase in its predictive power: from $b = 0.15$ to $b = 0.17$. *Cognitive strategy* also appeared as a stable predictor over time, with $b = -0.13$ at T1, and $b = -0.19$ at T2. *Idea planning strategy* was a significant predictor only of distal anxiety, with $b = 0.12$ (see **Table 5**). Lastly, the interaction between *Performance self-talk* and *Social-behavior strategy* in the prediction of anxiety was significant at T1 ($b = -0.10$, $p < 0.05$), but not at T2 ($b = -0.07$, $p > 0.05$).

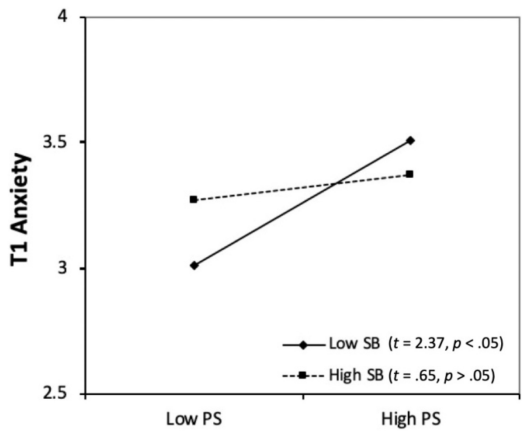

FIGURE 1
Social-behavior strategy as a moderator between performance self-talk and T1 Anxiety. PS, performance self-talk; SB, social-behavior.

Discussion

The SRL framework depicts the motivational, metacognitive, cognitive, and behavioral mechanisms of individuals' active learning (Bandura, 1986; Zimmerman, 2002). Within such a framework, motivational regulation is helpful in explaining a person's autonomous role in initiating, adjusting, increasing, or maintaining his or her own motivation (Wolters, 1998), and yet, it has been the subject of relatively few empirical investigations. Our study has made important contributions to this largely overlooked area. Its theoretical contributions, practical implications, and limitations and future directions are discussed below.

The findings from our study support, challenge, and extend various results reported by previous researchers regarding the role of motivational regulation in the SRL framework. Like Schwinger et al. (2007), we identified two distinct groups within the set of measured motivational-regulation strategies, one containing only performance self-talk strategies, and the other, all other such strategies. Our two-factor solution derived from PCA analysis is consistent with previous studies' dichotomous categorizations of students' goal-oriented motivational regulation (Wolters, 1998; Wolters and Rosenthal, 2000), which differentiated mastery self-talk from performance self-talk; and with Schwinger et al.'s (2007) intrinsic vs. extrinsic classification. Our finding is also in line with the distinction educational psychologists have drawn between, on the one hand, more mastery- and intrinsic-oriented learning goals, and on the other, more performance- and extrinsic-oriented ones (Deci and Ryan, 1985; Elliot, 1999).

Although little research has examined motivational regulation as a predictor of emotion, it is important to note that our results differ somewhat from Park and Yun's (2018) finding that mastery self-talk was the only significant predictor of emotional engagement. That is, we found that all types of motivational-regulation strategies were significantly linked to writing enjoyment, which seems to confirm Schwinger et al. s' (2012) comment that motivational regulation follows a "the more, the merrier principle" (p. 277). Our result also provides empirical support for Zimmerman and Schunk's (2008) hypothesis that students' motivational regulation may have positive impacts on their affective outcomes; and extends our understanding of such a process, in that it is not

any specific type of motivational regulation that matters in predicting positive affective outcomes, but the overall amount. Our finding that learners' use of performance self-talk is not necessarily detrimental, meanwhile, is in accordance with the findings of previous educational-psychology research on the positive relationship between performance goals and positive emotions (Barron and Harackiewicz, 2001; Pekrun, 2006; Bodmann, 2009). Also, it should be noted that the specific context of our study – an elite Chinese university – was a competitive learning environment in which the participants inevitably valued their own high performance. These conditions could have had an effect on the role of performance self-talk, i.e., rendered it conducive to eliciting a sense of enjoyment, in a way that it might not in less-competitive or non-competitive settings.

Our results regarding the prediction of anxiety showed that, among all the studied motivational-regulation strategies, only performance self-talk functioned as a significant predictor of this emotion; and specifically, that a high level of performance self-talk was associated with high writing anxiety. This finding is not surprising, given that those people with strong desires to outperform others can reasonably be expected to feel anxious when thinking about their external learning goals. As such, our findings provide additional evidence supporting the previously observed relationship between maladaptive learning outcomes and performance self-talk (Wolters, 1998; Wolters and Rosenthal, 2000; Fritea and Fritea, 2013; Teng and Zhang, 2016a). That is, focusing on external rewards, punishments, or appraisals may be detrimental to an individual's learning outcomes (Zimmerman and Schunk, 2008), largely because his or her basic psychological need for autonomy is thwarted by a performance-oriented style of motivation dominated by what "must" be done (Nguyen and Deci, 2016, p. 249). As Schwinger and Stiensmeier-Pelster (2012) explained, a student is highly likely to become stressed if an activity is regulated only by an extrinsic motivation, because "there is no positive phenomenological experience while completing the task" (p. 37), and as a result, will inevitably either terminate the learning task or exhibit lower performance than others with intrinsic motivations. In short, the findings of our study imply that educators and educational institutions should encourage the use of mastery-, emotional-, and interest-oriented motivational-regulation strategies over performance-oriented ones, not least as a means of helping their students maintain a sense of well-being.

We also found that social-behavior strategy moderated the relation between motivational regulation and proximal learning anxiety. Remarkably, greater use of social-behavior strategy (i.e., help-seeking and feedback-handling) weakened the positive relationship between performance self-talk and anxiety, while a lesser use of social-behavior strategy strengthened that relationship. As well as tending to confirm the triadic interrelationship of behavioral, environmental, and cognitive factors proposed by the social-cognitive perspective (Bandura, 1986), these findings reflect the learner's role as an active agent who seeks help and handles feedback during his or her learning process (Schunk and Zimmerman, 1998; Zimmerman, 2002). They also provide empirical support for Newman's (2012) theoretical conceptualization of action-to-need patterns: i.e., that a student who exhibits little help-seeking behavior is more likely to have performance-approach goals and to be anxious.

In addition to providing empirical support to the existing body of theory, our social-behavior findings serve to explain why Teng and Zhang (2018) found cognitive and metacognitive strategies, but not social-behavior strategy, to be significant mediators between motivational regulation and achievement. While not rejecting those authors' explanation – that their result was linked to their test-intensive research setting – we believe that social-behavior strategies may function as a moderator rather than a mediator. Specifically, we argue that students' self-regulated social-behavioral strategy has two sides: one being a placebo that flattens the negative impact of performance-oriented motivational regulation on anxiety; and the other, a booster that accelerates that relationship. Karabenick (2004) found that students with performance-approach orientations paid close attention to the negative impacts or costs of seeking help, and thus avoided doing so, which in turn led them to have higher anxiety levels (Karabenick, 2004). This may help to explain our finding that, in the case of two students who reported the same high levels of performance self-talk, the one who relied more heavily on social-behavior strategy tended be less anxious.

Our finding that motivational-regulation strategies stably predicted both current and subsequent academic well-being was consistent both with prior literature (Dickhäuser et al., 2016) and our initial hypothesis that the predictive pattern of motivational regulation would be relatively stable. On the other hand, Social-behavior strategy only moderated the relation between performance self-talk and T1 anxiety, not subsequent anxiety. This indicates that the distal effect of social-behavior strategies on one's well-being is rather limited, which is unsurprising insofar as such strategies are inherently short-term ones, i.e., aimed at tackling learning problems when and as they occur (Teng and Zhang, 2018).

Our study has several limitations that must be acknowledged. First, we collected students' self-reported survey data as measurements of their motivational regulation, self-regulated writing strategies, and writing emotions. Further studies should consider triangulating students' questionnaire responses *via* a range of other data-collection methods, including behavioral observation (Schwinger et al., 2009), interviews, journals, and/or thinking aloud (Greene et al., 2011).

Second, while longitudinal data collection allowed us to visit and revisit the associations between key variables, the small (2-month) span of time between our two observation time-points could have limited our understanding of the effect of motivational regulation and self-regulated writing strategies on long term writing emotions. Future studies could therefore usefully extend the time spans of data collection. Third, causal inferences cannot be reached due to the lack of bi-directional reciprocal examination of the associations between variables. Fourth, the motivational regulation we captured was mainly performance-approach oriented rather than performance-avoidance oriented. Given the difference between these two orientations (Elliot, 1999; Pintrich, 2000), and previous findings about the maladaptive outcomes that a performance-avoidance orientation might be linked to Schwinger and Stiensmeier-Pelster (2012), future studies should consider differentiating between these two orientations when testing strategies' impacts on writing emotions. Fifth, although our participants' academic performance varied considerably, the whole sample was drawn from a prestigious learning institution at which most students are expected to possess relatively high levels of both motivation and learning ability. Future research should therefore test whether the associations found in this study can be replicated in fundamentally different learning contexts, especially ones where the students find L2 writing quite challenging. Last but not least, given that the purpose of this study was to identify predictors for L2 writing achievement emotions and their patterns of predictive power across two time points, we did not examine in more detail the internal constructs of motivation regulation and self-regulated strategy use, future research can validate and extend our findings by adopting more complicated analytical methods, such as structural equation modeling (SEM) and corresponding moderation analysis (e.g., Hayes's PROCESS), to draw a more holistic picture of the relationship among motivation regulation, self-regulated strategy use, and L2 achievement emotions.

Conclusion

Motivational regulation is generally considered an integral part of the SRL framework; and previous research has focused on types of motivational regulation, as well as its mediated relations with learning achievement. The present study looked beyond both of these perspectives, by reconsidering motivational-regulation strategies' relations to both proximal and distal achievement emotions, as well as how SRL strategies interact with them. Its four key findings are as follows. First, all types of motivational-regulation strategy directly predicted positive emotion under a "the more the happier" principle. Second, as measured by lower levels of negative emotion, mastery-, emotional-, and interest-oriented motivational-regulation strategies appeared to work better than performance-oriented ones. Third, higher use of social-behavior strategy reduced the strength of the positive relationship between performance self-talk and anxiety. And last but not least, the power of motivational regulation to predict emotion at different time points was relatively stable.

Taken together, these findings illuminate the predictive relations among motivation regulation, self-regulated strategy use, and achievement emotions in L2 writing, making the present study another addition to the limited but pedagogically important research into the longitudinal investigation of L2 emotions in general (Dewaele, 2021b). Given the differentiating predictive effects of motivational self-talk and the interactive effects of motivation regulation and self-regulation strategies on L2 achievement emotions, it will be an intriguing avenue for future research to devise interventions targeting students' motivational, metacognitive, and cognitive self-regulated strategies. Experimental designs will be particularly helpful in revealing whether the training of such strategies as mastery self-talk, interest enhancement, and emotion enhancement truly promote students' emotional experience and well-being in the long run. We also encourage experimental endeavors on developing students' social-behavior strategies as our findings indicate their observed effectiveness in counteracting the potential negative effects of high levels of performance self-talk.

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

Author contributions

YZ: literature review, draft, data collection, and analysis. LD: literature review and draft. Both 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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Supplementary material

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References

Anastasiou, D., and Michail, D. (2013). Exploring discourse between self-efficacy and writing performance among low-literate adult students. *Learn. Disabil. J.* 11, 53–87.

Bai, B., Shen, B., and Mei, H. (2020). Hong Kong primary students' self-regulated writing strategy use: Influences of gender, writing proficiency, and grade level. *Stud. Educ. Eval.* 65:100839. doi: 10.101/j.stueduc.2020.100839

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.

Barron, K. E., and Harackiewicz, J. M. (2001). Achievement goals and optimal motivation: Testing multiple goal models. *J. Pers. Soc. Psychol.* 80, 706–722. doi: 10.1037/0022-3514.80.5.706

Bodmann, S. (2009). *Achievement Goal Systems: Implications for Research and Educational Policy*, Ph.D thesis, Madison, WI: University of Wisconsin

Cohen, J., Cohen, P., West, S. G., and Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*. Abingdon: Routledge.

Deci, E. L., and Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Germany: Springer

Dewaele, J. M. (2021a). "Enjoyment," in *The Routledge Handbook of Second Language Acquisition and Individual Differences*, eds S. Li, P. Hiver, and M. Papi (London: Routledge).

Dewaele, J.-M. (2021b). "The emotional rollercoaster ride of foreign language learners and teachers: Sources and interactions of classroom emotions," in *Language Education and Emotions. Research into Emotions and Language Learners, Language Teachers and Educational Processes*, eds M. Simons and T. F. H. Smits (New York, NY: Routledge), 205–220.

Dickhäuser, O., Dinger, F. C., Janke, S., Spinath, B., and Steinmayr, R. (2016). A prospective correlational analysis of achievement goals as mediating constructs linking distal motivational dispositions to intrinsic motivation and academic achievement. *Learn. Individ. Differ.* 50, 30–41. doi: 10.1016/j.lindif.2016.06.020

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educ. Psychol.* 34, 169–189. .1207/s15326985ep3403 doi: 10

Faul, F., Erdfelder, E., Buchner, A., and Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behav. Res. Methods* 41, 1149–1160. doi: 10.3758/BRM.41.4.1149

Flower, L., and Hayes, J. R. (1981). A cognitive process theory of writing. *Coll. Compos. Commun.* 32, 365–387. doi: 10.2307/356600

Floyd, F. J., and Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychol. Assessment* 7, 286–299.

Fritea, I., and Fritea, R. (2013). Can motivational regulation counteract the effects of boredom on academic achievement? *Proc. Soc. Behav. Sci.* 78, 135–139. doi: 10.1016/j.sbspro.2013.04.266

Garcia, T., and Pintrich, P. R. (1994). "Regulating motivation and cognition in the classroom: The role of self-schemas and self-regulatory strategies," in *Self-Regulated Learning: Issues and Applications*, eds D. Schunk and B. Zimmerman (Hillsdale, NJ: Lawrence Erlbaum Associates), 127–153.

Greene, J. A., Robertson, J., and Costa, L.-J. C. (2011). "Assessing self-regulated learning using think-aloud protocol methods," in *Handbook of Self-Regulation of Learning and Performance*, eds B. J. Zimmerman and D. Schunk (New York, NY: Routledge Publishers), 318–328.

Grunschel, C., Schwinger, M., Steinmayr, R., and Fries, S. (2016). Effects of using motivational regulation strategies on students' academic procrastination, academic performance, and well-being. *Learn. Individ. Differ.* 49, 162–170. doi: 10.1016/j.lindif.2016.06.008

Harris, K. R., Graham, S., MacArthur, C., Reid, R., and Mason, L. H. (2011). "Self-regulated learning processes and children's writing," in *Handbook of Self-Regulation of Learning and Performance*, eds B. J. Zimmerman and D. H. Schunk (New York: Routledge), 187–202. doi: 10.1044/0161-1461.3003.255

Hayes, J. R. (2000). "A new framework for understanding cognition and affect in writing," in *Perspectives on Writing: Research, Theory, and Practice*, eds R. Indrisano and J. R. Squire (Newark, DE: International Reading Association.), 6–44.

Huang, C. (2011). Achievement goals and achievement emotions: A meta-analysis. *Educ. Psychol. Rev.* 23, 359–388. doi: 10.1007/s10648-011-9155-x

Hulleman, C. S., Schrager, S. M., Bodmann, S. M., and Harackiewicz, J. M. (2010). A meta-analytic review of achievement goal measures: Different labels for the same constructs or different constructs with similar labels? *Psychol. Bull.* 136, 422–449. doi: 10.1037/a0018947

Karabenick, S. A. (2004). Perceived achievement goal structure and college student help seeking. *J. Educ. Psychol.* 96, 569–581.

King, R. B., MacInerney, D. M., and Watkins, D. A. (2012). How you think about your intelligence determines how you feel in school: The role of theories of intelligence on academic emotions. *Learn. Individ. Differ.* 22, 814–819. doi: 10.1016/j.lindif.2012.04.005

Linnenbrink-Garcia, L., and Barger, M. M. (2014). "Achievement goals and emotions," in *International Handbook of Emotions in Education*, eds R. Pekrun and L. Linnenbrink-Garcia (New Work, NY: Routledge), 142–161.

Miele, D. B., and Scholer, A. A. (2018). The role of metamotivational monitoring in motivation regulation. *Educ. Psychol.* 53, 1–21. doi: 10.1080/00461520.2017.1371601

Miele, D. B., Scholer, A. A., and Fujita, K. (2020). Metamotivation: Emerging research on the regulation of motivational states. *Adv. Motiv. Sci.* 7, 1–42. doi: 10.1016/j.schres.2021.06.003

Newman, R. S. (2012). "The motivational role of adaptive help seeking in self-regulated learning," in *Motivation and Self-Regulated Learning: Theory, Research, and Applications*, eds D. H. Schunk and B. J. Zimmerman (New York, NY: Routledge), 315–338.

Nguyen, T. T., and Deci, E. L. (2016). Can it be good to set the bar high? The role of motivational regulation in moderating the link from high standards to academic well-being. *Learn. Individ. Differ.* 45, 245–251. doi: 10.1016/j.lindif.2015.12.020

Park, S., and Yun, H. (2018). The influence of motivational regulation strategies on online students' behavioral, emotional, and cognitive engagement. *Am. J. Distance Educ.* 32, 43–56. doi: 10.1080/08923647.2018.1412738

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educ. Psychol. Rev.* 18, 315–341. doi: 10.1007/s10648-006-9029-9

Pekrun, R., Goetz, T., and Perry, R. P. (2005). *Achievement Emotions Questionnaire (AEQ) User's Manual*. Germany: Department of Psychology.

Pekrun, R., and Linnenbrink-Garcia, L. (2012). "Academic emotions and student engagement," in *Handbook of research on student engagement*, eds S. L. Christenson, A. L. Reschly, and C. Wylie (Boston, MA: Springer), 259–282.

Pekrun, R., and Perry, R.-P. (2014). "Control-value theory of achievement emotions," in *International Handbook of Emotions in Education*, eds R. Pekrun and L. Linnenbrink-Garcia (New Work, NY: Routledge), 120–141.

Pintrich, P. (1999). The role of motivation in promoting and sustaining self-regulated learning. *Int. J. Educ. Res.* 31, 459–470.

Pintrich, P. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educ. Psychol. Rev.* 16, 385–407. doi: 10.1007/s10648-004-0006-x

Pintrich, P. R. (2000). "The role of goal orientation in self-regulated learning," in *Handbook of Self-Regulation, Research, and Applications*, eds M. Boekaerts, P. Pintrich, and M. Zeidner (Orlando, FL: Academic Press), 451–502.

Sansone, C., and Thoman, D. B. (2006). Maintaining activity engagement: Individual differences in the process of self-regulating motivation. *J. Pers.* 74, 1697–1720. doi: 10.1111/j.1467-6494.2006.00425.x

Schunk, D., and Zimmerman, B. (eds) (1998). *Self-Regulated Learning: From Teaching to Self- Reflective Practice*. New York, NY: Guilford Press.

Schunk, D. H., and Zimmerman, B. J. (Eds) (2008). *Motivation and self-regulated learning: Theory, research, and applications*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Schwinger, M., der Laden, T., and Spinath, B. (2007). Strategien zur Motivations regulation und ihre Erfassung [Motivational regulation strategies and their measurement]. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie* 39, 57–69.

Schwinger, M., Steinmayr, R., and Spinath, B. (2009). How do motivational regulation strategies affect achievement: Mediated by effort management and moderated by intelligence. *Learn. Individ. Differ.* 19, 621–627. doi: 10.1016/j.lindif.2009.08.006

Schwinger, M., and Stiensmeier-Pelster, J. (2012). Effects of motivational regulation on effort and achievement: A mediation model. *Int. J. Educ. Res.* 56, 35–47. doi: 10.1016/j.ijer.2012.07.005

Seker, M. (2016). The use of self-regulation strategies by foreign language learners and its role in language achievement. *Lang. Teach. Res.* 20, 600–618. doi: 10.1177/1362168815578550

Sun, T., and Wang, C. (2020). College students' writing self-efficacy and writing self-regulated learning strategies in learning English as a foreign language. *System* 90:102221. doi: 10.1016/j.system.2020.102221

Teng, F., and Huang, J. (2019). Predictive effects of writing strategies for self-regulated learning on secondary school learners' EFL writing proficiency. *TESOL Q.* 53, 232–247. doi: 10.1002/tesq.462

Teng, L. S., Yuan, R. E., and Sun, P. P. (2020). A mixed-methods approach to investigating motivational regulation strategies and writing proficiency in English as a foreign language contexts. *System* 88:102182. doi: 10.1016/j.system.2019.102182

Teng, L. S., and Zhang, L. J. (2016b). Fostering strategic learning: The development and validation of the writing strategies for motivational regulation questionnaire (WSMRQ). *Asia-Pac. Educ. Res.* 25, 123–134.

Teng, L. S., and Zhang, L. J. (2016a). A Questionnaire-based validation of multidimensional models of self-regulated learning strategies. *Mod. Lang. J.* 100, 674–701. doi: 10.1111/modl.12339

Teng, L. S., and Zhang, L. J. (2018). Effects of motivational regulation strategies on writing performance: A mediation model of self-regulated learning of writing in English as a second/foreign language. *Metacogn. Learn.* 13, 213–240. doi: 10.1007/s11409-017-9171-4

Troia, G. A., Harbaugh, A. G., Shankland, R. K., Wolbers, K. A., and Lawrence, A. M. (2013). Relationships between writing motivation, writing activity, and writing performance: Effects of grade, sex, and ability. *Read. Writ.* 26, 17–44. doi: 10.1007/s11145-012-9379-2

William, C., and Hoffman, E. (2020). *Positive Psychology: The Science of Happiness and Flourishing*. Thousand Oaks: SAGE Publications.

Wolters, C. A. (1998). Self-regulated learning and college students' regulation of motivation. *J. Educ. Psychol.* 90, 224–235.

Wolters, C. A. (1999). The relation between high school students' motivational regulation and their use of learning strategies, effort, and classroom performance. *Learn. Individ. Differ.* 11, 281–299. doi: 10.1016/S1041-6080(99)80004-1

Wolters, C. A. (2003). Regulation of motivation: Evaluating an underemphasized aspect of self-regulated learning. *Educ. Psychol.* 38, 189–205

Wolters, C. A., and Rosenthal, H. (2000). The relation between students' motivational beliefs and their use of motivational regulation strategies. *Int. J. Educ. Res.* 33, 801–820. doi: 10.1016/S0883-0355(00)00051-3

Xu, J. (2022). Incremental intelligence matters: How L2 writing mindsets impact feedback orientation and self-regulated learning writing strategies. *Assess. Writ.* 51:100593. doi: 10.101/j.asw.2021.100593

Zheng, C., Liang, J. C., Li, M., and Tsai, C. C. (2018). The relationship between English language learners' motivation and online self-regulation: A structural equation modelling approach. *System* 76, 144–157. doi: 10.1016/j.system.2018.05.003

Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemp. Educ. Psychol.* 11, 307–313. doi: 10.1016/0361-476X(86)90027-5

Zimmerman, B. J. (2002). Become a self-regulated learner: An overview. *Theory Pract.* 41, 64–70. doi: 10.1207/s15430421tip4102_2

Zimmerman, B. J. (2011). "Motivational sources and outcomes of self-regulated learning and performance," in *Handbook of Self-Regulation of Learning and Performance*, eds B. Zimmerman and D. Schunk (New York, NY: Routledge), 49–64.

Zimmerman, B. J., and Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *Am. Educ. Res. J.* 23, 614–628. doi: 10.3102/00028312023004614

Zimmerman, B. J., and Schunk, D. H. (2008). "Motivation. An essential dimension of self-regulated learning," in *Motivation and Self-Regulated learning: Theory, Research, and Applications*, eds D. H. Schunk and B. J. Zimmerman (New York, NY: Routledge), 1–30.

Zimmerman, B. J., and Schunk, D. H. (2011). "Self-regulated learning and performance: An introduction and an overview," in *Handbook of Self-Regulation of Learning and Performance*, eds B. Zimmerman and D. Schunk (New York, NY: Routledge), 1–12.

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Yining Zhang,
Tsinghua University,
China

REVIEWED BY
Jamal Kaid Mohammed Ali,
University of Bisha, Saudi Arabia
Reza Pishghadam,
Ferdowsi University of Mashhad, Iran

*CORRESPONDENCE
Xiaobin Ren
stephen_zhongyuan@163.com

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The psychological and cognitive factors causing college students' demotivation to learn English in China

Xiaobin Ren[1,2]* and Jirapa Abhakorn[1]

[1]National Institute of Development Administration, Bangkok, Thailand, [2]Hubei Business College, Wuhan, China

Demotivation is one of the important factors causing students' failure in learning a language. To explore the psychological and cognitive factors causing college students' demotivation to learn English in China's universities and to investigate the relations among these internal factors, this study constructed a shopping cart model by applying grounded theory method and tested the model by using structural equation modeling. This study found three paths underlying students' demotivation to learn English, originating from large discrepancy between students' actual and required positioning of English learning, low required positioning of English learning and low value of English learning in students' minds. Based on these findings, this study gave some pedagogical implications for English teaching.

KEYWORDS

demotivation to learn English, grounded theory, structural equation modeling, psychological and cognitive factors, English teaching and learning

Introduction

Learning motivation is vitally important for the successful acquisition of English among language learners (Oxford and Shearin, 1994), therefore motivation to learn English has long been a heated research topic in the field of second language acquisition (SLA; Dörnyei, 1990), especially after Gardner and Lambert (1972) proposed integrative and instrumental motivation. But in language teaching practice, numerous students suffer from gradually decreasing investment and engagement in the process of English learning (see Dörnyei and Ushioda, 2011; Pishghadam et al., 2019a). This phenomenon also increasingly attracted language researchers' attention in recent years because of the problems resulting from it. For example, Falout et al. (2009) proposed English learning demotivation could cause numerous problems among EFL learners and their teachers, including learners' unfavorable behaviors, negative attitudes, undesired learning results, language teachers' demotivation and decreased class dynamics. Zeynali et al. (2019) investigated learning motivation of Ph.D., MA, and BA students' and found demotivation was one of the most strong factors predicting their bad language learning results. Shaikholeslami and Khayyer (2006) and Boonchuayrod and Getkham (2019) also found students' demotivation was negatively related with their English achievements and learning results.

Moreover, and practically, demotivation to learn English among college students in many EFL countries is not a rare phenomenon (e.g., Trang and Baldauf, 2007; Sakai and Kikuchi, 2009; Kim, 2015; Boonchuayrod, 2019). In China, many college students tend to gradually suffer from demotivation to learn English after they enter universities (Li and Zhou, 2017; Li, 2021). This serious problem poses a challenge for a great number of EFL teachers and learners there. Therefore, many researchers (Sakai and Kikuchi, 2009; Ghadirzadeh et al., 2012; Boonchuayrod, 2019; Wang and Guan, 2020) thought more demotivational studies should be conducted among English learners to solve students' demotivation and hence improve English teaching and learning efficiency.

Currently, there are some studies conducted to explore students' demotivation of English learning, and several research found students' internal factors could be the potential reasons for their demotivation to learn English (e.g., Kaivanpanah and Ghasemi, 2011; Kim, 2015; Akay, 2017). However, there are some problems in the existing studies. For instance, the psychological and cognitive factors causing students' demotivation of English learning explored in some research were seemingly scattered and independent from each other, and few studies were conducted linking students' those internal factors. Besides, most of the existing research did not differentiate the internal and external factors. With these considerations, this study focused solely on internal perspective and investigated those psychological and cognitive factors underlying Chinese college students' demotivation to learn English and constructed a theoretical model to demonstrate the relations among those internal factors.

This research systematically reviewed the studies of demotivation to learn English, broke the research routine of emphasizing external factors in most studies, and exclusively investigated internal factors for students' demotivation. Those internal factors could enrich the understanding of college students' demotivation to learn English, and hence help to overcome demotivation. In addition, a theoretical model to explain students' psychological and cognitive factors for their demotivation to learn English was constructed in this study. The model creatively related different internal factors underlying demotivation, rather than only listing the factors and ignoring the relations among them. It could provide comprehensive theoretical explanations for students' inner processes underlying their demotivation of learning English.

Literature review

Definition of demotivation

Motivation provides language learners with fundamental trigger to learn (Çankaya, 2018). Without sufficient motivation, individuals could hardly achieve their language learning goals even with appropriate curriculum and teaching methods (Boonchuayrod, 2019). As the dark side of motivation, demotivation was also named as passive motivation or negative motivation (Boonchuayrod and Getkham, 2019; Pishghadam et al., 2021). The definition of demotivation was discussed by many researchers in SLA field. Dörnyei and Ushioda (2011, p. 139) once defined demotivation as "specific external forces that reduce or diminish the motivational basis of a behavioral intention or an ongoing action." Nonetheless, some researchers (e.g., Sakai and Kikuchi, 2009; Clare et al., 2019, p. 66) did not agree with Dörnyei and Ushioda (2011) definition of demotivation, and they included both internal and external factors when they were investigating demotivation. In addition, Sakai and Kikuchi (2009, p. 58) even though the definition of Dörnyei and Ushioda (2011) demotivation was contradictory because they still include internal factors, such as "lack of confidence" and "negative attitude," as the sources of demotivation in their research. This means that, apart from external factors, internal factors should also be considered when investigating college students' demotivation to learn English.

Demotivation in SLA studies

Currently, external factors causing students' demotivation to learn English were frequently investigated in existing research. Teacher-related factors, teaching contents and materials, class characteristics and environment were the most frequently reported ones. For example, Sakai and Kikuchi (2009) investigated the demotivating factors in Japanese high schools and found teachers' competence and teaching styles was one of the two most significant demotivators. Wang and Guan (2020) delved into the demotivation factors of learning English in Chinese context and found teacher-related factors were also the most influencing demotivator. Pishghadam et al. (2021) specifically examined the role of teachers' stroking behaviors and concluded that teachers' inappropriate stroking behaviors could cause students' passive motivation for EFL learning. In addition, teaching contents and materials were also found a demotivator in numerous studies. For instance, Kikuchi and Sakai (2009) topped English textbooks in all the external factors influencing Japanese high school students' demotivation to learn English. Li and Zhou (2017) found teaching material was also the top demotivator among all external factors. On top of that, numerous studies also investigated the influences of class characteristics and environment on students' demotivation. Çankaya (2018) investigated the demotivation factors in vocational schools and found class characteristics and environment had more negative influences than teacher factors and teaching materials on students' motivation to learn a foreign language. Besides, educational levels or grades were also considered as a significant correlating factor for students' demotivation of English learning in Korean elementary school (Kim, 2011; Kim and Seo, 2012).

In addition to those external factors, some studies also found students' internal reasons could be the causes for their demotivation of English learning. For instance, Trang and Baldauf (2007) found apart from teacher-related factors, students' past English learning experience, attitudes to English learning, and self-esteem might also

be the underlying reasons for their demotivation. Sakai and Kikuchi (2009) agreed that students' past failure in English learning could be a potential demotivator hindering their progress. Ghadirzadeh et al. (2012) found lack of perceived individual competence and intrinsic motivation were among the factors causing Iranian students' demotivation. Besides external factors, Akay (2017) also found lack of interests in English and negative attitudes toward English teachers were the internal demotivating factors.

Research problems and aims

Although some studies investigated students' internal reasons for their demotivation to learn English, those different factors were scattered and independent from each other in most of the existing studies. Numerous studies only listed the potential internal factors causing demotivation, but few researchers considered the relations between or among different psychological and cognitive factors or linked them after those various internal factors were discovered. For example, Wang and Littlewood (2021) explored the factors underlying EFL learners' demotivation in Hong Kong master students, and listed several categories causing students' demotivation, including "failure experience, lack of confidence, lack of interests in English," etc., but they did not notice the potential relations between or among those underlying factors. This might be problematic given people's psychology and cognition are usually correlated with each other (see DiLorenzo et al., 2007; del Bosque and Martín, 2008; Su and Shum, 2019). In addition, because of the influence of the definition of demotivation proposed by Dörnyei and Ushioda (2011), some studies (e.g., Kikuchi and Sakai, 2009) only focused on external factors when they were investigating demotivation to learn a foreign language, but studies focusing on students' internal factors were rarely conducted. In this study, the psychological and cognitive factors causing college students' demotivation were focused and explored, and the relations among those factors and students' demotivation were also investigated. To accomplish the research aims, this study proposed 2 research questions to guide the whole study:

What are the cognitive and psychological factors causing students' demotivation to learn English and how do these factors cause demotivation?

Materials and methods

Instruments

In this study, semi-structured interviews and questionnaires were used to collect data.

To ensure the validity of semi-structured interviews, two experts in English teaching (both with a doctoral degree) were invited to evaluate the interview questions designed by the researchers, and the interview questions were revised accordingly. In the end, an interview guideline (see Appendix 1) consisting of eight questions were formulated. This guideline was then applied into one-on-one trial interviews among three college students, and it demonstrated the interview guideline was effective and could generate desired results.

In addition, questionnaires were also applied in this research. The questionnaire used in this research was a seven-point Likert Scale with 30 items, which was utilized to test the constructs in the theoretical model constructed in this research. When the questionnaire was being designed, two experts in questionnaire designing provided their suggestions for questionnaire revision. A pilot study was conducted among 86 college students in China's universities, and the item analysis, reliability analysis and validity analysis demonstrated the questionnaire could be used as an instrument in this study.

Student sampling and data collection

Student sampling and data collection for constructing model

Theoretical sampling method (Strauss and Corbin, 1998; Corbin and Strauss, 2014) was applied to select college students in China's universities in this study. The sampling method required researchers to collect and analyze data initially and then, based on the needs of data enrichment, determine where to collect data and what data to collect next. Theoretical sampling is a recurrent process and should not end before the data is saturated (Glaser and Strauss, 1967, p. 45; Corbin and Strauss, 2014, p. 150). Based on the guideline of theoretical sampling, the researchers in this study one-on-one and face-to-face interviewed 23 college students (for details, see Table 1) in several universities in the capital of a central province of China according to the questions in the interview guideline (Appendix 1) until the data was saturated.

The interviews were conducted in students' canteens, classrooms, and coffee shops near the campus. An informed consent form was given to each interviewee before the interview started. All interviews were recoded, and those recoded interviews were transcribed into Chinese texts through https://www.iflyrec.com/. After that, those transcribed Chinese texts were proofread by the researchers.

Student sampling and data collection for testing model

To test the theoretical model constructed through grounded theory, this study adopted random sampling method and chose 10 college classes (for details, see Table 2) from different universities.

In China, public universities are ranked higher than private ones in university rankings, and generally those public universities listed in the "double first-class" university project (Ministry-of-Education, 2017) boasted better student sources and education quality than those excluded from the project. Based on these considerations, this study classified China's universities into three categories: private university (PRU), ordinary public university

TABLE 1 Interviewees' basic information.

Student code	Gender	Grade (year)	Major
SYR	Male	Second	Hospitality management
MJS	Female	First	Film production
LSS	Male	Third	Accounting
HJX	Female	Fourth	Finance
YYL	Male	Third	Management
WMQ	Male	First	Tourism management
TWJ	Male	Second	Photography
ZT	Male	Second	Electronic information
CLM	Female	Third	Management
TXY	Female	Third	Film production
JNY	Male	Third	Digital media
YXJ	Female	Second	Financial management
ZZY	Male	First	Visual communication design
WWQ	Male	First	Computer science
HJS	Male	First	Data science
THS	Female	Third	Management
ZSL	Male	Second	Photography
WJW	Female	Fourth	Hospitality management
LCR	Male	Third	Hospitality management
JBN	Female	Second	Tourism management
DML	Male	Fourth	Computer science
HZJ	Male	Second	Data science
CYL	Female	Third	International economics and trade

(OPU), and good public university (GPU) and randomly selected classes in the above three categories of universities.

Students in the above-mentioned classes were asked to fill in questionnaires within 20 min in their English classes guided by their English teachers. Totally, 380 students successfully submitted their questionnaires, and 286 students thought they suffered from demotivation of English learning. The information of these classes and demotivated students is displayed in Table 2.

TABLE 2 Information of students filling in questionnaire.

Class code	Student count	Demotivated student count	Major	Grade	University code
1	45	33	Tourism management	Second	PRU1
2	36	26	Management	Third	OPU1
3	32	25	Financial management	Second	GPU1
4	39	32	Accounting	Second	GPU1
5	35	23	Hospitality management	Fourth	PRU1
6	42	33	Photography	Second	GPU2
7	31	29	Film production	Third	OPU2
8	41	26	Computer science	Second	OPU1
9	46	31	Digital media	Fourth	PRU2
10	33	28	Accounting	Second	PRU1
Total	380	286	---	---	---

Data analysis

Analysis of interview data

This study analyzed the interview data with grounded theory method (Corbin and Strauss, 2014). According to Corbin and Strauss (2014), grounded theory method has three stages, including open coding, axial coding, and selective coding.

Open coding

Open coding coded the texts based on lines or sentences. Sentences and lines could be coded into various concepts. Then, similar concepts were integrated, and categories emerged.

Axial coding

Axial coding compared and integrated different categories developed in open coding and explored the relations between those categories and then developed main categories.

Selective coding

Selective coding further integrated the main categories developed in axial coding and selected a core category from them.

The three data coding stages were not a one-time process, but rather a recurrent one, in which the data were coded, compared, integrated, and categorized recurrently. In this study, data coding software NVivo was applied in the data analysis process to improve the data coding efficiency.

Analysis of questionnaire data

With the data from 286 questionnaires of the demotivated students, this study tested the grounded theory model by using the method of structural equation modeling (SEM). SPSS 25 and AMOS 23 were applied as the data analyzing tools.

Transparency statement

This study used the same interview guideline as that applied in the study of Ren and Abhakorn (2022). In addition, both this study and the previous one adopted same method to analyze interview data (for more details, see, Ren and Abhakorn (2022), pp. 291–295). Nonetheless, the population in the present study was different from that in their study. This study only focused on non-English major college students, while their study did not differentiate English and non-English majors.

TABLE 3 Open coding process.

Transcribed text (translated)	Conceptualization	Categorization
Long English sentences are too difficult for me because the structure is very complex.	Difficulty in analyzing sentence structure	Poor grammar
For example, in my English textbook, I do not know more than half of the words' meaning.	Unfamiliar with many words	Poor vocabulary
English teachers speak English too fast. I cannot follow them.	Difficulty in following teachers	Poor listening ability
I have never learned phonetic symbol before. My English teacher cannot understand me.	Shortage of speaking knowledge	Poor speaking ability
New horizon college English textbook is too difficult for us students majoring in arts.	Difficult textbooks	Difficult teaching materials
College English Test-4 (CET-4) is too difficult for me.	Difficult English tests	Difficult tests
Our English teachers always gives us detailed review guidelines before the final test.	Providing hints for test	Decreased test requirements
For me, some grammar rules and vocabulary have been learnt in middle school. We can learn them by ourselves.	Repetitive grammar rules and vocabulary	Easy teaching contents
I cannot remember English words. I have tried many times, but I always forgot in the end.	Cannot remember words	Low vocabulary learning efficiency
I have learned English for many years without many achievements. I do not think I can make much progress anymore.	Little progress in opinion	Low expectancy of English learning
You know, in our school, there is no opportunities speaking English.	Little use in campus	Limited use chances
As for photography major, professional courses are more important than English.	Less important than another course	Limited significance
I had a sense of failure of English learning.	Sense of failure of English learning	Sense of failure
I am afraid of having English classes, because …	Afraid of English classes	Afraid
I felt nervous when I have to speak English.	Nervous for speaking English	Nervous
I hate English classes and teachers…. I hate English textbooks.	Hate elements of English learning	Negative emotions
My enthusiasm for learning English is not as strong as when I was a freshman.	Weaker enthusiasm for learning English	Decreased enthusiasm
My time spent on learning English dropped sharply compared with when I just entered university.	Time on learning English dropped	Dropped learning time
I have almost given up learning English, because…	Give up learning English	Give up learning

Results

Grounded theory model development

The next three sub-sections display some examples and elaborate the results of open coding, axial coding, and selective coding.

Open coding

Open coding in this study was to code the interview data line by line without preconceptions. In the open coding stage, interviewees' answers were coded into concepts, and those concepts were further coded into categories.

Firstly, 23 transcribed files were imported into NVivo and then was analyzed by open coding method. In the open coding stage, the interview data were abstracted three times. Firstly, 1,456 nodes were generated among the 23 files in NVivo, and 65 concepts emerged. Those concepts were then further coded into 19 categories. Table 3 showcases the conceptualization and categorization of some examples in the interview data.

Axial coding

Axial coding in this study aimed to integrate related categories developed in open coding by exploring the relations among them, and then develop main categories (Strauss and Corbin, 1998). In this coding stage, six main categories were developed by integrating related categories in open coding. Table 4 demonstrates the axial coding results.

Selective coding

In this study, selective coding had 2 aims: further integrated the main categories developed in axial coding and selected a core category from them. After the analysis of the main categories and the transcribed data, large actual-required positioning discrepancy emerged. Besides, a core category emerged after the cognitive maps (Zhang, 2011) of the 23 participants were drawn and compared. According to Chaney (2010), cognitive maps could be utilized to display the causes and effects in the interview data and to demonstrate interviewees' mental processes clearly and logically. To draw the cognitive maps of the 23 interviewees, the causes and effects in their remarks were carefully investigated. After that, 23 cognitive maps of concepts were drawn by utilizing the results of concepts (concepts in open coding could be seen in Table 3) in open coding. Then 23 cognitive maps of categories were drawn based on the results of categories (categories in open coding could be seen in Table 3) in open coding by integrating the concepts. In the next step, the 23 cognitive maps of categories were further integrated into one. The integrated cognitive map of categories was further abstracted based on the results of axial coding and selective coding. Eventually, a theoretical model demonstrating students' psychology and cognition was constructed.

Through the three data analyzing stages of grounded theory method, including open coding, axial coding, and selective coding,

TABLE 4 Axial coding results.

Main categories	Further categorization	Categories	Connotation of main categories
Low actual positioning	Weak language foundation	Poor grammar	Students' English abilities was weak in their minds.
		Poor vocabulary	
		Poor listening ability	
		Poor speaking ability	
Required positioning	High requirements	Difficult teaching materials	Students' perceptions about outside English learning requirements.
		Difficult tests	
	Low requirements	Decreased test requirements	
		Easy teaching contents	
Low self-efficacy	Undesired results	Low vocabulary learning efficiency	Students' expectancy about the possibility of achieving their goals.
	Low expectancy	Low expectancy of English learning	
Low value	Limited value	Limited use chances	Low value means the worth or significance of learning English in students' minds is low.
		Limited significance	
Negative affects	Negative affects	Sense of failure	Negative affects refer to students' bad feelings, emotions, moods, attitudes, etc.
		Afraid	
		Nervous	
		Negative emotions	
Demotivation	Negative learning behaviors	Decreased enthusiasm	Demotivation means gradually decreasing investment in the process of English learning among college students in this study
		Dropped learning time	
		Give up learning	

this study constructed a shopping cart model (Figure 1). This model displays three paths underlying students' demotivation to learn English, originating from large discrepancy between students' actual and required positioning of English learning, low required positioning of English learning and low value of English learning in students' cognition. The latter two factors, i.e., low required positioning and low value of English learning in students' minds could directly generate students' demotivation of English learning, while large discrepancies between actual and required positioning could firstly cause students' low efficacy, and then negative affects. Alternatively, those discrepancies might directly generate negative affects among college students. Those different negative affects could end up with demotivation of English learning.

Model testing

This study constructed a shopping cart model to demonstrate the psychological and cognitive factors causing college students' demotivation to learn English and display the relations among these internal factors and demotivation through analyzing the 23 interviews with students. To test the fitness of the model among large sample size, questionnaires from 286 students were applied.

Reliability test

To test the internal consistency of the questionnaire, reliability test was conducted, and the values of Cronbach's Alpha for each construct are listed in Table 5.

All the Cronbach's Alphas were above 0.60, indicating that the questionnaire had reasonable internal consistency.

Exploratory factor analysis

SPSS 25 was used to run exploratory factor analysis (EFA) in this study, the values of KMO and Bartlett could be found in following Table 6.

The KMO value of the whole questionnaire reached 0.887 and the Sig. ratio was $0.000 < 0.05$, which indicated that it was suitable to run principal component analysis. In this study, six components were extracted by choosing correlation matrix and varimax and setting eigenvalue great than 1, and the 6 components could explain 65.17% of the total variance. This indicated that the 6 components could reasonably represent the original data.

Confirmatory factor analysis

The structural model should be evaluated after the evaluation of the measurement model (Yang et al., 2016, p. 234). Therefore, convergent validity test was conducted firstly among the six measurement models, and results are displayed in Table 7. All the CRs of the six measure models were above 0.7, and almost all the AVEs were above 0.5, with low self-efficacy near 0.5. These indicators demonstrated that those measurement models had reasonable convergent validity.

Discriminate validity test demonstrated that the square root of every construct's AVE was higher than the Pearson correlations between the specific construct and others (see Table 8), indicating the measurement models had reasonable discriminate validity.

Model fit

Table 9 demonstrates the major model fit indexes and their corresponding recommended values of good model fit. It demonstrates the model fit index values fall into or were very near

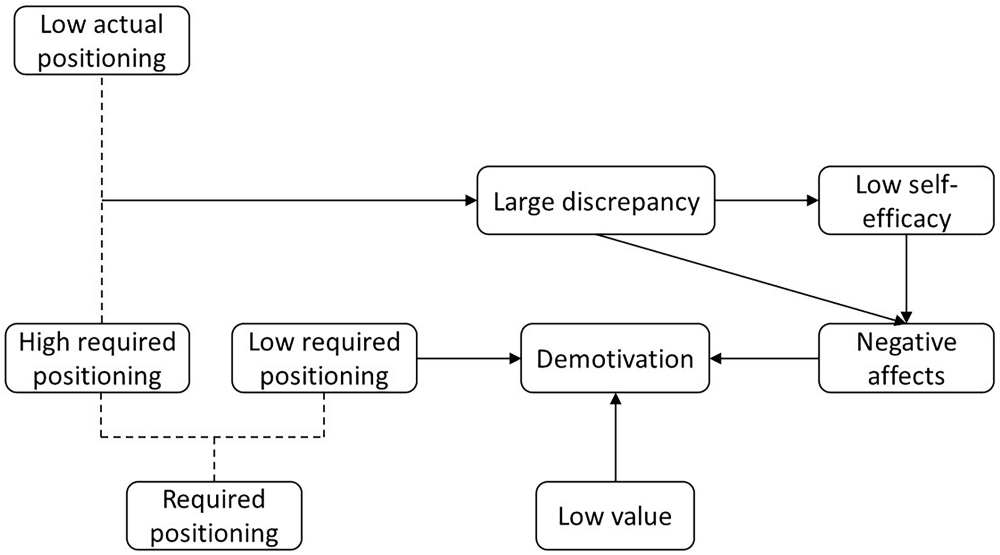

FIGURE 1
Grounded theory model.

TABLE 5 Values of Cronbach's α of constructs.

Constructs	Large discrepancy (LD)	Low self-efficacy (LS)	Negative affects (NA)	Low required positioning (LRP)	Low valence (LV)	Demotivation (De)
Cronbach's α	0.846	0.805	0.790	0.874	0.876	0.908

the recommend values, indicating that the grounded theory model (shopping cart model) was acceptable.

Hypotheses testing

Table 10 demonstrates the six hypotheses in the theoretical model, and each path coefficient could be found in Figure 2. In Table 10, the results of tested hypotheses were listed, and it showed that every path in the shopping cart model was significant and acceptable.

Discussion

To explore the psychological and cognitive factors causing college students' demotivation to learn English in China's universities, this study constructed a shopping cart model by applying grounded theory method and tested the model by using structural equation modeling. This study found three paths underlying students' demotivation to learn English, originating from large discrepancy between students' actual and required positioning of English learning, low required positioning of English learning and low value of English learning in students' minds. Ren and Abhakorn (2022) conducted a similar study to investigate the internal factors underlying demotivation to learn English. However, there existed differences in the findings of the two studies. One of the most significant differences between the present study and the previous one was in the path originating from large discrepancy to demotivation. The previous study found some students might experience motivation to learn English when they sensed far high English learning requirements, while in the present study, few students mentioned the motivation process before they became demotivation (for more details, see, Ren and Abhakorn (2022), p. 295). This difference might result from the difference of population sampling in two studies. The previous study did not differentiate majors in universities and included several English major participants in that study, while this study only focused on non-English majors. Because English is a vitally important tool for English majors in their future career, they might be firstly motivated and try their best to learn, while for some non-English majors, they might not try to learn but directly display low self-efficacy or negative affects and eventually demotivation. Therefore, considering the differences of learning behaviors, requirements, foundations, goals, etc., among English and non-English majors (Sun et al., 2022), it could be better to differentiate the two groups of students when investigating college students' demotivation to learn English. Methodologically, although Ren and Abhakorn (2022) constructed a model, it was not tested among large college student sample, thus might not be appropriately be used to explain demotivation among large sample size. However, this study, after developing the shopping cart model, further tested

TABLE 6 KMO and Bartlett's test.

KMO		0.887
Bartlett's test	Chi-Square	4777.788
	df	435
	Sig.	0.000

TABLE 7 Convergent validity test results.

		Unstd.	S.E.	*t*-value	*p*-value	Std.	SMC	CR	AVE
LD	LD1	1.000				0.682	0.465	0.847	0.527
	LD2	1.040	0.096	10.781	***	0.752	0.566		
	LD3	1.022	0.092	11.067	***	0.779	0.607		
	LD4	0.973	0.092	10.575	***	0.733	0.537		
	LD5	0.927	0.094	9.902	***	0.678	0.460		
LS	LS1	1.000				0.681	0.464	0.805	0.454
	LS2	0.900	0.104	8.681	***	0.617	0.381		
	LS3	1.016	0.110	9.273	***	0.671	0.450		
	LS4	0.987	0.108	9.145	***	0.659	0.434		
	LS5	1.168	0.118	9.884	***	0.735	0.540		
NA	NA1	1.000				0.695	0.483	0.805	0.510
	NA3	1.235	0.118	10.446	***	0.790	0.624		
	NA4	1.055	0.111	9.513	***	0.675	0.456		
	NA5	1.036	0.107	9.666	***	0.689	0.475		
LRP	LRP1	1.000				0.872	0.760	0.838	0.573
	LRP5	0.951	0.059	16.215	***	0.884	0.781		
	LRP3	0.683	0.058	11.701	***	0.647	0.419		
	LRP2	0.658	0.065	10.098	***	0.575	0.331		
LV	LV1	1.000				0.849	0.721	0.881	0.713
	LV5	1.097	0.064	17.015	***	0.931	0.867		
	LV2	0.907	0.063	14.315	***	0.742	0.551		
De	De2	1.000				0.894	0.799	0.892	0.676
	De3	0.849	0.059	14.347	***	0.722	0.521		
	De4	0.987	0.052	19.046	***	0.867	0.752		
	De5	0.891	0.053	16.677	***	0.795	0.632		

***indicates $p < 0.001$.

TABLE 8 Discriminate validity test results.

	AVE	De	NA	LS	LV	LD	LRP
De	0.676	**0.822**					
NA	0.510	0.523	**0.714**				
LS	0.454	0.503	0.575	**0.674**			
LV	0.713	0.504	0.345	0.451	**0.844**		
LD	0.527	0.405	0.540	0.528	0.368	**0.726**	
LRP	0.573	0.402	0.362	0.386	0.243	0.269	**0.757**

Square roots of AVEs are in bold on diagonal, while off diagonal are Pearson correlations of constructs.

the theoretical model with structural equation modeling among students in different types of universities (i.e., GPUs, OPUs, and PRUs). The mixed method (grounded theory plus SEM) and sample diversity could make the model more acceptable.

TABLE 9 SEM indexes and values.

Indexes	Values	Acceptable values
χ^2	473.454	---
χ^2/df	1.645	<3.0 (Kline, 2015)
GFI	0.893	>0.80 (Doll et al., 1994)
AGFI	0.870	>0.80 (Doll et al., 1994; Arpaci and Baloğlu, 2016)
CFI	0.949	>0.90 (Kline, 2015)
RMSEA	0.098	<0.10 (Kenny et al., 2015)

TABLE 10 Results of tested hypotheses.

Hypotheses	Simplified relations	Unstd.	Std.	Results
H1: Large discrepancy could reduce students' self-efficacy.	LD → LS	0.682***	0.557	accept
H2: Students' low self-efficacy could cause students' negative affects.	LS → NA	0.347***	0.393	accept
H3: Large discrepancy could cause students' negative affects.	LD → NA	0.374***	0.345	accept
H4: Negative affects could cause students' demotivation.	NA → De	0.450***	0.362	accept
H5: Low required positioning could cause students' demotivation.	LRP → De	0.162***	0.210	accept
H6: Low valence could cause students' demotivation.	LV → De	0.307***	0.344	accept

$N = 286$. ***indicates $p < 0.001$.

This study found numerous students in China's universities stated that the listening and speaking contents in their English classes were very challenging for them, indicating their required positioning of English listening and speaking in their English classes were very high. Given that grammar-translation teaching method is also popular among second and tertiary English education (Du, 2021), students' relatively low actual positioning of English listening and speaking may be the results of the popularity of grammar-translation teaching in China's middle schools and universities. The high required positioning and low actual positioning of listening and speaking made the large discrepancy between them, which was one of the origins of students' demotivation.

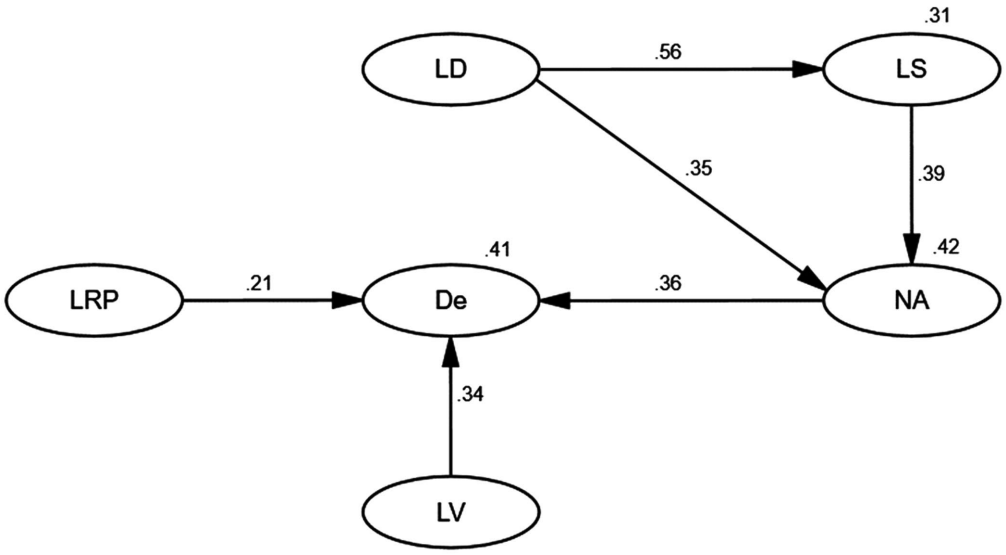

FIGURE 2
Path coefficients of the structural model (LD refers to large discrepancy between students' actual and required positioning of English learning; LS refers to low self-efficacy; NA refers to negative affects; De refers to demotivation to learn English; LRP refers to low required positioning; LV refers to low value of learning English.)

This study found many universities in this study adopted same textbooks, indicating English learning requirements for their students were similar. Hence, their students' required positioning of English learning shared similarity. However, students in different types of universities turned different attitudes toward their similar required positioning of grammar, vocabulary, and reading skills. In GPUs, students frequently mentioned that the teaching contents, including vocabulary, reading and grammar teaching, were relatively easy for them, which was one of the cognitive origins for their demotivation. However, in PRUs, students usually complained about the difficult teaching contents of grammar and vocabulary. This partly explained the relatively small factor loading of the path from low required positioning to demotivation. In addition, this finding provided psychological and cognitive supports to "i + 1" hypothesis of Krashen (1991). According to this hypothesis, the requirements of language teaching input should be within a certain range. Based on "i + 1" hypothesis, Cheng (2011) further stated that neither "i + 2" (far difficult inputs for students) nor "i + 0" (inputs and students are at the same level) could achieve the best teaching results, but rather the above two kinds of inputs could disturb students' English learning. In PRUs, many inputs fall into the "i + 2" area, while in GPUs, numerous inputs of grammar, vocabulary and reading knowledge fall into "i + 0" area. The two different inputs could be the potential origins for students' demotivation to learn English, because too much "i + 2" knowledge is linked with large actual-required positioning discrepancies, while "i + 0" knowledge is related with students' low required positioning.

Miri and Pishghadam (2021) thought the role of senses should be emphasized when discussing emotioncy because senses connect people with the outside world. Besides, people's senses were related with their emotional levels, and these senses and emotions could influence people's motivation levels (Pishghadam et al., 2013; Miri and Pishghadam, 2021). These statements echoed one underlying path in this study: the path deriving from large discrepancy to negative affects, and eventually to students' demotivation. Specifically, when students sensed the large discrepancies between their actual positioning and the high required position, they might generate negative affects, which could cause demotivation to learn English. Because of the important role of sense and emotioncy in language learning behaviors and in the process of language teaching and learning (for more details, see, Pishghadam et al., 2016, 2019b; Miri and Pishghadam, 2021), hence more research in the future should be conducted to explore the underlying relations among language learners' sense, emotion, and their demotivated behaviors of learning English.

In addition, this study also found low value of English learning in students' mind was another origin for students' demotivation to learn English. This finding afforded cognitive evidence for the expectancy theory of Vroom (1964). According to this theory, people's evaluation of the value of a certain conduct could affect their motivation level of engaging in the behavior. Students in this study frequently mentioned that their future jobs did not need too much English competence, or English was useless in their daily life. Because of those low value cognitions in their minds, they tended to decrease their motivation of English learning.

Conclusions and implications

A shopping cart model was constructed to demonstrate the psychological and cognitive factors causing students demotivation

and the relations among them. From the model, it can be found that there are three paths underlying CSD, i.e., from large discrepancy between students' actual and required positioning of English learning, low required positioning of English learning and low value of English learning in students' cognition. The three paths causing students' demotivation provided English teachers some implications.

In China's universities, including GPUs, OPUs and PRUs, the majority of college students' listening and speaking competences are relatively weak and needed to be improved. Therefore, grammar-translation teaching method should be used combined with other teaching methods to improve students' English competences comprehensively rather than solely focusing on grammar, vocabulary, and reading skills, etc., while ignoring their English communicative skills.

The teaching of vocabulary, grammar, and reading skills in different types of universities should be differentiated. In some GPUs, the requirements of vocabulary and reading for students might need to be lifted, or attentions paid to those aspects could be shifted to other English skills like listening and speaking. This is because college students in those high-ranking universities (i.e., GPUs) have laid a solid foundation of vocabulary, grammar, and reading by being instructed with grammar-translation teaching method in senior high. But those students' communicative abilities are still generally weak. Lifting requirements of vocabulary and reading for students could overcome the low required positioning of English learning. While, shifting emphases to their listening and speaking skills could also be one of the choices for overcoming students' low required positioning of English learning. But in some PRUs, students' English foundations are weak. Requirements of vocabulary and reading skills could be lowed to avoid too large actual-required positioning discrepancies among students. In addition, decreasing requirements among those weak foundation students might also reduce their pressure and hence avoid demotivation.

More opportunities to use English for college students should be provided in their daily life. Universities could establish connections with international enterprises and provide more intern positions for students working in English-speaking context. Universities or colleges could also employ more teachers and enroll more students from international communities to increase chances of using English in Chinese students' campus life. Those measures could increase English-speaking opportunities, and thus help to enhance the value of English in students' cognition.

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

Author contributions

XR designed and wrote the whole article. JA contributed to conception, manuscript revision, proof reading, 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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References

Akay, C. (2017). Turkish high school students' English demotivation and their seeking for remotivation: a mixed method research. *Engl. Lang. Teach.* 10, 107–122. doi: 10.5539/elt.v10n8p107

Arpaci, I., and Baloğlu, M. (2016). The impact of cultural collectivism on knowledge sharing among information technology majoring undergraduates. *Comput. Hum. Behav.* 56, 65–71. doi: 10.1016/j.chb.2015.11.031

Boonchuayrod, P. (2019). Demotivation, Personality Traits, and EFL Achievement: an Exploratory Study. Unpublished Doctoral Dissertation. National Institute of Development Administration.

Boonchuayrod, P., and Getkham, K. (2019). Investigating EFL achievement through the lens of demotivation. *Engl. Lang. Teach.* 12, 180–190. doi: 10.5539/elt.v12n6p180

Çankaya, P. (2018). Demotivation factors in foreign language learning. *J. Foreign Lang. Educ. Technol.* 3, 1–17.

Chaney, D. (2010). Analyzing mental representations: the contribution of cognitive maps. *Recherche et Applications en Marketing*, (English Edition) 25, 93–115. doi: 10.1177/205157071002500205

Cheng, X. (2011). An Empirical study on bilingual instruction models based on language features. *Foreign Lang. Teach.* 2, 62–65. doi: 10.13458/j.cnki.flatt.000359

Clare, C. M. Y., Renandya, W. A., and Rong, N. Q. (2019). Demotivation in L2 classrooms: teacher and learner factors. *LEARN J. Lang. Educ. Acquis. Res. Netw.* 12, 64–75.

Corbin, J., and Strauss, A. (2014). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory.* California: Sage publications.

del Bosque, I. R., and Martín, H. S. (2008). Tourist satisfaction a cognitive-affective model. *Ann. Tour. Res.* 35, 551–573. doi: 10.1016/j.annals.2008.02.006

DiLorenzo, T. A., David, D., and Montgomery, G. H. (2007). The interrelations between irrational cognitive processes and distress in stressful academic settings. *Personal. Individ. Differ.* 42, 765–776. doi: 10.1016/j.paid.2006.08.022

Doll, W. J., Xia, W., and Torkzadeh, G. (1994). A confirmatory factor analysis of the end-user computing satisfaction instrument. *MIS Q.* 18, 453–461. doi: 10.2307/249524

Dörnyei, Z. (1990). Conceptualizing motivation in foreign-language learning. *Lang. Learn.* 40, 45–78. doi: 10.1111/j.1467-1770.1990.tb00954.x

Dörnyei, Z., and Ushioda, E. (2011). *Teaching and Researching Motivation*. *2nd Edn.* United Kingdom: Pearson.

Du, Y. (2021). Grammar translation and its use in present-day China. *J. Arts Human.* 10, 28–35.

Falout, J., Elwood, J., and Hood, M. (2009). Demotivation: affective states and learning outcomes. *System* 37, 403–417. doi: 10.1016/j.system.2009.03.004

Gardner, R. C., and Lambert, W. E. (1972). *Attitudes and Motivation in second-Language Learning.* Rowley, Massachusetts: Newbury House Publishers.

Ghadirzadeh, R., Hashtroudi, F. P., and Shokri, O. (2012). Demotivating factors for English language learning among university students. *J. Soc. Sci.* 8, 189–195. doi: 10.3844/jssp.2012.189.195

Glaser, B. G., and Strauss, A. (1967). *The discovery of Grounded Theory: Strategies for Qualitative Research.* Chicago: Taylor & Francis.

Kaivanpanah, S., and Ghasemi, Z. (2011). An investigation into sources of demotivation in second language learning. *Iran. J. Appl. Linguist.* 14, 89–110.

Kenny, D. A., Kaniskan, B., and McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Soc. Methods Res.* 44, 486–507. doi: 10.1177/0049124114543236

Kikuchi, K., and Sakai, H. (2009). Japanese learners' demotivation to study English: a survey study. *JALT J.* 31, 183–204. doi: 10.37546/JALTJJ31.2

Kim, T.-Y. (2011). Korean elementary school students' English learning demotivation: a comparative survey study. *Asia Pac. Educ. Rev.* 12, 1–11. doi: 10.1007/s12564-010-9113-1

Kim, S. (2015). Demotivation and L2 motivational self of Korean college students. *Eng. Teach.* 70, 29–55. doi: 10.15858/engtea.70.1.201503.29

Kim, T.-Y., and Seo, H.-S. (2012). Elementary school students' foreign language learning demotivation: a mixed methods study of Korean EFL context. *Asia-Pac. Educ. Res.* 21, 160–171.

Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling.* New York: Guilford publications.

Krashen, S. (1991). "The input hypothesis: An update," in *Linguistics and Language Pedagogy: The State of the Art*. ed. J. E. Alatis (Washington, DC: Georgetown University Press), 409–431.

Li, C. (2021). Understanding L2 demotivation among Chinese tertiary EFL learners from an activity theory perspective. *Front. Psychol.* 12, 1–9. doi: 10.3389/fpsyg.2021.704430

Li, C., and Zhou, T. (2017). A questionnaire-based study on Chinese university students' demotivation to learn English. *Engl. Lang. Teach.* 10, 128–135. doi: 10.5539/elt.v10n3p128

Ministry-of-Education. (2017). List of "Double First-Class" Universities. Available at: http://www.moe.gov.cn/s78/A22/A22_ztzl/ztzl_tjsylpt/sylpt_jsgx/201712/t20171206_320667.html

Miri, M. A., and Pishghadam, R. (2021). Toward an emotioncy based education: a systematic review of the literature. *Front. Psychol.* 12, 1–10. doi: 10.3389/fpsyg.2021.727186

Oxford, R., and Shearin, J. (1994). Language learning motivation: expanding the theoretical framework. *Mod. Lang. J.* 78, 12–28. doi: 10.2307/329249

Pishghadam, R., Adamson, B., and Shayesteh, S. (2013). Emotion-based language instruction (EBLI) as a new perspective in bilingual education. *Multiling. Educ.* 3, 1–16. doi: 10.1186/2191-5059-3-9

Pishghadam, R., Derakhshan, A., Jajarmi, H., Tabatabaee Farani, S., and Shayesteh, S. (2021). Examining the role of teachers' stroking behaviors in EFL learners' active/passive motivation and teacher success. *Front. Psychol.* 12, 1–17. doi: 10.3389/fpsyg.2021.707314

Pishghadam, R., Jajarmi, H., and Shayesteh, S. (2016). Conceptualizing sensory relativism in light of emotioncy: a movement beyond linguistic relativism. *Int. J. Soc. Cult. Lang.* 4, 11–21.

Pishghadam, R., Makiabadi, H., Shayesteh, S., and Zeynali, S. (2019a). Unveiling the passive aspect of motivation: insights from English language teachers' habitus. *Int. J. Soc. Cult. Lang.* 7, 15–26.

Pishghadam, R., Shakeebaee, G., and Rahmani, S. (2019b). Sensory capital in education: The missing piece? *Ital. J. Sociol. Educ.* 11, 265–282. doi: 10.14658/pupj-ijse-2019-3-15

Ren, X., and Abhakorn, J. (2022). The psychological and cognitive processes underlying college students' demotivation to learn English. *J. Lang. Teach. Res.* 13, 289–298. doi: 10.17507/jltr.1302.08

Sakai, H., and Kikuchi, K. (2009). An analysis of demotivators in the EFL classroom. *System* 37, 57–69. doi: 10.1016/j.system.2008.09.005

Shaikholeslami, R., and Khayyer, M. (2006). Intrinsic motivation, extrinsic motivation, and learning English as a foreign language. *Psychol. Rep.* 99, 813–818. doi: 10.2466/PR0.99.3.813-818

Strauss, A., and Corbin, J. (1998). *Basics of Qualitative Research Techniques: Techniques and Procedures for Developing Grounded Theory*. *2nd Edn.* CA: Sage Publications.

Su, M. R., and Shum, K. K.-M. (2019). The moderating effect of mindfulness on the mediated relation between critical thinking and psychological distress via cognitive distortions among adolescents. *Front. Psychol.* 10, 1–11. doi: 10.3389/fpsyg.2019.01455

Sun, Y., Teo, T., and Wang, T.-H. (2022). English-learning motivation among Chinese mature learners: A comparative study of English and non-English majors. *Behav. Sci.* 12, 1–15. doi: 10.3390/bs12050135

Trang, T. T. T., and Baldauf, R. B. (2007). Demotivation: understanding resistance to English language learning-the case of Vietnamese students. *J. Asia TEFL* 4, 79–105.

Vroom, V. H. (1964). *Work and Motivation.* Oxford, England: Wiley.

Wang, Y., and Guan, H. (2020). Exploring demotivation factors of Chinese learners of English as a foreign language based on positive psychology. *Revista Argentina de Clínica Psicológica* 29, 851–861. doi: 10.24205/03276716.2020.116

Wang, S., and Littlewood, W. (2021). Exploring students' demotivation and remotivation in learning English. *System* 103, 102617–102610. doi: 10.1016/j.system.2021.102617

Yang, X., Peng, D., and Xie, F. (2016). A study on the effects of TAM/TPB-based perceived risk cognition on user's trust and behavior: taking Yu'ebao, a value-added payment product, as an example. *Manage. Rev.* 28, 229–240. doi: 10.14120/j.cnki.cn11-5057/f.2016.06.022

Zeynali, S., Pishghadam, R., and Hosseini Fatemi, A. (2019). Identifying the motivational and demotivational factors influencing students' academic achievements in language education. *Learn. Motiv.* 68, 101598–101512. doi: 10.1016/j.lmot.2019.101598

Zhang, L. (2011). *The Expression and Sharing of Tacit Knowledge Based on Cognitive Map.* Wuhan, China: Wuhan University Press.

Appendix

Appendix 1

Guideline questions for the semi-structured interview (translated into English).

1. After you entered university, have you ever experienced demotivation to learn English?
2. When you began your study in the university, how was your motivation of English learning and how is it now?
3. Could you tell me, in detail, about your recent experience of English learning?
4. Could you describe the whole process of your motivation declining of English learning after you entered university?
5. What do you think were the factors leading to your demotivation to learn English?
6. Could you explain how those factors could lead to your demotivation of English learning?
7. Do you have other feelings, emotions, or ideas during your demotivated period of English learning that you want to make up?
8. Do you have some advice for college students to overcome demotivation of English learning?

Appendix 2

Questionnaire items (translated into English).

1. The homework assigned by our English teacher was very difficult.
2. The English textbooks were too difficult.
3. English listening was too difficult.
4. English speaking was difficult to be improved.
5. English teachers had too many requirements for us.
6. It is almost impossible for me to have good speaking competence.
7. It is almost impossible for me to have good listening competence.
8. It is almost impossible for me to pass CET-4/6.
9. It is almost impossible for me to have all-English classes.
10. It is almost impossible for me to understand English movies without subtitles.
11. I felt nervous and upset in English class.
12. I felt stressful about English tests.
13. I felt unconfident when I talked with foreigners in English.
14. I was afraid of reading materials written in English.
15. I was worried about making mistakes when speaking English.
16. English is useless in daily life.
17. I have no plan to study overseas.
18. My future work will require no English proficiency.
19. I have no plan to work in international companies.
20. Professional classes are more important than English ones.
21. English teachers would give me high class performance marks even if I did not listen to them carefully.
22. We do not need to attend speaking test in CET-4/6.
23. English teachers will give us hints for the final exam.
24. Many grammatical points taught in college English classes have already been learnt in senior high.
25. English teachers seldom test us at ordinary time.
26. I feel my passion for English learning decreased gradually.
27. I seldom listen carefully in English class.
28. I seldom take the initiative to learn English.
29. I only learn English before the English tests.
30. If possible, I would choose to skip the English classes.

Thanks again for your time and participation!

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EDITED BY
Meihua Liu,
Tsinghua University, China

REVIEWED BY
Abbas Pourhosein Gilakjani,
Islamic Azad University of Lahijan, Iran
Angelica Moè,
University of Padua, Italy
Yong Wu,
Beijing University of Posts and Telecommunications (BUPT), China

*CORRESPONDENCE
Afsheen Rezai
afsheen.rezai@abru.ac.ir

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Fostering EFL learners' motivation, anxiety, and self-efficacy through computer-assisted language learning- and mobile-assisted language learning-based instructions

Li Dong[1,2], Shireen Jamal Mohammed[3], Khaled Ahmed Abdel-Al Ibrahim[4,5] and Afsheen Rezai[6]*

[1]Linguistics and Applied Linguistics, College of Liberal Arts, Anhui Normal University, Wuhu, China, [2]Department of Foreign Languages, Wannan Medical College, Wuhu, China, [3]Department of Translation, College of Languages, Nawroz University, Duhok, Iraq, [4]Department of Educational Psychology, College of Education, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia, [5]Department of Psychological Education, Sohag University, Sohag, Egypt, [6]Teaching English and Linguistics Department, University of Ayatollah Ozma Borujerdi, Borujerd, Iran

In the literature, a mass of studies have inspected the effects of computer-assisted language learning (CALL) and mobile-assisted language learning (MALL) on Iranian English as a Foreign Language (EFL) learners' achievement. However, the effects of CALL and MALL on psychological factors, such as motivation, anxiety, and self-efficacy, have largely remained unexplored. Thus, this study explored the effects of CALL and MALL, and face-to-face (FTF) learning environments on Iranian EFL learners' motivation, anxiety, and self-efficacy. To this aim, using a random sampling method, a total of 137 male EFL intermediate learners were selected and homogenized using the Oxford Quick Placement Test (OQPT). Based on the test scores, a total of 90 EFL learners were selected and randomly assigned to three groups, namely, CALL (n = 30), MALL (n = 30), and FTF (n = 30). Then, the participants' motivation, anxiety, and self-efficacy were gauged prior to the instructions. Afterward, they received CALL-based, MALL-based, and conventional instructions which lasted 25 1-h sessions held twice a week. At the end of the instructions, the participants' motivation, anxiety, and self-efficacy were measured again. The collected data were analyzed through a one-way MANOVA. Findings evidenced that the experimental groups' motivation, anxiety, and self-efficacy were positively affected by the CALL-based and MALL-based instructions.

However, there was not a statistically significant difference between the CALL group and MALL group concerning the gains of motivation, anxiety, and self-efficacy. In light of the findings, a range of implications is suggested for relevant stakeholders.

KEYWORDS

mobile-assisted language learning (MALL), computer-assisted language learning (CALL), foreign language learning motivation, foreign language anxiety, self-efficacy

Introduction

It is deemed that new technologies have an undeniable role in our daily and academic life. They have been adopted as an inseparable part of life and the means of everyday communication (Garrett, 2009). Young generations are known as the digital natives (Bennett et al., 2008) since the new technologies are among the first things they face and experience in their surrounding environments (Naseri and Motallebzadeh, 2016). As Ghobadi and Taki (2018) note, nowadays, students are more involved in and constantly connected to the net to seek new information. As students prefer independent learning styles, they have a high inclination to use new technologies for promoting their learning (Rahimi and Yadollahi, 2011; Azizi et al., 2022a).

Using the new technologies in second language (L2) education is widely recognized, including online methods, systems, instruments, techniques, and new materials to make the way for L2 learners to achieve their intended educational objectives (Hazaea and Alzubi, 2016). The new technologies offer some outstanding advantages, such as easy access in preparing and delivering the contents to L2 learners (Obari and Lambacher, 2015). However, it should be underscored that applying the new technologies in teaching and learning English should integrate novel tools and resources (Ertmer, 2005; Alemi et al., 2015).

One of the staple applications of the new technologies in L2 education is computer-assisted language learning (CALL). As Tomlinson (2012) notes, CALL materials are accessible on websites, computers, courseware, and online courses not to be confused with Information Communication Technology (ICT). He defines ICT materials as the applications utilized for conveying the materials and helping interactions, and other web sources, such as YouTube and social media. Some outstanding merits have been listed for CALL, including (1) making teaching and learning interesting; (2) granting learners opportunities to take their learning responsibility; (3) giving learners active roles in the learning processes; and (4) offering learners imaginative things that can be displayed *via* computer simulations (Dina and Ciornei, 2013; Azizi, 2022). Due to such noticeable merits, it can simplify and facilitate learning processes for English as a Foreign Language (EFL) learners (; Beatty, 2013; Vadivu and Chupradit, 2020). It is interesting to note that the previous studies have documented that the learners trained *via* the CALL-based programs gained more promising results compared to the conventional teaching methods (Nim Park and Son, 2009; Nachoua, 2012; Tafazoli et al., 2020).

In addition to computer devices, mobile devices and technologies have increasingly been welcomed and applied to realize educational objectives (Pettit and Kukulska-Hulme, 2007; Burston and Giannakou, 2022). Its users, both instructors and learners, are getting accustomed to using them to make their instructions as worldwide as possible (Ling and Donner, 2009; Xu and Peng, 2017; Li and Lan, 2022). Further, the advent and expansion of the net have made distance and open learning an opportunity for all people to receive instruction from all parts of the globe (Ratnaningsih et al., 2019). After a while, the attractiveness of distance and open instruction has supported the benefits of mobile devices to be considered as beneficial tools to realize educational purposes (Yang, 2013; Puebla et al., 2022). Following this trend, many scholars have made increasing attempts to make mobile devices a rich learning source (Oberg and Daniels, 2012; Yurdagul and Oz, 2018). Pachler et al. (2010) opine that mobile-assisted language learning (MALL) is concerned with using mobile technologies in L2 education. MALL is the incorporation of mobile devices into L2 learning and teaching (Ahmadi, 2018; Li, 2022). To put it simply, it is the use of mobile technologies to facilitate L2 learning.

A crucial dimension of CALL- and MALL-based instruction is related to the affective factors which immensely affect L2 learners' achievement (Bodnar et al., 2016). These affective factors, such as motivation, anxiety, and self-efficacy are complex and multi-faceted concepts that, as Dornyei and Ushioda (2011) note, are "responsible for why people decide to do something, how long they are willing to sustain the activity, (and) how hard they are going to pursue it" (p. 4). It is clear that L2 learners' actual performance and final learning achievements are highly affected by their motivation, anxiety, and self-efficacy. Thus, to gain a credible understanding of the effects of CALL- and MALL-based instruction, L2 learners' motivation, anxiety, and self-efficacy should be taken into account.

As the use of CALL and MALL may affect L2 learners cognitively, affectively, and bodily, it is essential to explore if they affect EFL learners' psychological factors. However, a quick glance at the past literature reveals that the effects of CALL and MALL on Iranian EFL learners' psychological factors, such as motivation, anxiety, and self-efficacy have remained largely unexplored. In response to this long-lasting gap, the present study aimed to explore the effects of CALL and MALL on Iranian EFL learners' motivation, anxiety, and self-efficacy. The results of the present study may be helpful for EFL teachers to deliver the learning materials such that they can increase L2 learners' motivation and self-efficacy, and decrease their anxiety. Additionally, it is hoped that the results of this study can further pertinent stakeholders' understanding of the significance of psychological factors in L2 learning in online classes. As such, they may be in a better position to raise EFL learners' motivation and self-efficacy and decrease their anxiety. Finally, the results of the present study can enrich the literature of CALL and MALL and open up new avenues for further research in the future.

Review of literature

Computer-assisted language learning and mobile-assisted language learning

The enormous development of new information technologies and communication has made drastic changes in the educational systems over recent decades (Bashori et al., 2020; Rahimi et al., 2021). Applying CALL has increased vastly and impacted substantially educational improvements (Hanafiah et al., 2022). CALL is one of the promising methods that have a strong effect on boosting EFL learners' competence (Tafazoli et al., 2020). This issue of whether CALL is useful to improve L2 learning has received noticeable attention across the world (Rahimi and Yadollahi, 2011; Beatty, 2013). The majority of the studies have verified the valuable roles of CALL in enhancing L2 learning (Nim Park and Son, 2009; Pirasteh, 2014). CALL has been utilized for several different purposes, such as practicing, performing drills, teaching methods, and even making discussion (Garrett, 2009). However, as Crossman (1997) stresses, L2 teachers usually have challenges using CALL efficiently.

Levy (1997) defines CALL as "using and studying the applications of the computers in teaching and learning a language" (p. 1). One of the noticeable advantages of CALL is that it allows L2 teachers and L2 learners to teach and learn at their own pace (Nachoua, 2012). According to Tatiana Dina and Ciornei (2013), CALL has can facilitate interactions in online classes. It offers learning practices in various forms, offers constructive feedback on students' performance, encourages group and pair works, boosts EFL learners' self-regulated learning, paves the way for to reach the different resources, facilitates effective interactions, individualizes instructions, and motivates EFL learners (Beatty, 2013; Shadiev and Yu, 2022).

The other application of technology in L2 education includes MALL. Mobile devices have become an indispensable component of our everyday lives (Lindaman and Nolan, 2015). They have immensely affected our lifestyles in general, and our learning styles, in particular (Viberg et al., 2020). They can provide abundant effective uses in L2 education (Ebadijalal and Yousofi, 2021). In this regard, rather than stopping L2 learners from applying their smartphones in the classrooms, L2 teachers may want to find ways to accommodate and prepare them for real-world learning experiences in and outside of the classrooms (Ahmed and Ganapathy, 2021; Bashori et al., 2021).

According to Xu and Peng (2017), MALL is defined as using mobile tools to accelerate L2 learning and teaching. L2 learners do not always have to study in real classrooms, but they may have the opportunities to learn through mobile instruments (Hsu, 2013). In other words, MALL can move L2 teachers and L2 learners out of the classrooms into the authentic world. Through mobile technologies, L2 teachers can create a rich learning environment (Yang, 2013). MALL involves using any moveable learning resources; therefore, it encompasses audio cassettes, books, audio CDs, DVD players, and portable radios (Derakhshan, 2011; Azara and Nasiri, 2014; Chupradit et al., 2020). The possibility of learning English *via* mobile devices without the limitations of time and place substantially increases L2 learners' motivation because they feel more responsible for their own learning (Kukulska-Hulme and Shield, 2008; Lindaman and Nolan, 2015). This, accordingly, can make them have control over the learning processes (Vadivu and Chupradit, 2020).

Previous studies (e.g., Yurdagul and Oz, 2018; Dağdeler et al., 2020), have supported the effectiveness of MALL in cultivating L2 learners' achievement. Of particular note is that, as Kukulska-Hulme (2005) stresses, MALL differs from CALL in its use of personal, portable tools since it enables novel learning methods and offers spontaneity or continuity of accesses and interactions across different levels of use. From this viewpoint, MALL is different from CALL as it is more learner-centered. Additionally, as mobile devices are cheaper than computers, they are used by most of the students nowadays and are considered as an integral part of daily life. As noted by Chinnery (2006), though computers are better at handling a large amount of information, mobile devices are superior in terms of portability. Further, one of the clear distinctions between MALL and CALL is that mobile devices present more efficient ways of learning by focusing on spontaneity, continuity, and privacy (Chaka, 2009).

Motivation, anxiety, and self-efficacy in second language learning

One of the common psychological factors affecting L2 learning is motivation. It accounts for "why individuals make a decision to perform something, how long they are going to keep the activities, and how difficult they are willing to follow it (Dornyei, 2001, p. 8). Ryan and Deci (2000) note that "to be motivated implies persuading to conduct a task or an activity" (p. 54). Contrary to the unmotivated individuals who lose propulsion and inspiration to do a task, motivated individuals are energetic to do it well. Curiosity, inclination, interest, or a desire to reach intended goals are the fundamental agents, composing motivated individuals (Williams and Burden, 1997). Nonetheless, it should be noted that arousing interest is not adequate to be inspired, but it must be kept as well. In addition, energy and time must be invested, and the required effect needs to be maintained to achieve the desired goal (Steers and Porter, 1991; MacIntyre and Vincze, 2017; Seneviratne et al., 2019).

The crucial role of motivation in developing L2 learning is indisputable. Lifrieri (2005) affirms that when it is asked about the factors affecting levels of success, most individuals point to motivation. According to Brown (2000), L2 learners with high motivation become more successful. In the same vein, Gardner (2006) asserts that L2 learners with higher motivation understand better than L2 learners with low motivation. If an L2 learner is motivated, they have reasons for involving in the given activities, making more efforts, persisting in the tasks, focusing on the activities, showing desires to reach the goals, and enjoying learning (Oxford and Shearin, 1994; Oroujlou and Vahedi, 2011; MacIntyre and Vincze, 2017). In relation to online learning, the success of L2 learners largely relies on their abilities to be actively engaged with the digital resources, as well as initiate and sustain meaningful communications with other users (Moè, 2016; Jones, 2020). To these ends, L2 learners' motivation, self-regulation learning, and positive learning dispositions are of critical importance (Salmee and Arif, 2019; Moè and Katz, 2020).

A theory presented as a theoretical framework for this study is Self-Determination Theory, developed by Deci and Ryan (Deci and Ryan, 1985). It is predicated on the assumption that humans' motivation to perform a task is determined by three basic psychological needs: competence, autonomy, and relatedness (Gagné and Deci, 2005; Jeno et al., 2017). As Ryan et al. (2006) note, when individuals' needs of competence, autonomy, and relatedness are fulfilled, they become self-determined to accomplish a task. SDT has provided strong explanations for students' motivation and engagement in online classes (Ryan et al., 2006; Przybylski et al., 2009; Tamborini et al., 2010; Huang et al., 2019).

Anxiety is another psychological factor affecting L2 learners' achievement. It is a psychological concept, generally considered as a state of apprehension, an ambiguous fright that is only indirectly concerned with objects (Scovel, 1991). As perceived intuitively by L2 learners, it adversely affects L2 learning (Horwitz, 2001). According to Brown (2000), there are three kinds of anxiety: trait anxiety, state anxiety, and situation-specific anxiety. Trait anxiety refers to the global or general anxiety and students' constant feelings of anxiety in different situations. State anxiety refers to a relatively fixed disposition based on which the individuals judge a wide range of situational events as naturally threatening (Brown, 2000). State anxiety refers to feelings of stress and fear that L2 learners experience when facing threats. It is temporary anxiety, a response to a stimulus that causes anxiety. The situation-specific anxiety is a type of anxiety in which the students are anxious in particular contexts.

The other psychological factor influencing L2 learners' achievement is self-efficacy (Pajares, 2006; Kim and Shin, 2021). It is defined as students' beliefs in their capabilities to succeed in doing tasks (Bernhardt, 1997). It influences individuals' decisions, attempts, and behaviors in difficulties and challenges (Bandura, 1986; Esmaili et al., 2021). It also affects the levels of anxiety that L2 learners experience while doing tasks. Accordingly, the way students select their behaviors is influenced by self-efficacy. In actual fact, it is a stronger predictor of success or failure than other psychological factors (Sun et al., 2021). L2 learners with higher self-efficacy make more efforts in doing the required tasks and are more tenacious (Bandura, 1986; Pajares, 2000; Azizi et al., 2022b; Xu et al., 2022). Self-efficacy can affect L2 learners' emotions. Encountering challenges, L2 learners with low self-efficacy may consider situations more demanding and more complicated than they are (Alharbi, 2021). This can result in greater anxiety and stress levels among L2 learners and may make them demotivated. Bandura (1997) points to four origins of self-efficacy: (1) mastery experiences (i.e., our achievement raises our levels of self-efficacy); (2) vicarious experiences (i.e., other students' achievement motivates the rest to believe that they have the same abilities in achieving fruitful results); (3) persuasions (i.e., what others state influences our beliefs about our capabilities); and (4) psychological conditions (i.e., stress, fear, and anxiety affect our behaviors).

Effects of computer-assisted language learning and mobile-assisted language learning on second language learning

Considering the effects of CALL and MALL on L2 learning, a range of empirical studies has been conducted in the literature. In a study, Khoshsima and Mozakka (2017) examined the impacts of CALL on EFL learners' listening comprehension. Their findings demonstrated that using CALL led to significant development in the learners' listening comprehension. Besides, Alotumi (2018) investigated the effects of CALL on Yemeni EFL learners' score attainment on the TOEFL iBT test. The results evidenced that there were significant differences between

the CALL group and the conventional group concerning the gains on the TOEFL iBT test. In addition, Grenner (2019) reviewed the previous studies to disclose how CALL might encourage L2 learners to enhance their learning. The results disclosed that CALL as a motivational method could lead to promising outcomes through supplying authentic materials and creating learner-centered environments. Moreover, Shafiee et al. (2019) scrutinized the effects of CALL-based and Non-CALL-based instructions on Iranian EFL learners' reading comprehension. They found that the CALL group did outweigh the non-CALL group on the reading comprehension post-test. Further, Dağdeler et al. (2020) investigated the influences of MALL on EFL students' collocation learning. Their results evidenced that there was a significant difference between the experimental group and the control group in terms of gains of collocation knowledge-building. Additionally, Jamshidi and Zenouzagh (2020) explored the effects of MALL on Iranian EFL students' reading comprehension. The results indicated that the experimental group outperformed the control group regarding the gains of the reading comprehension. Plus, Namaziandost et al. (2021) investigated the impact of the CALL-based Rosetta Stone application and the Mall-based Rosetta Stone application on Iranian EFL learners' vocabulary development. They found that the experimental groups significantly outflanked the control group at the end of the interventions. Finally, Hanafiah et al. (2022) inspected the effects of CALL on Indonesian EFL learners' vocabulary learning, speaking skill, and speaking anxiety. Their results indicated that CALL positively affected the participants' vocabulary learning, speaking skill, and speaking anxiety.

Concerning the psychological factor, the effects of robot-assisted language learning (RALL) on relieving Iranian high school students' anxiety in L2 vocabulary learning were investigated by Alemi et al. (2015). The experimental group was trained by an English teacher accompanied by a humanoid robot assistant. The results uncovered that the experimental group could relieve their anxiety better at the end of the treatments. Further, recently Nasri et al. (2021) explored the effects of CALL-based instruction on Iranian EFL learners' motivation and attitudes. Their findings documented that the experimental group's motivation in L2 learning significantly improved compared to the control group. Further, their results showed that the participants trained through CALL shaped positive attitudes toward L2 learning.

As it may be implied from the above-reviewed studies, they have addressed the effects of CALL and MALL on the learning of language components (e.g., grammar and vocabulary) and language skills (e.g., listening, speaking, reading, and writing). However, the effects of CALL and MALL on the psychological factors have received scant attention in the EFL context of Iran. Therefore, the present study aimed to fill in the gap by disclosing the effects of CALL and MALL on Iranian EFL learners' motivation, anxiety, and self-efficacy. To meet these objectives, the following research question was put forward:

> **RQ.** Does applying CALL and MALL have any positive effects on Iranian EFL learners' motivation, anxiety, and self-efficacy?

In line with the research question above, the null hypothesis below was investigated:

> **H0.** Applying CALL and MALL does not have any positive effects on Iranian EFL learners' motivation, anxiety, and self-efficacy.

Method of the study

Design

To run the present study, the researchers used a true-experimental design. After homogenizing 137 pre-intermediate EFL learners, a total of 90 students whose language proficiencies were the same were selected and randomly assigned to three groups, namely CALL, MALL, and face-to-face (FTF) groups. Then, they went through pre-test, interventions, and post-test procedures. In sum, to explore the effects of CALL, MALL, and FTF environments on Iranian EFL learners' motivation, anxiety, and self-efficacy, the researchers implemented a true-experimental design.

Participants

The present study was run at Iran Language Institute (ILI) in Borujerd, Iran. The researchers selected 137 intermediate EFL learners using a random sampling method. According to Riazi (2016), the random sampling method is used to grant an equal chance to all the individuals in a population to participate in a study. As the education is run based on gender-segregation policy in Iran, the participants included just male students who aged from 16 to 32 years old. The primary reason to select the participants was the easy availability to the researchers. Based on the principal's report of ILI, the participants had taken rigorous tests, and based on their performance, they had been ranked as intermediate. However, to assure that the participants were at the same level of language proficiency, they became homogenized through the Oxford Quick Placement Test (OQPT). The participants whose scores fell 1 SD above and 1 SD below the mean score were selected. In total, 90 EFL participants regardless of their ages were selected and randomly assigned to three groups, namely CALL, MALL, and FTF groups. Of particular note is that the participants were learning English

as a foreign language and they did not have opportunities to learn English outside the walls of the institute. They were learning English for 4 h per week. It is worth noting that the participants expressed their consent to participate in the study orally and the researchers said that they could withdraw from the study as they wished. More importantly, the researchers ensured that the participants' performances during the study would remain confidential and they would inform them about the final results. It should be noted that the researchers recruited three EFL teachers, holding M.A. in TEFL to run the instructions for the three groups.

Instruments

The researchers used four instruments to gather the needed data. The first instrument included the OQPT used to make the participants homogenized. The major reason for using this test was that the researchers consulted two university professors in Applied Linguistics and they confirmed that it could meet the purposes of the study. The OQPT test comprises one hundred multiple-choice items, measuring L2 learners' vocabulary, grammar, and reading comprehension abilities. It entails 40 vocabulary items, 40 grammar items, and 20 reading comprehension items. It should be noted that the participants whose scores fell around the mean score were selected for the main study.

The second tool was Attitude/Motivation Test Battery (AMTB), designed and validated by Gardner (2004). It was used to measure the participants' motivation and attitude level to learn English. AMTB consists of 26 items, measuring three important factors, including motivational intensity, desire to learn English, and orientation index. It comprises five-point Likert scale items ranging from 1 (strongly disagree) to 5 (strongly agree).

The third instrument was the Foreign Language Classroom Anxiety Scale (FLCAS), designed and validated by Horwitz et al. (1986). FLCAS deals with the fear of L2 in a course, such as the fear of speaking in front of other students. It includes 33 items. For instance, item 12 is "I do not worry about making mistakes in language class." It comprises five-point Likert scale items, ranging from 1 (strongly disagree) to 5 (strongly agree).

The last instrument included the self-efficacy questionnaire, designed and validated by Ghonsooly and Elahi (2008). The questionnaire was used to measure the participants' level of self-efficacy in learning English. It contains 14 items in a Likert-scale format ranging from 1 (strongly disagree) to 5 (strongly agree).

Of particular note is that the researchers invited two experts in translation to translate the questionnaires into the participants' mother tongue (Persian). The reason for this was to increase the validity of the responses by avoiding any probable misunderstanding on the part of the participants. It should be underscored that the reliability and validity of the instruments were measured through a pilot study. They were administered to 20 EFL learners who were similar to participants in terms of gender, age, and language proficiency at another private language institute. According to Riazi (2016), the sample was large enough to assess the reliability and validity of the instruments. The calculated reliability for OQPT was (r = 0.92), for AMTB was (r = 0.81), for FLCAS was (r = 0.83), and for the self-efficacy questionnaire was (r = 0.87), respectively. Regarding the validity, the researchers invited two university professors in Applied Linguistics to assess if they were appropriate for the current study in terms of face and content. In general, they confirmed that they were appropriate fits for the objectives of the present study.

Data collection procedures

To run the present study, the researchers took some steps, in order. At the first step, they recruited two experts in translation to translate the questionnaires into the participants' mother tongue (Persian). At the second step, they run a pilot study to assess the reliability and validity of the instruments. At the third step, they administered the OQPT test to homogenize the participants. The students whose scores fell around the mean score (n = 90) were selected and randomly assigned to three groups, namely CALL, MALL, and FTF groups. At the fourth step, they implemented the questionnaires to measure the learners' motivation, anxiety, and self-efficacy prior to the treatments. At the fifth step, the treatments were run for the groups. Prior to running the instructions, the researchers held a mini-workshop with the EFL teachers to inform them about the objectives of the study and rest assured if they knew how to run the classes in the different learning environments It should be noted that the instructional materials used to run the classes included three units of Four Corners level 2 (Richards and Bohlke, 2011). Every unit includes different tasks to cultivate L2 learners' communicative competence. It is worth noting that the CALL group received the instructions *via* computers and the MALL group received the instruction *via* smartphones. That is, the researchers assured that the different groups received the instructions *via* computers and smartphones.

For the CALL group, the instruction was offered through a Skype program. The researchers ensured that the participants received the instruction at home. It is a free computer program that allows users to make telephone calls over the internet, to make conference calls and video calls, to chat, and to transfer files to teach the participants'. In each session, one part of the textbook was taught to the participants online, and the teacher and learners worked in a simultaneous learning setting. The participants could chat and discuss the materials online, and everything was carried out on an online platform. In this virtual setting, the teacher used different learning materials like pictures and short movies to facilitate the learning. The

learners could freely join the class, share their opinions, and raise their questions. Additionally, they were capable of joining or leaving the classroom without any limitation. The MALL group was trained through a MALL-based instruction; that is through WhatsApp application. They received the instruction at home. This application was used since it was accessible to all the participants, easy to use, and free. The researchers established a group for the learners and invited them to join it. Once each part was sent to the group, the teacher explained its content and read out the task. The students were allowed to post their respective questions on the group page after each conversation and reading text had been explained. The required feedback on the learners' performance and assignments were sent *via* messages or audio formats to the group. The participants could raise their questions and offer feedback on their peers' performance. More importantly, the teachers could share learning materials with different formats, such as audio and video. The FTF group was trained using a traditional method. They attended an FTF class at the institute, and the teacher taught one conversation to them in each session; after teaching ten conversations, the teacher taught them ten reading texts (one reading in each session). Having completed the interventions, the researchers administered the questionnaires to measure the participants' motivation, anxiety, and self-efficacy.

Data analysis procedures

The researchers used SPSS, version 22 to analyze the collected data. In addition to calculating the basic descriptive statistics, such as mean (M) and standard deviation (SD), the researchers run a one-way MANOVA and *Post hoc* Scheffe to determine the effects of the different environmental learnings on the participants' motivation, anxiety, and self-efficacy. The one-way MANOVA, as noted by Riazi (2016), is a statistical procedure to disclose if there are any differences between independent groups and more than one continuous dependent variable.

Results

As noted above, the researchers used a one-way MANOVA to analyze the collected data. Before running it, the researchers checked out if its assumptions were met. They checked out the linearity assumption and the distribution of scores for each of the groups on the scatterplot matrix. They did not observe any curvilinear relationship. Besides, they checked out the normality assumption through a Kolmogorov–Smirnov test. As the Sig. values (0.25) were larger than the critical value (0.05), they concluded that the data were normally distributed. Having assured that the required assumptions were met, they employed a one-way MANOVA. As reported in **Table 1**, this study included two categorical, independent variables with three levels, namely CALL, MALL, and FTF. Each group included 30 participants.

TABLE 1 Results of descriptive statistics.

	Groups	*M*	SD	*N*
Anxpost	CALL	133.0667	10.29876	30
	MALL	134.4667	9.52215	30
	FTF	84.0333	30.57662	30
	Total	117.1889	30.41211	90
MotPost	CALL	106.9667	11.60999	30
	MALL	108.9000	10.34025	30
	FTF	59.1667	14.07635	30
	Total	91.6778	26.04569	90
SelfPost	CALL	56.3667	9.23816	30
	MALL	57.6000	8.95044	30
	FTF	32.9333	8.79629	30
	Total	48.9667	14.46922	90

As presented in **Table 2**, a Wilk's lambda value of 0.081 with a significant value of $0.00 < 0.05$ was obtained. Therefore, among the three groups, there existed a statistically significant difference regarding anxiety, motivation, and self-efficacy.

As reported in **Table 3**, the equality of variances assumption was met for the motivation ($p = 0.68 > 0.05$) and the self-efficacy ($p = 0.75 > 0.05$). However, this assumption is violated regarding anxiety ($p = 0.00 < 0.05$). Therefore, a more conservative alpha level for determining significance of this variable is needed in the univariate *F*-test (Pallant, 2007). As suggested by Tabachnick and Fidell (2007), an alpha of 0.025 or 0.01, rather than the conventional 0.05 level should be reported.

As seen in **Table 4**, three of the dependent variables, anxiety ($0.00 < 0.01$), motivation ($0.00 < 0.01$), and self-efficacy ($0.00 < 0.01$) recorded a significance value. It evidences that there existed a statistically significant difference among the three groups regarding anxiety, motivation, and self-efficacy.

Partial eta squares of 0.62, 0.82, and 0.87 for anxiety, motivation, and self-efficacy, respectively, are considered quite large effect sizes (Tabachnick and Fidell, 2007). These values represented the proportion of the variance in the dependent variables of anxiety, motivation, and self-efficacy that could be justified by the effects of the independent variables, group with three levels of the experimental groups of CALL and MALL and FTF. The large effect sizes documented that 62 percent of the variance in anxiety, 82 percent of the variance in motivation, and 87 percent of the variance in self-efficacy can be ascribed to the effects of the independent variable.

Although the experimental groups of CALL and MALL and FTF differed in terms of anxiety, motivation, and self-efficacy, it cannot be derived from **Table 4** that which group had the higher scores. As presented in **Table 5**, the mean scores for anxiety in CALL and MALL groups ($M_{CALL} = 132.98$, $M_{MALL} = 134.36$)

TABLE 2 Results of multivariate tests.

Effect		Value	*F*	Hypothesis df	Error df	Sig.	Partial eta squared
Intercept	Pillai's trace	0.670	55.576	3.000	82.000	0.000	0.670
	Wilks' lambda	0.330	55.576	3.000	82.000	0.000	0.670
	Hotelling's trace	2.033	55.576	3.000	82.000	0.000	0.670
	Roy's largest root	2.033	55.576	3.000	82.000	0.000	0.670
Anxpre	Pillai's trace	0.053	1.534	3.000	82.000	0.212	0.053
	Wilks' lambda	0.947	1.534	3.000	82.000	0.212	0.053
	Hotelling's trace	0.056	1.534	3.000	82.000	0.212	0.053
	Roy's largest root	0.056	1.534	3.000	82.000	0.212	0.053
MotPre	Pillai's trace	0.256	9.392	3.000	82.000	0.000	0.256
	Wilks' lambda	0.744	9.392	3.000	82.000	0.000	0.256
	Hotelling's trace	0.344	9.392	3.000	82.000	0.000	0.256
	Roy's largest root	0.344	9.392	3.000	82.000	0.000	0.256
SelfPre	Pillai's trace	0.183	6.119	3.000	82.000	0.001	0.183
	Wilks' lambda	0.817	6.119	3.000	82.000	0.001	0.183
	Hotelling's trace	0.224	6.119	3.000	82.000	0.001	0.183
	Roy's largest root	0.224	6.119	3.000	82.000	0.001	0.183
Groups	Pillai's trace	0.924	23.736	6.000	166.000	0.000	0.462
	Wilks' lambda	0.081	68.928	6.000	164.000	0.000	0.716
	Hotelling's trace	11.351	153.243	6.000	162.000	0.000	0.850
	Roy's largest root	11.347	313.929	3.000	83.000	0.000	0.919

were higher than the mean score of the FTF group (M = 82.21). It also shows that the mean scores for motivation in CALL and MALL groups (M_{CALL} = 107.22, M_{MALL} = 108.27) were higher than the mean score of the FTF group (M = 159.82). Furthermore, it shows that the mean score for self-efficacy in CALL and MALL groups (M_{CALL} = 56.12, M_{MALL} = 57.99) were higher than the mean score of the FTF group (M = 32.78).

As reported in Table 6, there existed no significant differences between the CALL group and the MALL group concerning their anxiety, motivation, and self-efficacy ($p = 1 > 0.05$). However, there was a statistically significant difference among the FTF group and the CALL group and the MALL group with respect to the anxiety ($p = 0.00 < 0.05$), the motivation ($p = 0.00 < 0.05$), and the self-efficacy ($p = 0.00 < 0.05$).

As reported in Table 7, there was a statistically significant difference among the experimental groups (CALL and MALL) and the control group on the combined dependent variables, $F(6, 164) = 68.99$, $p = 0.00$; Wilk's lambda = 0.081; partial eta squared = 0.71. Considering the results of the dependent variables separately, the anxiety ($F(2, 84) = 70.40$, $p = 0.00$, partial eta squared = 0.62), the motivation ($F(2, 84) = 192.16$, $p = 0.00$, partial eta squared = 0.82), and the self-efficacy ($F(2,84) = 85.36$, $p = 0.00$, partial eta squared = 0.067), there were statistical differences among the three groups. As reported for the mean scores, the CALL group and MALL group gained better results regarding the anxiety (M_{CALL} = 132.98, M_{MALL} = 134.36), the motivation (M_{CALL} = 107.22, M_{MALL} = 108.27), and the self-efficacy (M_{CALL} = 56.12, M_{MALL} = 57.99) compared with the FTF group ($M_{anxiety}$ = 82.21, $M_{motivation}$ = 159.82, and $M_{self-efficacy}$ = 32.78). Based on the pairwise comparisons, there were no statistically significant differences between the CALL group and the MALL group regarding the anxiety, motivation, and self-efficacy ($p = 1 > 0.05$). However, there was a statistically significant difference between the FTF group and the CALL group and the MALL group regarding the anxiety ($p = 0.00 < 0.05$), the motivation ($p = 0.00 < 0.05$), and the self-efficacy ($p = 0.00 < 0.05$). Therefore, the null hypothesis was rejected. The results are reported in Table 8.

TABLE 3 Results of Levene's test of equality of error variances.

	F	df1	df2	Sig.
Anxpost	16.522	2	87	0.000
MotPost	0.374	2	87	0.689
SelfPost	0.281	2	87	0.755

Discussion

As noted above, the present research purported to examine the impact of CALL, MALL, and FTF on Iranian EFL learners' motivation, anxiety, and self-efficacy. The results depicted that the CALL group and the MALL group earned a higher

TABLE 4 Results tests of between-subjects effects.

Source	Dependent variable	Type III sum of squares	df	Mean square	*F*	Sig.	Partial eta squared
Corrected model	Anxpost	53280.740	5	10656.148	30.829	0.000	0.647
	MotPost	50274.908	5	10054.982	83.619	0.000	0.833
	SelfPost	12843.592	5	2568.718	37.271	0.000	0.689
Intercept	Anxpost	15191.006	1	15191.006	43.948	0.000	0.343
	MotPost	4444.349	1	4444.349	36.960	0.000	0.306
	SelfPost	2160.217	1	2160.217	31.344	0.000	0.272
Anxpre	Anxpost	424.631	1	424.631	1.228	0.271	0.014
	MotPost	163.904	1	163.904	1.363	0.246	0.016
	SelfPost	37.803	1	37.803	0.549	0.461	0.006
MotPre	Anxpost	91.991	1	91.991	0.266	0.607	0.003
	MotPost	1854.162	1	1854.162	15.420	0.000	0.155
	SelfPost	339.633	1	339.633	4.928	0.029	0.055
SelfPre	Anxpost	517.197	1	517.197	1.496	0.225	0.018
	MotPost	619.116	1	619.116	5.149	0.026	0.058
	SelfPost	493.484	1	493.484	7.160	0.009	0.079
Groups	Anxpost	48672.869	2	24336.434	70.407	0.000	0.626
	MotPost	46214.360	2	23107.180	192.164	0.000	0.821
	SelfPost	11766.851	2	5883.425	85.366	0.000	0.670
Error	Anxpost	29035.049	84	345.655			
	MotPost	10100.747	84	120.247			
	SelfPost	5789.308	84	68.920			
Total	Anxpost	1318307.000	90				
	MotPost	816809.000	90				
	SelfPost	234429.000	90				
Corrected total	Anxpost	82315.789	89				
	MotPost	60375.656	89				
	SelfPost	18632.900	89				

TABLE 5 Results of estimates.

Dependent variable	Groups	Mean	Std. error	95% Confidence interval	
				Lower bound	Upper bound
Anxpost	CALL	132.986	3.397	126.230	139.741
	MALL	134.369	3.406	127.595	141.142
	FTF	84.212	3.401	77.449	90.976
MotPost	CALL	107.220	2.004	103.236	111.205
	MALL	108.271	2.009	104.276	112.266
	FTF	59.542	2.006	55.553	63.531
SelfPost	CALL	56.124	1.517	53.107	59.140
	MALL	57.995	1.521	54.971	61.020
	FTF	32.781	1.519	29.761	35.801

level of motivation, lower level of anxiety, and a higher level of self-efficacy than the FTF group. In fact, the findings of the study indicated that the CALL- and MALL-based instructions could create beneficial learning environments in which the participants got motivated, controlled their anxiety, and increased their self-efficacy. According to the findings of the study, it can be argued that CALL- and MALL-based instructions had the potential to increase the participants' motivation, lower their anxiety, and boost self-efficacy. That is, since the interventions could involve the learners in real and authentic learning activities and offer them interactive learning experiences, they positively affected the psychological factors.

TABLE 6 Results of pairwise comparisons.

Dependent variable	(I) Groups	(J) Groups	Mean difference (I-J)	Std. Error	Sig.	95% Confidence interval for difference	
						Lower bound	Upper bound
Anxpost	CALL	MALL	−1.383	4.817	1.000	−13.150	10.384
		FTF	48.773	4.805	0.000	37.034	60.512
	MALL	CALL	1.383	4.817	1.000	−10.384	13.150
		FTF	50.156	4.824	0.000	38.371	61.942
	FTF	CALL	−48.773	4.805	0.000	−60.512	−37.034
		MALL	−50.156	4.824	0.000	−61.942	−38.371
MotPost	CALL	MALL	−1.051	2.841	1.000	−7.991	5.889
		FTF	47.678	2.834	0.000	40.755	54.602
	MALL	CALL	1.051	2.841	1.000	−5.889	7.991
		FTF	48.729	2.846	0.000	41.778	55.680
	FTF	CALL	−47.678	2.834	0.000	−54.602	−40.755
		MALL	−48.729	2.846	0.000	−55.680	−41.778
SelfPost	CALL	MALL	−1.872	2.151	1.000	−7.126	3.383
		CG	23.343	2.146	0.000	18.101	28.585
	MALL	CALL	1.872	2.151	1.000	−3.383	7.126
		FTF	25.215	2.154	0.000	19.952	30.477
	FTF	CALL	−23.343	2.146	0.000	−28.585	−18.101
		MALL	−25.215	2.154	0.000	−30.477	−19.952

TABLE 7 Results of multivariate tests.

	Value	*F*	Hypothesis df	Error df	Sig.	Partial eta squared
Pillai's trace	0.924	23.736	6.000	166.000	0.000	0.462
Wilks' lambda	0.081	68.928	6.000	164.000	0.000	0.716
Hotelling's trace	11.351	153.243	6.000	162.000	0.000	0.850
Roy's largest root	11.347	313.929	3.000	83.000	0.000	0.919

TABLE 8 Results of univariate tests.

Dependent variable		Sum of squares	df	Mean square	*F*	Sig.	Partial eta squared
Anxpost	Contrast	48672.869	2	24336.434	70.407	0.000	0.626
	Error	29035.049	84	345.655			
MotPost	Contrast	46214.360	2	23107.180	192.164	0.000	0.821
	Error	10100.747	84	120.247			
SelfPost	Contrast	11766.851	2	5883.425	85.366	0.000	0.670
	Error	5789.308	84	68.920			

The findings of the study are in line with those of Khoshsima and Mozakka (2017), revealing that the experimental group who received CALL-based instruction outperformed the control group regarding the gains of the listening comprehension. Besides, the results of the study are congruent with those of Alotumi (2018), reporting that there were remarkable differences between the CALL group and the conventional group regarding the total gain scores and the section gain scores of speaking, reading, writing, and listening. In addition, the findings of the study lend support to the results of Grenner (2019). They disclosed that CALL as a motivational method could result in promoted motivation among the participants by offering authentic materials and creating learner-centered environments. Moreover, the results of the study lend credence to those of Shafiee et al. (2019). They found that the CALL group did outweigh the non-CALL group on the reading comprehension post-test. Further, the findings of this study are consistent with those of Alemi et al. (2015), revealing that the experimental group could relieve their anxiety better due to the positive effects of RALL-based instruction. Finally, The

results of the study are in line with those of Nasri et al. (2021), showing that the experimental group's motivation in L2 learning significantly improved compared to the control group and the participants shaped positive attitudes toward L2 learning after receiving CALL-based instruction.

A line of discussion for the findings of the study can be presented with the help of SDT. Aligned with SDT, it can be argued that since the participants' psychological needs, including competence, autonomy, and relatedness were fulfilled well in CALL and MALL, they might have become intrinsically motivated to continue learning and further their achievements. This, in turn, might have led to decreasing their anxiety and promoting their self-efficacy. This argument receives support from the previous studies (e.g., Ryan et al., 2006; Przybylski et al., 2009; Tamborini et al., 2010; Huang et al., 2019), revealing that in online classes, when learners' psychological needs, such as competence, autonomy, and relatedness were fulfilled, they became intrinsically motivated to promote their learning.

To recap the discussion, we can also refer to L2 Motivational Self System model (Dörnyei, 2005, 2009). Aligned with this model, it can be argued that CALL and MALL could create learning environments in which the participants could move toward two important future visions, namely self-guides. That is, due to the positive effects of the instructions, the participants might have achieved the ideal-L2 self to internalize the desired hopes and the ought-to self to feel obligated to become the ideal individual due to the societal responsibilities. This, in turn, might assist the participants to reach an awareness of the discrepancy between desired future self-guides and the perceived plausibility of those self-guides, together with their current experience of L2 learning. These all might have led to increasing their motivation and self-efficacy, as well as decreasing their anxiety.

Another possible explanation for the findings is that CALL and MALL might have led to autonomous learning. That is, along with Namaziandost et al. (2021), it may be argued that through the instructions, the participants might have learned to rely on their abilities to control the learning tasks and obligations in the online classes. Thus, they might have improved their self-efficacy, got motivated to continue learning, and handle their fears. An additional possible explanation for the findings may be ascribed to the fact that the learning materials presented through CALL and MALL were durable. In other words, as Dağdeler et al. (2020) note, since the learning materials in CALL and MALL could remain for an unlimited time, the participants might have had this opportunity to turn back to them, review them, and consolidate their learning. This noticeable advantage might have helped the participants increase their level of motivation and self-efficacy, and, accordingly, control their anxiety.

To discuss the findings of the study, we can also refer to the fact that CALL and MALL were student-oriented instructional methods (Grenner, 2019). They could offer online learning materials to simplify information, sharing outside the limitations of time, and place among the EFL learners. Based on the findings, it may be argued that CALL and MALL could combine self-study with asynchronous interactions to improve learning, and they could be utilized to simplify the learning processes in conventional on-campus instruction, distance education, and continuing education. In other words, CALL and MALL might have granted the learners more freedom to expand their learning processes. They were not confined to time and space. Therefore, it is reasonable to claim that the results of the study could be attributed to this outstanding advantage of CALL and MALL.

To justify the findings of the study, it can also be referred to the online collaborative learning theory, introduced by Harasim (2012). According to this theory, it may be argued that CALL and MALL might have offered the Internet facilities to create collaborative learning settings that might have led to shaping collaboration and knowledge building among the participants. With the presence of oral and written interactions in the virtual environments, the learners might have solved their problems collaboratively *via* the negotiation of meaning and might have constructed the required competencies. Since the participants constructed a good command of English competence, they might have become more motivated, increased their self-efficacy, and handled their anxiety.

A further possible justification for the results of the study is the efficiency of CALL and MALL. Along with the findings, it may be argued that CALL and MALL might have let the teachers deliver the learning materials to the EFL learners more efficiently (Yu, 2019). The teachers could use diverse tools, such as podcasts, videos, pictures, PDFs to facilitate the learners' learning. By including online resources, the teachers might have been able to extend the lesson plan beyond traditional coursebooks and might have created a learning environment in which the participants found motivating and joyful (Zou and Li, 2015). Moreover, the other justification for the findings may be attributed to the outstanding advantage of CALL and MALL, called cost-effectiveness. Aligned with the findings, it may be argued that CALL and MALL were far more affordable as compared to FTF classes. This might be due to the reality that CALL and MALL might have eliminated the cost points of the students' commutation to the language institute. Thus, they might have saved their time and money. Besides, it may be argued that the students had access to the course materials online, thus creating a paperless learning environment that might have been more affordable for them.

Conclusion and implications

As pointed out above, the present research explored the impacts of CALL and MALL on Iranian EFL learners' motivation, anxiety, and self-efficacy. The findings indicated

that using MALL and CALL positively affected the Iranian EFL students' motivation, anxiety, and self-efficacy. According to the results, it may be concluded that integrating MALL and CALL into L2 education can promote EFL learners' motivation, decrease their anxiety, and improve their self-efficacy. Applying MALL and CALL may be useful for EFL learners since they can expand learning opportunities outside of the classroom, foster cooperative learning, encourage self-study, and increase self-confidence. To close, since we live in the era of new technological developments, it is clear that L2 education is affected by these non-stop developments. Accordingly, L2 practitioners need to consider online environments as a valuable alternative to make the way for efficient L2 learning.

The findings of this research may deliver some implications to pertinent stakeholders. The first implication is for educational policymakers. They can consider online education as an alternative for conventional education. For this, for example, they can use a blended format where EFL learners can benefit from both online classes and FTT classes. The second implication is for school principals and language institute owners. In order to grant learning opportunities to EFL learners, they need to equip their educational centers with new technologies. The third implication is for teacher educators. They should accommodate online teaching approaches and techniques in their syllabi to make EFL teachers familiar with them. The fourth implication is for materials developers. They need to seek new ways through which the educational materials can be designed using new technologies. The fifth implication is for EFL teachers. They may want to employ MALL and CALL in their classes to help EFL learners overcome their anxiety and increase their motivation and self-efficacy. However, it should be noted that EFL teachers cannot use CALL and MALL efficiently unless they have high digital literacy. Thus, they should give particular attention to promoting it. The final implication is for EFL learners. They should give particular attention to developing their digital literacy to benefit from the new technologies to promote their L2 learning achievements.

A number of suggestions for further research are given considering the limitations imposed on the current research. First, as the present study was run in just one language institute, future studies can be conducted in other language institutes in other parts of the country to promote the external validity of the results. Second, as this study was confined to male EFL learners, further studies are needed to include female EFL learners to give a better picture of the research topic. Third, because the setting of this study was a private language institute, interested researchers can explore the effects of CALL and MALL on EFL learners' motivation, anxiety, and self-efficacy in other settings, such as high schools and universities. Fourth, since the design of the present study was quantitative, future studies can accommodate qualitative designs, such as interviews and observation to present more credible results. Fifth, as this research was cross-sectional, interested researchers can run a longitudinal study to disclose how EFL learners' motivation, foreign language anxiety, and self-efficacy change in CALL and MALL over a period of time. Last but not least, as the present study surveyed the effects of CALL and MALL on psychological factors, interested researchers can explore their impacts on EFL learners' performances.

Data availability statement

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

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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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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References

Ahmadi, D. (2018). The use of technology in English language learning: A literature review. *Int. J. Res. English Educ.* 3, 115–125. doi: 10.29252/ijree.3.2.115

Ahmed, A. A. A., and Ganapathy, A. (2021). Creation of automated content with embedded artificial intelligence: A study on learning management system for educational entrepreneurship. *Acad. Entrep. J.* 27, 1–10.

Alemi, M., Meghdari, A., and Ghazisaedy, M. (2015). The impact of social robotics on L2 learners' anxiety and attitude in English vocabulary acquisition. *Int. J. Soc. Robot.* 7, 523–535. doi: 10.1007/s12369-015-0286-y

Alharbi, M. A. (2021). Self-efficacy sources and reading comprehension of L2 undergraduate learners. *J. Lang. Linguist. Stud.* 17, 924–940.

Alotumi, M. (2018). The effect of CALL-based instruction on students' score attainment on the TOEFL iBT in a Yemeni context. *Int. J. Comput. Assist. Lang. Lear. Teach.* 8, 50–62. doi: 10.4018/IJCALLT.2018010104

Azara, A. H., and Nasiri, S. (2014). Learners' attitudes toward the effectiveness of mobile assisted language learning (MALL) in L2 listening comprehension. *Procedia Soc. Behav. Sci.* 98, 1836–1843. doi: 10.1016/j.sbspro.2014.03.613

Azizi, Z. (2022). A Phenomenographic Study on University English Teachers' Perceptions of Online Classes during the COVID-19 Pandemic: A Focus on Iran. *Int. J. Educ. Res.* 23:1368883. doi: 10.1155/2022/1368883

Azizi, Z., Namaziandost, E., and Rezai, A. (2022a). Potential of podcasting and blogging in cultivating Iranian advanced EFL learners' reading comprehension. *Heliyon* 8:e09473. doi: 10.1016/j.heliyon.2022.e09473

Azizi, Z., Rezai, A., Namaziandost, E., and Tilwani, S. A. (2022b). The Role of Computer Self-Efficacy in High School Students' E-Learning Anxiety: A Mixed-Methods Study. *Contemp. Educ. Technol.* 14:ep356. doi: 10.30935/cedtech/11570

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ:Prentice-Hall

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.

Bashori, M., van Hout, R., Strik, H., and Cucchiarini, C. (2020). Web-based language learning and speaking anxiety. *Comput. Assist. Lang. Learn.* 2020, 1–32. doi: 10.1080/09588221.2020.1770293

Bashori, M., van Hout, R., Strik, H., and Cucchiarini, C. (2021). Effects of ASR-based websites on EFL learners' vocabulary, speaking anxiety, and language enjoyment. *System* 99:102496. doi: 10.1016/j.system.2021.102496

Beatty, K. (2013). *Teaching Researching: Computer-Assisted Language Learning*. Milton Park: Routledge.

Bennett, S., Maton, K., and Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *Br. J. Educ. Technol.* 39, 775–786. doi: 10.1111/j.1467-8535.2007.00793.x

Bernhardt, P. C. (1997). Influences of serotonin and testosterone in aggression and dominance: Convergence with social psychology. *Curr. Dir. Psychol. Sci.* 6, 44–48. doi: 10.1111/1467-8721.ep11512620

Bodnar, S., Cucchiarini, C., Strik, H., and van Hout, R. (2016). Evaluating the motivational impact of CALL systems: Current practices and future directions. *Comput. Assist. Lang. Learn.* 29, 186–212. doi: 10.1080/09588221.2014.927365

Brown, D. H. (2000). *Principles of Language Learning and Teaching*, 4th Edn. Harlow: Longman.

Burston, J., and Giannakou, K. (2022). MALL language learning outcomes: A comprehensive meta-analysis 1994-2019. *ReCALL* 34, 147–168. doi: 10.1017/S0958344021000240

Chaka, C. (2009). "Portable handheld language learning from CALL MALL to PALL," in *Handbook of Research on e-Learning Methodologies for Language Acquisition*, (Eds.) P. Torres and R. Marriot (Hershey, NY: IGI Global), 539–553.

Chinnery, G. M. (2006). Emerging technologies. Going to the mall: Mobile assisted language learning. *Lang. Learn. Technol.* 10, 9–16.

Chupradit, S., Leewattana, A., and Chupradit, P. W. (2020). The correlation analysis of Internet usage and depression among undergraduate university students in Thailand: Cross-sectional study. *J. Adv. Res. Dyn. Control Sys.* 12, 825–837.

Crossman, D. M. (1997). "The evolution of the world-wide-web as an emerging technology tool," in *Web-based Instruction*, ed. B. H. Kahn (Englewood Cliffs, NJ: Educational Technology Publications), 19–25.

Dağdeler, K. O., Konca, M. Y., and Demiröz, H. (2020). The effect of mobile-assisted language learning (MALL) on EFL learners' collocation learning. *J. Lang. Linguist. Stud.* 16, 489–509.

Derakhshan, A. (2011). *Mobile Assisted Language Learning: The case of Academic Vocabulary Learning Via Text-Massaging in an EFL Context*. Cambridge: LAP LAMBERt Academic Publishing.

Deci, E. L., and Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Berlin: Springer Science & Business Media, doi: 10.1007/978-1-4899-2271-7

Dina, A. T., and Ciornei, S. I. (2013). The advantages and disadvantages of computer assisted language learning and teaching for foreign languages. *Procedia Soc.Behav. Sci.* 76, 248–252. doi: 10.1016/j.sbspro.2013.04.107

Dornyei, Z. (2001). *Motivational Strategies in the Language Classroom*. Cambridge: Cambridge University Press.

Dornyei, Z., and Ushioda, E. (2011). *Teaching and researching motivation*, 2nd Edn. Harlow: Pearson.

Dörnyei, Z. (2005). *The Psychology of the Language Learner: Individual Differences in Second Language Acquisition*. Mahwah: Lawrence Erlbaum.

Dörnyei, Z. (2009). "The L2 motivational self system," in *Motivation, Language Identity and the L2 Self*, eds Z. Dörnyei and E. Ushioda (Bristol, UK: Multilingual Matters.), 9–42.

Ebadijalal, M., and Yousofi, N. (2021). The impact of mobile-assisted peer feedback on EFL learners' speaking performance and anxiety: Does language make a difference? *Lang. Learn. J.* 2021, 1–19. doi: 10.1080/09571736.2021.1957990

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educ. Technol. Res. Dev.* 53, 25–39.

Esmaili, R., Mousavi-Davoudi, S. M., and Nasiri-Amiri, F. (2021). The impact of spiritual intelligence on aggressive behavior, considering the mediating role of professional ethics: A case study of nurses of Imam Ali (pbuh) hospital in Alborz Iran. *J. Relig. Health* 7, 35–50. doi: 10.22037/jrrh.v7i3.29499

Gagné, M., and Deci, E. L. (2005). Self-determination theory and work motivation. *J. Organ. Behav.* 26, 331–362. doi: 10.1002/job.322

Gardner, R. C. (2004). *Motivation and second language acquisition: The socio-educational model*. New York, NY: Peter Lang.

Gardner, R. C. (2006). *Attitude/Motivation Test Battery: International AMTB Research Project*. London: The University of Western Ontario

Garrett, N. (2009). Computer-assisted language learning trends and issues revisited: Integrating innovation. *Mod. Lang. J.* 93, 719–740. doi: 10.1111/j.1540-4781.2009.00969.x

Ghobadi, S., and Taki, S. (2018). Effects of telegram stickers on English vocabulary learning: Focus on Iranian EFL learners. *Res. English. Lang. Pedagogy* 6, 139–158. doi: 10.30486/relp.2018.538824

Ghonsooly, B., and Elahi, M. (2008). Learners' self-efficacy in reading and its relation to foreign language reading anxiety and reading achievement. *J. English. Lang. Lang. Teach.* 53, 46–67.

Grenner, C. (2019). The effect of the use of CALL on pupils' motivation and language development in English. *J. Educ. Media* 6, 1–25.

Hanafiah, W., Aswad, M., Sahib, H., Yassi, A. H., and Mousavi, M. S. (2022). The Impact of CALL on Vocabulary Learning, Speaking Skill, and Foreign Language Speaking Anxiety: The Case Study of Indonesian EFL Learners. *Educ. Res. Int.* 2022:5500077. doi: 10.1155/2022/5500077

Harasim, L. (2012). *Learning Theory and Online Technologies*. Milton Park: Routledge.

Hazaea, A. N., and Alzubi, A. A. (2016). The effectiveness of using Mobile on EFL learners' reading practices in Najran University. *English. Lang. Teach.* 9, 8–21. doi: 10.5539/elt.v9n5p8

Horwitz, E. K. (2001). Language anxiety and achievement. *Annu. Rev. Appl. Linguist.* 21, 112–126. doi: 10.1017/S0267190501000071

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.2307/327317

Hsu, L. (2013). English as a foreign language learners' perception of mobile assisted language learning: A cross-national study. *Comput. Assist. Lang. Learn.* 26, 197–213. doi: 10.1080/09588221.2011.649485

Huang, Y. C., Backman, S. J., Backman, K. F., McGuire, F. A., and Moore, D. (2019). An investigation of motivation and experience in virtual learning environments: A self-determination theory. *Educ. Inf. Technol.* 24, 591–611. doi: 10.1007/s10639-018-9784-5

Jamshidi, M., and Zenouzagh, Z. (2020). The effect of mobile-assisted teaching of collocations on reading ability of Iranian EFL learners. *J. Appl. Linguist. Appl. Literature* 8, 111–138. doi: 10.22049/jalda.2020.26827.1176

Jeno, L. M., Grytnes, J. A., and Vandvik, V. (2017). The effect of a mobile-application tool on biology students' motivation and achievement in species identification: A Self-Determination Theory perspective. *Comput Educ* 107, 1–12. doi: 10.1016/j.compedu.2016.12.011

Jones, B. D. (2020). "Motivating and engaging students using educational technologies," in *Handbook of Research in Educational Communications and Technology*, (eds) M. J. Bishop, J. E. Boling, V. Svihla (Cham: Springer), 9–35. doi: 10.1007/978-3-030-36119-8_2

Khoshsima, H., and Mozakka, Z. (2017). The effect of computer-assisted language learning on Iranian upper-intermediate EFL learners' listening skill. *J. Appl. Ling. Lang. Res.* 4, 81–91.

Kim, S. H., and Shin, H. W. (2021). Second language learners' self-efficacy and English achievement: The mediating role of integrative motivation. *English Teach. Learn.* 45, 325–338. doi: 10.1007/s42321-021-00083-5

Kukulska-Hulme, A. (2005). "Introduction," in *Mobile Learning: A Handbook for Educators and Trainers*, eds A. Kukulska-Hulme and J. Traxler (England, UK: Routledge).

Kukulska-Hulme, A., and Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL* 20, 271–289. doi: 10.1017/S0958344008000335

Levy, M. (1997). *CALL: Context and Conceptualization*. Oxford: Oxford University Press.

Li, P., and Lan, Y. J. (2022). Digital language learning (DLL): Insights from behavior, cognition, and the brain. *Biling. Lang. Cogn.* 25, 361–378. doi: 10.1017/S1366728921000353

Li, R. (2022). Effects of mobile-assisted language learning on EFL/ESL reading comprehension. *Educ. Techno. Soc.* 25, 15–29.

Lifrieri, V. (2005). *A Sociological Perspective on Motivation to Learn EFL: The Case of Escuelas Plurilinges in Argentina*, Ph.D thesis, Pittsburgh: University of Pittsburgh

Lindaman, D., and Nolan, D. (2015). Mobile-Assisted Language Learning: Application Development projects within reach for language teachers. *IALLT J. Lang. Learn. Techno.* 45, 1–22.

Ling, R., and Donner, J. (2009). *Mobile Communication*. Cambridge: Polity

MacIntyre, P. D., and Vincze, L. (2017). Positive and negative emotions underlie motivation for L2 learning. *Stud. Sec. Lang. Learn. Teach.* 7, 61–88.

Moè, A. (2016). Does displayed enthusiasm favour recall, intrinsic motivation and time estimation? *Cogn. Emot.* 30, 1361–1369. doi: 10.1080/02699931.2015.1061480

Moè, A., and Katz, I. (2020). Self-compassionate teachers are more autonomy supportive and structuring whereas self-derogating teachers are more controlling and chaotic: The mediating role of need satisfaction and burnout. *Teach. Teach. Educ.* 96:103173. doi: 10.1016/j.tate.2020.103173

Nachoua, H. (2012). Computer-assisted language learning for improving students' listening skill. *Procedia Soc. Behav. Sci.* 69, 1150–1159. doi: 10.1016/j.sbspro.2012.12.045

Namaziandost, E., Alekasir, S., Saberi Dehkordi, E., and Ahmad Tilwani, S. (2021). An Account of EFL learners' vocabulary learning in a mobile-assisted language environment: The case of Rosetta Stone Application. *Comput. Assist. Lang. Learn.Electr. J.* 22, 80–110.

Naseri, S., and Motallebzadeh, K. (2016). Podcasts: A factor to improve Iranian EFL learners' self-regulation ability and use of technology. *J. Educ. Techno. Soc.* 19, 328–339.

Nasri, M., Shafiee, S., and Sepehri, M. (2021). An investigation of Iranian intermediate EFL learners' L2 motivation and attitude in a computer-assisted language learning environment. *Issues Lang. Teach.* 10, 355–389. doi: 10.22054/ilt.2021.62359.614

Nim Park, C., and Son, J. B. (2009). Implementing computer-assisted language learning in the EFL classroom: Teachers' perceptions and perspectives. *Int. J. Pedagog. Learn.* 5, 80–101. doi: 10.5172/ijpl.5.2.80

Obari, H., and Lambacher, S. (2015). "Successful EFL teaching using mobile technologies in a flipped classroom," in *Critical CALL–Proceedings of the 2015 EUROCALL Conference*, (Eds) F. Helm, L. Bradley, M. Guarda, and S. Thouësny (Padova, Italy: Research-publishing), 433–438.

Oberg, A., and Daniels, P. (2012). Analysis of the effect a student-centered mobile learning instructional method has on language acquisition. *Comput. Assist. Lang. Learn.* 26, 177-196. doi: 10.1080/09588221.2011.649484

Oroujlou, N., and Vahedi, M. (2011). Motivation, attitude, and language learning. *Procedia Soc. Behav. Sci.* 29, 994–1000. doi: 10.1016/j.sbspro.2011.11.333

Oxford, R., and Shearin, J. (1994). Language learning motivation: Expanding the theoretical framework. *Mod. Lang. J.* 78, 12–28. doi: 10.2307/328590

Pachler, N., Bachmair, B., and Cook, J. (2010). *Mobile Learning: Structures, Agency, Practices*. Germany: Springer.

Pallant, J. (2007). *SPSS survival manual-A step by step guide to data analysis using SPSS for windows*, 3rd Edn. Maidenhead: Open University Press.

Pajares, F. (2006). "Self-efficacy during childhood and adolescence: Implications for teachers and partners," in *Self-Efficacious Beliefs of Adolescents*, eds F. Pajares and T. Urden (Charlotte: Information Age Publishing), 339–367. doi: 10.1186/s12913-016-1423-5

Pajares, F. (2000). Against the odds: Self-efficacy beliefs of women in mathematical, scientific, and technological careers. *Ame. Educ. Res.* J. 37, 215–246.

Pettit, J., and Kukulska-Hulme, A. (2007). Going with the grain: Mobile devices in practice. *Australas. J. Educ. Technol.* 23, 17–33. doi: 10.14742/ajet.1271

Pirasteh, P. (2014). The effectiveness of computer-assisted language learning on learning grammar by Iranian EFL learners. *Procedia Soc. Behav. Sci.* 98, 1422–1427. doi: 10.1016/j.sbspro.2014.03.561

Przybylski, A. K., Weinstein, N., Ryan, R. M., and Rigby, C. S. (2009). Having to versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games. *CyberPsychology Behav.* 12, 485–492. doi: 10.1089/cpb.2009.0083

Puebla, C., Fievet, T., Tsopanidi, M., and Clahsen, H. (2022). Mobile-assisted language learning in older adults: Chances and challenges. *ReCALL* 34, 169–184. doi: 10.1017/S0958344021000276

Rahimi, M., and Yadollahi, S. (2011). Foreign language learning attitude as a predictor of attitudes towards computer-assisted language learning. *Procedia Comput. Sci.* 3, 167–174. doi: 10.1016/j.procs.2010.12.029

Rahimi, S., Ghonsooly, B., and Rezai, A. (2021). An online portfolio assessment and perception study of Iranian high school students' English writing performance during the COVID-19 pandemic. *Teach. English Sec. Lang.* 40, 197–231. doi: 10.22099/jtls.2021.39788.2946

Ratnaningsih, D., Nofandii, F., Purba, D., and Wiratno, D. (2019). The Influence of Computer Assisted Language Learning (Call) to Improve English Speaking Skills. *Res. Soc. Dev.* 8, 1–8.

Riazi, A. M. (2016). Innovative mixed-methods research: Moving beyond design technicalities to epistemological and methodological realizations. *Appl. Linguist.* 37, 33–49. doi: 10.1093/applin/amv064

Richards, J. C., and Bohlke, D. (2011). *Four Corners Level 2 Full Contact with Self-study CD-ROM*. Cambridge: Cambridge University Press.

Ryan, R. M., and Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am. Psychol.* 55, 68–95. doi: 10.1037/0003-066X.55.1.68

Ryan, R. M., Rigby, C. S., and Przybylski, A. (2006). The motivational pull of video games: A self-determination theory approach. *Motiv. Emot.* 30, 344–360. doi: 10.1007/s11031-006-9051-8

Salmee, S. A., and Arif, M. M. (2019). A study on the use of humour in motivating students to learn English. *Asian J. Univers. Educ.* 15, 257–265.

Scovel, T. (1991). "The Effect of affect on foreign language learning: A review of the anxiety research," in *Language Anxiety: From Theory and Research to Classroom Implications*, eds E. K. Horwitz and D. J. Young (Englewood Cliffs: Prentice Hall), 15–24.

Seneviratne, K., Hamid, J. A., Khatibi, A., Azam, F., and Sudasinghe, S. (2019). Multi-faceted professional development designs for science teachers' self-efficacy for inquiry-based teaching: A critical review. *Univers. J. Educ. Res.* 7, 1595–1611. doi: 10.13189/ujer.2019.070714

Shadiev, R., and Yu, J. (2022). Review of research on computer-assisted language learning with a focus on intercultural education. *Comput. Assist. Lang. Learn.* (in press). 1–31*. doi: 10.1080/09588221.2022.2056616

Shafiee, S., Akbari, S., and Hajijalili, M. (2019). Comparing the impact of CALL-based versus non-CALL-based methods of instruction on reading comprehension among Iranian upper-intermediate EFL learners. *Lang. India* 19, 33–49.

Steers, R., and Porter, W. (1991). *Motivation and Work Behavior*. Lincoln: McGraw-Hill.Inc.

Sun, T., Wang, C., Lambert, R. G., and Liu, L. (2021). Relationship between second language English writing self-efficacy and achievement: A meta-regression analysis. *J. Second Lang. Writ.* 53:100817. doi: 10.1016/j.jslw.2021.100817

Tabachnick, B. G., and Fidell, L. S. (2007). *Using multivariate statistics*, 5th Edn. New York, NY: Allyn and Bacon.

Tafazoli, D., Gómez-Parra, M. E., and Huertas-Abril, C. A. (2020). A cross-cultural qualitative study on students' attitudes towards computer-assisted language learning. *Qual. Rep.* 25, 1841–1855. doi: 10.3205/zma001096

Tamborini, R., Bowman, N. D., Eden, A., Grizzard, M., and Organ, A. (2010). Defining media enjoyment as the satisfaction of intrinsic needs. *J. Commun.* 60, 758–777. doi: 10.1111/j.1460-2466.2010.01513.x

Tatiana Dina, A., and Ciornei, S. (2013). The advantages and disadvantages of computer assisted language learning and teaching for foreign languages. *Procedia Soc. Behav. Sci.* 76, 248–252.

Tomlinson, B. (2012). Materials development for language learning and teaching. *Lang. Teach.* 45, 143–179. doi: 10.1017/S0261444811000528

Vadivu, S. V., and Chupradit, S. (2020). Psychosocial and occupational impact assessment due to internet addiction: A critical review. *Syst. Rev. Pharm.* 11, 152–155. doi: 10.31838/srp.2020.7.24

Viberg, O., Wasson, B., and Kukulska-Hulme, A. (2020). Mobile-assisted language learning through learning analytics for self-regulated learning (MALLAS): A conceptual framework. *Australas. J. Educ. Technol.* 36, 34–52. doi: 10.14742/ajet.6494

Williams, M., and Burden, R. L. (1997). *Psychology for Language Teachers: A Social Constructivist Approach*. Cambridge: Cambridge University Press.

Xu, L., Naserpour, A., Rezai, A., Namaziandost, E., and Azizi, Z. (2022). Exploring EFL learners' metaphorical conceptions of language learning: A multimodal analysis. *J. Psycholinguist. Res.* 51, 323–339. doi: 10.1007/s10936-022-09842-2

Xu, Q., and Peng, H. (2017). Investigating mobile-assisted oral feedback in teaching Chinese as a second language. *Comput. Assist. Lang. Learn.* 30, 173–182.

Yang, J. (2013). Mobile assisted language learning: Review of the recent applications of emerging mobile technologies. *English Lang. Teach.* 6, 19–25. doi: 10.5539/elt.v6n7p19

Yu, A. Q. (2019). *Understanding Information Technology Acceptance and Effectiveness in College Students' English Learning in China*, Ph.D thesis, Nebraska: University of Nebraska, Nebraska

Yurdagul, C., and Oz, S. (2018). Attitude towards mobile learning in English language education. *Educ. Sci.* 8, 142–159. doi: 10.3390/educsci8030142

Zou, B., and Li, J. (2015). "Exploring mobile apps for English language teaching and learning," in *Critical CALL–Proceedings of the 2015 EUROCALL Conferenc*e, eds F. Helm, L. Bradley, M. Guarda, and S. Thouësny (Dublin: Research-publishing), 564–568. doi: 10.1186/s12913-016-1423-5

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EDITED BY
Chin-Hsi Lin,
The University of Hong Kong,
Hong Kong SAR, China

REVIEWED BY
Xu Wen,
Southwest University,
China
Yong Wu,
Beijing University of Posts and
Telecommunications (BUPT), China

*CORRESPONDENCE
Xia Wu
xiawu@tsinghua.edu.cn

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English use anxiety, motivation, self-efficacy, and their predictive effects on Chinese top university students' English achievements

Xia Wu[1]*, Huameng Yang[1], Junxia Liu[2] and Ziyu Liu[2]

[1]Department of Foreign Languages and Literatures, Tsinghua University, Beijing, China, [2]Academic Affairs Office, Tsinghua University, Beijing, China

The present study examined English use anxiety, motivation, self-efficacy, use of English, and their predictive effects on top university students' English achievements. Two hundred and twenty-three students of the Top-Notch Students of Basic Disciplines Training Program in a top Chinese university answered a battery of questionnaires, which consisted of the 8-item English Use Anxiety Questionnaire, the 5-item Motivational Self-Talk Questionnaire, the 3-item Self-Efficacy Questionnaire, the 19-item Language Learning Orientations Questionnaire, and a Background Information Questionnaire. Analyses of the data revealed the following major findings: (1) the participants had a low level of extrinsic motivation-introjected regulation, a low-to-medium level of English use anxiety, extrinsic motivation-external regulation, intrinsic motivation-knowledge, and a medium-to-high level of motivational self-talk, self-efficacy, extrinsic motivation-identified regulation, intrinsic motivation-accomplishment, and intrinsic motivation-stimulation, (2) use of English anxiety (UAE) and language learning orientation were generally significantly negatively correlated with each other, and significantly correlated with other measured variables, (3) UAE and intrinsic motivation-knowledge significantly predicted the participants English achievements, measured both by standardized test scores and self-rated overall English proficiency, and (4) use of English and self-efficacy mediated the effects of English use anxiety and language learning orientations on the participants' English achievements. These findings further pinpoint the importance of anxiety and motivation in second/foreign language learning.

KEYWORDS

English use anxiety, motivation, self-efficacy, top-notch program, EFL

Introduction

Many studies have proven that besides being influenced by teachers and teaching materials, second language (L2) learners' achievement can be affected by their own individual factors such as gender, age, anxiety, proficiency in the target language, self-confidence, motivation, and self-efficacy (Deci and Ryan, 1985; Bandura, 1997). It is

generally found that contact with the target language, self-confidence, self-efficacy, and motivation significantly positively correlate and predict L2 learning outcomes, while anxiety, limited access to the target language, and demotivation significantly negatively correlate with the latter (Dikmen et al., 2016; Gong et al., 2020; Dong et al., 2022; Liu and Zhang, 2022). For example, Gong et al. (2020) and Liu and Zhang (2022) found that contact with native speakers increased participants' interest in and motivation to learn the target language, which led to enhanced proficiency in the language. Dong et al. (2022) found that learners with lower anxiety and greater motivation usually performed better in the target language than those with greater anxiety and lower motivation. This might be because motivation offers second language learners the stimulus to start learning and encourages them to keep learning without feeling reluctant, and eventually helps them to meet their goals (Dörnyei, 2005). Also, learners with high self-efficacy are more confident about getting a good learning result, and they are more active in searching for and using efficient learning strategies to improve their language proficiency (Wong, 2005).

As reviewed in more detail below, contact with the target language, foreign language anxiety, language learning motivation, and self-efficacy are all important factors in L2 learning and acquisition. However, they have rarely been examined in relation to L2 learning outcomes simultaneously in the same context. Moreover, most research in second language acquisition focuses on ordinary students, with a few studies targeting good/successful learners, little research can be found on top students of top universities. In order to prepare leading scholars in basic disciplines, China's Ministry of Education has been investing in top undergraduate students in top universities by providing them with (much) more learning and research resources during the recent decade. Nevertheless, little research has been done on these students to examine how they learn a foreign language. This is the aim of the current study, which sought to examine the profiles of English use anxiety, motivation, and self-efficacy of top students in Chinese top universities and how they affected the students' learning of English, the primary foreign language in China, hoping to shed light on general English teaching and learning in higher education in China and elsewhere of the world.

Literature review

Foreign language anxiety

Studies about anxiety of foreign language learners can date back to the 1970s, but it was not identified as one separate anxiety type until mid-1980s (Horwitz, 2010), when scholars began to realize that such anxious feelings were provoked only by the experience of using and learning a second language. Bailey (1983) was among the first scholars who studied language learning anxiety from the perspective of learners. Two years later, in the study of attitudes and motivation in language learning, Gardner (1985) pointed out that there might be a specific type of anxiety generated in the process of second language acquisition. According to Horwitz et al. (1986), foreign language classroom anxiety (FLCA), which is also referred to as foreign language anxiety or language anxiety sometimes, is "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (p. 128). In some other studies, this universal and unavoidable language anxiety was expanded to language experience outside the classroom, being described as the tension related to the usage of a second language that will "interfere with the acquisition, retention and production of the new language" (MacIntyre and Gardner, 1991, p. 86) or "the worry and usually negative emotional reaction aroused when learning or using an L2" (MacIntyre, 2007, p. 565).

Foreign language anxiety can affect the second language learning process in various ways and may interfere all three stages of language input, processing, and output, being especially problematic during the two latter stages (MacIntyre and Gardner, 1994). Horwitz et al. (1986) pointed out that such anxiety covered three dimensions: communication apprehension (being afraid of interacting with others), test anxiety (being afraid of failure), and fear of negative evaluation (being afraid of receiving negative comments from the others), and anxious learners may fail to understand the course contents, feel worried, try to avoid taking part in course-related activities, or have difficulty in presenting themselves orally. In the study of 92 English-speaking college students in French courses, Gardner and Mac Intyre (1993) discovered a significant correlation between the students' anxiety and their performance in taking tests. They noticed that learners who were more anxious would underrate their test results and language ability. The anxious feeling of learning a second language may also interfere with language proficiency in general (Dewaele and Ip, 2013; Yim, 2014), hold back learners' willingness of L2 production (MacIntyre et al., 1998), as well as performance in reading (Saito et al., 1999) and listening to a foreign language (Elkhafaifi, 2005). Similar problem may also occur when the learners feel anxious about memorizing what has been taught, for instance, vocabulary or grammar, which leads to the inability of producing complicated sentences or language structures (Onwuegbuzie et al., 1999).

To quantify L2 learners' anxiety, Gardner (1985) included a French Class Anxiety Scale in his Attitudes and Motivation Test Battery, which was later adapted and applied to foreign language learners of different levels in various countries, including secondary school students in Ireland (Muircheartaigh and Hickey, 2008), college students in Myanmar (Khaing, 2021), and vocational school students in Turkey (Özer, 2019). Horwitz's (Horwitz et al., 1986) team, on the other hand, developed the Foreign Language Classroom Anxiety Scale, which had 33 items and was then applied in studies of non-western languages, including Chinese (Sun and Teng, 2021), Japanese (Aida, 1994), Korean (Jee, 2016), and so on. Recent studies have indicated more focus on the idea of positive psychology, therefore leading to the

development of Foreign Language Enjoyment questionnaire (Dewaele and Mac Intyre, 2014; Liu and Hong, 2021; Dong et al., 2022) as a new perspective of interpreting FLCA. For example, Liu and Hong (2021) collected quantitative and qualitative data from 709 primary and secondary school students in China. They found that the students tended to be more anxious and less joyful in the English class as their grade levels increased, and that the students reacted differently when feeling anxious or joyful in class. They suffered when feeling/becoming anxious, which negatively affected their learning of English, yet they often became more attentive and active in class and studied English harder. The researchers thus concluded that foreign language anxiety may negatively affect L2 learning in various ways and can take place regardless of learners' target language, native language, language proficiency, and age.

Even though positive psychology is catching researchers' increasing attention, anxiety is still an important factor affecting L2 learning and a topic of research in second language acquisition. And it is interesting to know whether and to what degree top students in Chinese top universities feel anxious in learning and using English.

Language learning motivation

The relationship between learning attitudes and second language achievement has always been what researchers are interested about (Busato et al., 2000; Jiang et al., 2018; Saito et al., 2018). Gardner (1985) examined data collected from 33 studies of French learners in Canada and compared nine different criteria of language achievements with five measures of attitudes. His discoveries indicated that some categories of attitude are more closely related to gaining achievement of different types, and learning motivation is among the most influential factors. Studies have proven that learners with stronger motivation tend to set up higher goals, which then lead to better academic performance (Lou and Noels, 2017), and without the motivation of learning a second language, individuals cannot realize the goal of learning even if they are equipped with the best learning facilities (Dörnyei, 2005). Different from other subjects, language learning involves the learner's understanding and attitudes toward the social and cultural features behind the language; therefore, the motivation of learning a second language cannot be fully generalized as the motivation of learning. Gardner (1985) believed that if a language learner is considered motivated, the person needs to at least be equipped with four things: "a goal, effortful behaviors, a desire to attain the goal and favorable attitudes toward the activity in question" (p. 50). Among these four aspects raised by Gardner, the latter three usually differ from individual to individual, and thus become the important elements to measure one's learning motivation.

It is not easy to relate the complicated construct of motivation to actual behaviors and build up a certain single model, let alone the specific motivation of learning a second language (Kálmán and Eugenio, 2015). According to Dörnyei (2005), the development of studies about second language motivation started from a social psychological perspective. The researchers on the Canadian ethnolinguistic communities (English and French) conducted some of the most representative social psychological studies of L2 motivation, and the leading roles, Gardner and Lambert, have discovered the significant influence of L2 learning motivation on improving language proficiency and eventually strengthening interactions between cultures (Gardner and Lambert, 1972). Later, researcher turned to a cognitive-situated perspective, and more studies began to put emphasis on the learning experiences in a language classroom (Dörnyei, 2005). With more attention to the specific context of L2 learning, the self-determination theory analyzes L2 learner's motivation from both intrinsic and extrinsic perspectives (Deci and Ryan, 1985). The intrinsic motivation (IM) indicates the willingness to conduct an activity because it brings the feeling of satisfaction, and in L2 learning, it is the "innate needs for competence and self-determination" (Noels et al., 2000, p. 61). IM can be divided into three types: IM – Knowledge describes the desire for new information, IM – Accomplishment aims at the realization of a goal, and IM-Stimulation is for the exciting feeling of participating throughout an assignment (Noels et al., 2000). The extrinsic motivation (EM), on the other hand, brings learners the energy to conduct the learning actions with an instrumental purpose, and based on the level of influence on the learners' self-determination, EM can be divided into external regulation, introjected regulation, and identified regulation (Noels et al., 2000). In the research, Deci and Ryan (1985) proposed a continuum of different forms of extrinsic motivation, with amotivation and intrinsic motivation on the two ends (Kálmán and Eugenio, 2015), and they discovered that learners who are more motivated from the inside and receive more support from the surrounding social environment can be more self-determined in the language learning process (Deci and Ryan, 1985). Noels et al. (2000) further extended the idea and introduced a Language Learning Orientations Scale (LLOS-IEA) with seven correlated subscales, and the results suggest that intrinsic motivation and extrinsic motivation may appear in separate continuums but the general findings are consistent with the previous research. These definitions of extrinsic and intrinsic motivation have been gradually modified, specifically in the EFL context, for learners nowadays are largely motivated by the abundant international opportunities with the phenomenon of Global English (Lamb, 2003; Lanvers, 2017), and the increasing intercultural influence of learners' attitudes toward language learning should also be considered during evaluations. Dong et al. (2022) explored the relations among foreign language (FL) classroom anxiety, enjoyment, expectancy-value motivation, and their predictive effects on Chinese high school students' self-rated FL proficiency. Two hundred and eighty senior high school Chinese English as FL learners answered a battery of questionnaires. The study showed that the students generally had a medium to a high level of FL classroom emotions and English learning motivation, and

that motivation and anxiety jointly significantly predicted the students' self-rated FL proficiency.

Despite the plethora of research on L2 motivation, more continuous research is needed on students with various backgrounds, since motivation is dynamic and is continuously shaped by the learning environment (Gong et al., 2020).

Self-efficacy

The concept of self-efficacy was introduced by Bandura (1986) as a part of his social cognitive theory, and it refers to "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Self-efficacy can help the individual to decide which task to take, how much time and energy to spend on the task and how determined when encountering obstacles (Wang et al., 2018).

Bandura (1997) mentioned that four different sources can help to raise one's self-efficacy: previous successful experience of participating in the same or similar activities, seeing others dealing with the same task easily, encouragement or recognition from others and the positive emotional status of one's own. In the context of learning a second language, studies have shown that L2 learners with a high level of self-efficacy are those who receive encouragement and assistance by the instructors (Graham et al., 2020; Xu et al., 2022), actively learn from a leading student (Wang and Sun, 2020) and willingly apply more learning strategies to enhance their involvement in class (Anam and Stracke, 2020). The study of Xu et al. (2022) showed that after an intensive summer English training program, where all four sources can be found, learners' self-efficacy was largely improved. Also, the study of Chou (2019) on 636 high school students preparing for the college entrance examination indicated that the students' performance in recent English tests (previous experience) and test anxiety (emotional status) can be considered two predictors of their self-efficacy toward the incoming exams. In addition, self-efficacy of learning the same second language may vary among learners with different features, for instance, the purpose of learning (Wang et al., 2018) and the learners' first languages (Kim et al., 2021).

At the same time, self-efficacy can also influence L2 learner's learning experience and results (Ozer and Akçayoğlu, 2021). Studies indicate that leaners with a high level of self-efficacy may feel more confident during language learning (Sabti et al., 2019), more motivated with the intention of conducting language learning activities (Mayfield and Mayfield, 2012; Doménech-Betoret et al., 2017; Anam and Stracke, 2020; Mendoza et al., 2022), and less anxious when dealing with learning issues (Yun et al., 2018; Pawlak and Csizér, 2022). Wang et al. (2021) discovered that for Chinese undergraduate students learning English, a high self-efficacy can bring them more positive emotions during the learning experience including pride and joy, and similarly, Japanese EFL learners have also felt more motivated in reading and listening when owning a positive self-efficacy (Chen et al., 2021). Also, multiple researchers have discovered that EFL learners with high level of self-efficacy tend to achieve better results in all four skills of writing, listening, reading, and speaking (Chen and Zhang, 2019; Wang and Sun, 2020; Mendoza et al., 2022).

Relationship between foreign language anxiety and language learning motivation

Studies about the relationship between anxiety and motivation have come up with different conclusions. A large number of scholars hold the belief that anxiety and motivation are negatively correlated. For instance, Gardner et al. (1983) discovered that Canadian students who speak English may encounter different levels of anxiety in learning French, and those with better prior achievement and more motivation are likely to experience less anxious feelings. Similar results can also be found at Amiryousefi and Tavakoli's (2011) study on test takers of TOEFL iBT and Alico's (2016) analysis on the writing proficiency of pre-university students in the Philippines. At the same time, however, there are also some other opinions, for example, learners who are anxious may be more motivated (Strack et al., 2014) and it is motivation affects anxiety instead of the other way (Lavasani et al., 2011). Luo et al. (2020) examined Chinese college students' attitudes and feelings in learning the second language, classified anxiety into the facilitating type and the debilitating type, and concluded that anxiety can be "significantly and positively correlated with all types of motivation" (Luo et al., 2020, p. 66). Nagle (2021) found that students' willingness to communicate in Spanish was predicted by their attainment value and intrinsic value, and that the course achievement was predicted by their expectancy beliefs. Dong et al.'s (2022) study revealed a complex correlation between the students' FL classroom anxiety and expectancy-value motivation: As the students' FL classroom anxiety increased, their expectancy beliefs, intrinsic value, attainment value, and utility value decreased, but their cost value increased.

Research questions

As discussed above, foreign language anxiety, language learning motivation, and self-efficacy are all important factors in second language acquisition and learning despite learners' ages, nationalities, and educational backgrounds. Nevertheless, just because of the complexity of learner populations and second language learning process, more and continuous research on these issues are still called for. And although some research shows that they interact with one another and collectively affect second language learning outcomes, little research has examined their interaction simultaneously in the same situation. Moreover, there is hardly any research focusing specifically on top students' attitudes toward learning a second language and how these attitudes affect their language proficiency. Hence, this research

sought to examine English class anxiety, motivation, and self-efficacy in students from various top-notch programs of a top university in China. The following research questions were of particular interest:

1. What are the profiles of the participants in terms of English proficiency, English use anxiety, motivation, and self-efficacy?
2. What is the relationship between the participants' English use anxiety, motivation, and self-efficacy?
3. How do English use anxiety, motivation, and self-efficacy affect the participants' standardized test scores?

Methodology

Context

To foster talents and prepare them to be worldwide first-class scholars in basic yet important disciplines such as mathematics and physics, China's Ministry of Education initiated the Top-Notch Students of Basic Disciplines Training Program in about 15 top universities in 2009. To join the program, students must do well in the National College Entrance Examinations to be admitted by a member university, and then excel in the selective tests of the Top-Notch Program of the university. Each year, the program of each university admits around 200 out of about 4,000 students it enrolls. Students in the program often enjoy more and better resources than other students of the same university. For example, they are more likely to be taught by leading professors and be granted funds for learning and research. Consequently, they generally excel in many aspects and their way of learning is expected to be enlightening to other students. Nevertheless, since 2009 when the program was first launched, not much research has been done on the program or students, even less research in second language acquisition has been done on them. This mainly motivates the present research.

The present study was conducted in a highly prestigious state-owned research-oriented university in Beijing (Quacquarelli Symonds Limited, 2021; Timers Higher Education, 2021), whose Top-Notch Program had 7 classes of varying sizes (about 15–30 students per class) every year.

Participants

In total, 223 university students (167 male and 56 female) joined the study, and their average age is 19.67 (SD = 1.067), ranging from 16 to 22 years old. These participants are at different undergraduate years, and they are from various disciplines, including physics, mathematics, chemistry, biological science, life sciences, clinical medicine, computer science, artificial intelligence, interdisciplinary information sciences, theoretical and applied mechanics, foreign language and literature, and philosophy.

Instruments

The participants were required to accomplish a battery of questionnaires (see Appendix) about their personal information and attitudes toward statements related to English use anxiety, motivation, and self-efficacy. The questionnaire consisted of five sections: an 11-item questionnaire of background information, an 8-item English Class Anxiety Questionnaire, a 5-item Motivational Self-Talk Questionnaire, a 3-item Self-Efficacy Questionnaire, and a 19-item Language Learning Orientations Questionnaire. Except for the first section, all statements were placed on a 5-point Likert scale with "strongly disagree" and "strongly agree" on each end.

Background Information (Item 1–11): In this section, participants' age, gender, major, grade, and time length of English use per day were required. Also, participants' level of English proficiency was recorded in two ways: one was the score of the most recent standardized English test they had taken, for instance, International English Language Testing System (IELTS) or College English Test (CET). The other was the self-rated proficiency of their English speaking, writing, listening, reading, and overall performance, respectively, and each item was reflected on a 1-to-10 scale, with 1 being "not at all satisfied" and 10 being "very satisfied."

English Use Anxiety Questionnaire (Item 12–19): Gardner's (1985) Attitude/Motivation Test Battery included an 8-item French Class Anxiety Scale that examined L2 learners' anxious feelings of answering questions in a French class. The current study adapted this scale by changing 'the target language' to 'English' in all items, aiming to measure students' anxiety when using English in class.

Motivational Self-Talk Questionnaire (Item 20–24): This questionnaire was adapted from that in Teng and Zhang (2016), aiming to examine how learners' self-talk motivated themselves to continue to learn English. Since the original design was specifically for examining how learners convinced and encouraged themselves to improve their own writing skills, the current study abandoned three statements that focused on writing proficiency and rephrased the other five to fit the English learning experience in general.

Self-Efficacy Questionnaire (Item 25–27): With reference to the self-efficacy questionnaire used in Wong (2005), a three-item Self-Efficacy Questionnaire was developed in the present study: I believe that I am capable of learning English well; I believe that I know how to find the efficient way of learning English; and I believe that I can reach a high level of English proficiency someday.

Language Learning Orientations Questionnaire (Item 28–46): The questionnaire used in the current study is based on the Language Learning Orientations Scale of Noels et al. (2000), which evaluated participants' amotivation, external regulation, introjected regulation, identified regulation, and the three

TABLE 1 Means, standard deviations and correlations of English achievements measured in different ways.

	Mean	SD	2	3	4	5	6
1. Standardized test scores	80.29	9.79	0.487**	0.443**	0.534**	0.443**	0.323**
2. Overall English proficiency	5.54	2.02	1	0.810**	0.853**	0.757**	0.793**
3. Speaking proficiency	4.77	2.31		1	0.821**	0.576**	0.652**
4. Listening proficiency	5.40	2.44			1	0.705**	0.676**
5. Reading proficiency	6.50	2.03				1	0.724**
6. Writing proficiency	5.22	2.07					1

**$p \leq 0.01$.

aspects—knowledge, accomplishment and stimulation—of intrinsic motivation. In the current research, the amotivation section was irrelevant and thus removed, and the rest parts of the questionnaire were adapted to fit in the context of top student in top university. In general, 19 statements were listed for learners to evaluate if they had experienced motivation coming from different resources during English learning and using.

Data collection and analysis

The questionnaires were in Chinese, and they were organized and distributed online to the participants. In total, 223 valid questionnaires were collected and analyzed via SPSS 27. Since the scores of different standard tests were provided under different marking systems (for instance the full marks are 346 for Graduate Record Examination (GRE), 120 for Test of English as a Foreign Language (TOEFL), 9 for International English Language Testing System (IELTS), and 710 for CET-4/6), they were all converted to the centesimal system for computing and analysis. Also, by averaging the scores of related items, the 35 statements of the four latter questionnaires corresponded to 9 variables for analysis: Use of English anxiety (UAE, item 12–19), Motivational Self-Talk (MST, item 20–24), Self-Efficacy in learning English (SE, item 25–27), Extrinsic Motivation – External Regulation (ER, item 28–31), Extrinsic Motivation – Introjected Regulation (IntroR, item 32–34), Extrinsic Motivation – Identified Regulation (IdenR, item 35–37), Intrinsic Motivation – Knowledge (IMK, item 38–40), Intrinsic Motivation – Accomplishment (IMA, item 41–43), and Intrinsic Motivation – Stimulation (IMS, item 44–46). Means and standard deviations of various items were firstly computed to indicate the general features of the participants, then the relations between different variables were analyzed via correlation analysis and regression analysis.

Results

Participants' profiles of English proficiency, English use anxiety, motivation, and self-efficacy

According to the collected data, the participants reported using English for 2.12 h (SD = 1.10) on average per day after entering university. One hundred and ninety-one out of the 223 participants had taken part in a standardized English proficiency test like GRE, TOEFL, IELTS, CET-4, CET-6, Test for English Majors (TEM), and Tsinghua English Proficiency Test (TEPT) (English proficiency test of the university). The scores were then standardized on the scale of 1–100, which showed that the participants had an average score of 80.29 out of 100 (SD = 9.79). Data of self-ratings showed that the participants scored 4.77 to 6.50 in different aspects of English (see Table 1), indicating that the learners generally considered themselves intermediate learners of English in all aspects. Also, among all four English skills, the participants were the most satisfied with their reading proficiency (Mean = 6.50, SD = 2.03) and not so satisfied with their speaking proficiency (Mean = 4.77, SD = 2.31).

Meanwhile, Table 1 shows that the participants' achievements in different aspects of English were all highly positively correlated with one another, with a coefficient range of 0.323 to 0.853 ($p \leq 0.01$). Of all the self-ratings, self-rated proficiency in overall English had the highest coefficient with standardized tests scores ($r = 0.487$) and that in speaking proficiency ($r = 0.810$), listening proficiency ($r = 0.853$), reading proficiency ($r = 0.757$), and writing proficiency ($r = 0.793$), respectively. Thus, standardized test scores and self-rated proficiency in overall English were used as indicators of students' English achievements for further analyses in the present study.

Table 2 presents means, standard deviation, skewness, and reliability scores of the English Use Anxiety Scale (EUAS), the Motivational Self-Talk Questionnaire (MSTQ), the Self-Efficacy Questionnaire (SEQ), and the six dimensions of the Language Learning Orientations Questionnaire (LLOQ). Most of the scales were reliable in the present study, with reliability scores (Cronbach's alpha) ranging from 0.760 to 0.894, except for the Extrinsic Motivation – External Regulation section, with a reliability of 0.489. The low reliability was that there were only four items in this scale, all adapted to fit in the context of Chinese university students, and 223 participants were not a large sample size here.

As shown in Table 2, the participants scored 2.96 (SD = 0.85) on EUAS, 3.56 (SD = 0.87) on MSTQ, 3.73 (SD = 0.87) on SEQ, 2.86 (SD = 0.71) on external regulation, 2.14 (SD = 0.90) on introjected regulation, 3.71 (SD = 0.89) on identified regulation, 3.11 (SD = 1.08) on knowledge, 3.32 (SD = 0.99) on accomplishment, and 3.70 (SD = 1.06) on stimulation. These findings indicate that the participants reported having a low-to-medium level of anxiety when using English and a medium-to-high level of motivational

TABLE 2 Statistics of the measured variables on the scale of 1–5.

	Mean	SD	Skewness	Reliability (α)
English Use Anxiety Scale	2.96	0.85	0.190	0.878
Motivational self-talk questionnaire	3.56	0.87	−0.681	0.876
Self-efficacy questionnaire	3.73	0.87	−0.202	0.883
Extrinsic motivation – External regulation	2.86	0.71	0.057	0.489
Extrinsic motivation – Introjected regulation	2.14	0.90	0.562	0.822
Extrinsic motivation – Identified regulation	3.71	0.89	−0.444	0.760
Intrinsic motivation – Knowledge	3.11	1.08	0.001	0.894
Intrinsic motivation – Accomplishment	3.32	0.99	−0.187	0.875
Intrinsic motivation – Stimulation	3.70	1.06	0.240	0.863

self-talk and self-efficacy. Regarding the various types of motivation, they seemed to have a low level of extrinsic motivation – introjected regulation, a low-to-medium level of extrinsic motivation – external regulation and intrinsic motivation – knowledge, and a rather medium-to-high level of extrinsic motivation – identified regulation, intrinsic motivation – accomplishment and intrinsic motivation – stimulation. It also shows that all the scales had a normal distribution, with skewness values below 1.

Relationship between the participants' English use anxiety, motivation, and self-efficacy

Table 3 reports correlations among English use anxiety, motivation, and self-efficacy, which shows that: EUAS was significantly negatively related to SEQ ($r = -0.441$, $p \leq 0.01$), IMK ($r = -0.222$, $p \leq 0.01$) and IMS ($r = -0.151$, $p \leq 0.05$), and it was significantly positively related to IntroR ($r = 0.179$, $p \leq 0.01$), in which the correlation was moderate with SEQ ($0.4 < |r| < 0.6$), weak with IMK ($0.2 < |r| < 0.4$), and very weak with IMS and IntroR ($0 < |r| < 0.2$). EUAS had no significant correlations with MSTQ, ER, IdenR, and IMA. MSTQ had a significant and positive relation with SEQ ($r = 0.325$, $p \leq 0.01$) and all six sections of LLOQ ($r > 0$, $p \leq 0.01$), in which the correlation was weak with SEQ, ER, and IntroR ($0.2 < |r| < 0.4$) and moderate with IdenR, IMK, IMA, and IMS ($0.4 < |r| < 0.6$). SEQ had a significant and positive relation with five sections of LLOQ ($r > 0$, $p \leq 0.01$), except the section of IntroR, which was significantly negatively related ($r = -0.124$, $p \leq 0.01$), and the correlations were very weak ($0 < |r| < 0.2$) both ER and IntroR, weak ($0.2 < |r| < 0.4$) with both IMA and IMS, and moderate with IdenR and IMK ($0.4 < |r| < 0.6$). At last, all six sections of LLOQ (ER, IntroR, IdenR, IMK, IMA, and IMS) are significantly positively correlated with each other ($r > 0$, $p \leq 0.01$), with the weakest correlation between IntroR and IdenR ($0 < |r| = 0.179 < 0.2$) and the strongest between IMK and IMA ($0.6 < |r| = 0.732 < 0.8$).

To explore whether English use anxiety, language learning motivation, and self-efficacy predicted students' English achievements, multiple stepwise regression analyses were done, with EUAS, SEQ, and IMK being independent variables and standardized test scores and the self-rated overall English proficiency being the dependent variable, respectively. The results are reported in the tables below.

As shown in Table 4, regression analyses yielded two models with the change in R2 being 0.166 for model 1 (IMK) and 0.031 for model 2 (IMK and EUAS) for standardized test scores. Namely, IMK (intrinsic motivation-knowledge; $\beta = 0.268$, $t = 3.99$, $p = 0.000$, $f2 = 0.28$) and EUAS (English Use Anxiety Scale; $\beta = -0.266$, $t = -3.965$, $p = 0.000$, $f2 = 0.17$) were good predictors for the participants' standardized test scores, with the first being a positive and the second a negative predictor.

Regression analyses also yielded two models with the change in R2 being 0.357 for model 1 (EUAS) and 0.073 for model 2 (EUAS and SEQ) for self-rated proficiency in overall English. Namely, EUAS (English Use Anxiety Scale; $\beta = -0.465$, $t = -8.200$, $p = 0.000$, $f2 = 0.07$) and SEQ (Self-Efficacy Questionnaire; $\beta = 0.300$, $t = 5.291$, $p = 0.000$, $f2 = 0.17$) were good predictors for the participants' self-rated proficiency in overall English, with the first being a negative and the second a positive predictor.

In the text here, only the significant predictors were listed. In addition, the diagnostics information indicated two outliers in each model, and despite the outliers, the histograms, normal P–P plots, and scatterplots of the model showed that most data fit the specified distribution in the models.

Effect of English use anxiety, motivation, and self-efficacy on participants' standardized test scores

Self-efficacy is the subjective evaluation of oneself, and it influences people's choices, attitudes towards difficulties, performance in the process of acquisition, and the emotional status, and it thus can exert strong mediating effect on the results and output (Bandura, 1997). This section of the study examined if self-efficacy mediated the influence of English use anxiety and motivation on the participants' English achievements, represented by the standardized test scores (STS), according to Table 5 (Baron and Kenny, 1986). In step 1, the dependent variable was the

TABLE 3 Correlations among English use anxiety, motivation, and self-efficacy.

	1	2	3	4	5	6	7	8	9
1. EUAS	1	0.040	−0.441**	0.020	0.179**	−0.120	−0.222**	−0.077	−0.151*
2. MSTQ		1	0.325**	0.336**	0.263**	0.579**	0.526**	0.615**	0.493**
3. SEQ			1	0.176**	−0.134*	0.426**	0.443**	0.386**	0.349**
4. ER				1	0.463**	0.363**	0.270**	0.330**	0.374**
5. IntroR					1	0.179**	0.256**	0.274**	0.439**
6. IdenR						1	0.698**	0.681**	0.510**
7. IMK							1	0.732**	0.686**
8. IMA								1	0.691**
9. IMS									1

**$p \leq 0.01$; *$p \leq 0.05$.
EUAS, English Use Anxiety Scale (EUAS); MSTQ, Motivational Self-Talk Questionnaire; SEQ, Self-Efficacy Questionnaire; ER, Extrinsic motivation – External Regulation; IntroR, Extrinsic motivation – Introjected Regulation; IdenR, Extrinsic motivation – Identified Regulation; IMK, Intrinsic Motivation – Knowledge; IMA, Intrinsic Motivation – Accomplishment; IMS, Intrinsic Motivation – Stimulation.
Coefficient of determination: small = $r \leq 0.1$; medium = $r = 0.3$; large = $r \geq 0.5$ (Cohen, 1988).

TABLE 4 Multiple regression coefficients and significance of predictors for English achievements.

	β	*t*	*p*	VIF	Cohen's *f*2
Model 1 with standardized test scores as the dependent variable					
IMK	0.268	3.99**	0.000	1.082	0.28
EUAS	−0.266	−3.965**	0.000	1.082	0.17
Model 2 with self-rated proficiency in overall English as the dependent variable					
EUAS	−0.465	−8.200**	0.000	1.242	0.07
SEQ	0.300	5.291**	0.000	1.242	0.17

**$p \leq 0.01$.
Effect size of Cohen's *f*2: small = $f2 \leq 0.02$; medium = $f2 = 0.15$; large = $f2 \geq 0.35$ (Cohen, 1988).

standardized test scores. With an R2 of 0.206, the standardized coefficient of EUAS was significant ($\beta = -0.318$, $p = 0.000$) and that of IMK was also significant ($\beta = 0.246$, $p = 0.000$). Then R2 in step 2 is 0.361 and the dependent variable was SE. Both standardized coefficients of EUAS ($\beta = -0.405$) and IMK ($\beta = 0.050$) were significant ($p = 0.000$). At last, all three standardized coefficients were significant when the dependent variable is the standardized test score. The data for each term were SE ($\beta = 0.185$, $p = 0.022$), EUAS ($\beta = -0.243$, $p = 0.001$) and IMK ($\beta = 0.183$, $p = 0.012$). Since the effects of both EUAS and IMK decreased after SE was introduced into the model, the influences of both EUAS and IMK on STS were partially mediated by SE (Wen et al., 2004).

Discussion

Participants' profiles of English proficiency, English use anxiety, motivation, and self-efficacy

Firstly, when dealing with English use and learning, the participants experienced a medium-to-low level of anxiety, and the fact that English use anxiety and the participants' language proficiency (reflected both in standardized language test scores and self-rated scores) were significantly negatively correlated was in accordance with the discoveries of multiple previous researchers (Gardner and Mac Intyre, 1993; MacIntyre et al., 1998; Onwuegbuzie et al., 1999; Elkhafaifi, 2005). Secondly, they had a medium-to-high level of self-efficacy and conducted motivational self-talks quite often, which may explain the difference between participants' standardized test scores and their self-evaluation of English proficiency. Despite the fact that the average score in language tests was as high as 80.29%, their self-evaluation was only at a medium stage (5.54 out of 10), and the separate scores for the four English skills were 6.50 for reading, 5.40 for listening, 5.22 for writing, and 4.77 for speaking. The participants tended to give a rather modest evaluation on their English proficiency, this action fit with their medium-to-high level of self-efficacy (Bandura, 1986), which then led to setting the goal lower than their actual abilities and gain more satisfaction when they actually reached a high level of result. Therefore, the students could be highly motivated by identified regulation, which is the type of extrinsic motivation with the highest level of self-determination (Noels et al., 2000), and they were also intrinsically motivated by sensation of mastering the skill (IM – Accomplishment) and excitement of fulfilling the work (IM – Stimulation). Meanwhile, the students only had a low or low-to-medium level of the other two types of extrinsic motivation (introjected and external regulation), and the intrinsic motivation of acquiring knowledge was also at a low-to-medium level. For these top students majoring in different subjects, learning English was no longer a compulsory requirement of the university, so they were more motivated by their internal satisfaction and personal needs but less influenced by external factors.

The regression analyses of how anxiety and motivation affect English achievements were conducted, and the results indicated a significant influence on both the scores of standardized tests and the self-rated proficiency. The effect of learning motivation was positive, and students who were more motivated tended to perform better in language tests and consider themselves more proficient in using English. Oppositely, the impact of English use

TABLE 5 Multiple regression analysis for examining the mediating effect.

	Unstandardized coefficients		Standardized coefficients	*t*	*p*	VIF	*R* square	Adj. *R* square	*F*
	B	Std. error	Beta						
Step 1[a,c]									
Constant	85.08	3.463		24.565	0.000**				
EUAS	−3.699	0.789	−0.318	−4.69	0.000**	1.088			$F(2188) = 24.449$,
IMK	2.236	0.615	0.246	3.636	0.000**	1.088	0.206	0.198	$p = 0.000$
Step 2[b,d]									
Constant	4.092	0.281		14.567	0.000**		0.361	0.354	$F(2188) = 53.080$,
EUAS	−0.426	0.064	−0.405	−6.664	0.000**	1.088			$p = 0.000$
IMK	0.281	0.05	0.343	5.635	0.000**	1.088			
Step 3[a,c]									
Constant	79.694	4.996		15.35	0.000**		0.228	0.216	$F(3187) = 18.445$,
SE	2.05	0.889	0.185	2.305	0.022*	1.565			$p = 0.000$
EUAS	−2.826	0.867	−0.243	−3.259	0.001**	1.345			
IMK	1.66	0.657	0.183	2.526	0.012*	1.272			

**$p \leq 0.01$; *$p \leq 0.05$.
[a]Dependent Variable: STS.
[b]Dependent Variable: SE.
[c]D-W: 1.999.
[d]D-W: 1.888.

anxiety could be adverse, interfering the learners' performance in taking language tests and causing them to underestimate their own language proficiency.

Relationship between the participants' English use anxiety, motivation, and self-efficacy

English use anxiety and language learning motivation were negatively correlated in the current study, and the correlation was specifically significant between anxiety and intrinsic motivation – knowledge, as well as between anxiety and intrinsic motivation – stimulation. Referring to the statements of the questionnaires, English L2 learners who are more anxious with using the language may be feel less willing to joining the course or related activities, which then influences the process of knowledge acquisition. In this way, the intrinsic motivation towards learning new information will be diminished. Also, without enough knowledge learned, the capability of speaking (MacIntyre, 2007), writing (Alico, 2016), reading (Saito et al., 1999), and listening (Amiryousefi and Tavakoli, 2011) may all be affected, and the feeling of success or accomplishment can hard be realized. Therefore, the motivation of stimulation cannot be triggered. In all, the discoveries of the current study are consistent with that of many previous researchers on the relationship between English use anxiety and learning motivation (Gardner et al., 1983; Amiryousefi and Tavakoli, 2011; Alico, 2016). Also, the results of the analysis indicated that learners with high self-efficacy tend to be less anxious, more confident and more motivated in language learning, which is consistent with the previous studies of how self-efficacy influences language learning emotions and attitudes (Mayfield and Mayfield, 2012; Anam and Stracke, 2020; Wang et al., 2021; Mendoza et al., 2022; Pawlak and Csizér, 2022).

Effect of English use anxiety, motivation, and self-efficacy on participants' standardized test scores

The mediating effect of self-efficacy was also proved in the study. Firstly, a high level of self-efficacy emphasizes on the learners' self-confidence in accomplishing the learning assignments and language tests, so that the learners are more determined in their language skills, which can balance the negative effect caused by the anxiety (Wong, 2005) and lead to a better result in the standardized tests. Also, instead of being fully motivated by the intrinsic desire toward new knowledge, these participants from universities, who may feel less necessary to acquire new knowledge in language learning, can be motivated by their own self-efficacy in the general experience of language learning, which offers them more confidence in handling the language skills they have already owned and applying the skills to language tests for higher scores. In other words, the participants' self-efficacy may affect the original influence of either anxiety of motivation by reducing the negative attitude and providing one more source of positive feeling, which then helps them to reach better language achievements than those with low self-efficacy (Mayfield and Mayfield, 2012; Sabti et al., 2019).

Conclusion and implications

The present study explored how English use anxiety, language learning motivation, and self-efficacy were related to one another and how they collaboratively predicted English achievements of students in top-notch programs of a top university in China. Major findings were:

1. The participants had a low-medium level of English use anxiety, and among different types of motivations, extrinsic motivation – introjected regulation was the least detected (low level), extrinsic motivation – external motivation and intrinsic motivation – knowledge was the next in line (low-to-medium level), while extrinsic motivation – identified regulation, intrinsic motivation – accomplishment and intrinsic motivation – stimulation were mostly recognized (medium-to-high level). Also, the participants had a medium-to-high level of motivational self-talk and self-efficacy.
2. English use anxiety and language learning motivation were negatively correlated with each other, and to be more specific, English use anxiety was significantly negatively correlated with both intrinsic motivation – knowledge and intrinsic motivation – stimulation.
3. English use anxiety significantly negatively predicted the learners' English achievements, while intrinsic motivation-knowledge and self-efficacy significantly positively predicted the learners' standardized test results and self-rated proficiency in overall English, respectively.
4. Self-efficacy of the learners mediated the influence of anxiety and motivation on the top students' English achievements.

These findings further pinpoint the importance of English use anxiety, motivation, and self-efficacy in second language acquisition and learning. They also brought attention to the affect of top students of top universities, focusing on how these leading learners of various disciplines evaluate their language use anxiety, motivation, and self-efficacy. The results showed that for top students in various academic fields, learning and using English still occupies a part of their daily life, and they are mostly motivated by internal determination of accomplishing English-related tasks and the excitement of reaching the goals instead of the external regulations. Consistent with previous research, participants in current studies also experienced negative effects of anxiety and positive influence of motivation on their language achievements, and those with high self-efficacy can deal with the effect better. Besides conveying academic information, L2 teachers should pay more attention to understanding and sensing learners' attitudes and emotions, and build up efficient regulatory strategies to help the learners cope with tension and stay motivated, so that to reach better performance in both teaching and learning. At the same time, L2 learners, especially the self-taught ones, should be aware of the emotional changes and take active steps to keep a positive attitude toward the learning experience.

The current study has some certain limitations. Firstly, the participants took part in different types of standardized tests, and these tests do not always share the same evaluation criteria or level of difficulty. Though the self-evaluation of the participants was also included to provide a more comprehensive image of learner's language proficiency in the current study, future studies could still discover better ways to describe the participants' language skills in a more unified manner. Also, this research did not continue to discover how L2 learners cope with their anxiety or develop their motivation, which can be examined by further studies of learning strategies and learning styles. Another aspect that can be included in the following studies is the individual differences among the participants, for instance how English learning has benefited their university life and study of their own majors. These qualitative studies could be realized via interviews or open-ended questionnaires.

Data availability statement

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

Author contributions

XW: design of study, analysis and interpretation of data, writing-review and editing, and supervision. HY: writing-original draft and analysis and interpretation of data. JL and ZL: data collection. 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

Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.953600/full#supplementary-material

References

Aida, Y. (1994). Examination of Horwitz, Horwitz, and Cope's construct of foreign language anxiety: the case of students of Japanese. *Mod. Lang. J.* 78, 155–168. doi: 10.2307/329005

Alico, J. C. (2016). Writing anxiety and language learning motivation: examining causes, indicators, and relationship. *Commun. Linguist. Stud.* 2, 6–12. doi: 10.11648/j.cls.20160201.12

Amiryousefi, M., and Tavakoli, M. (2011). The relationship between test anxiety, motivation and MI and the TOEFL iBT reading, listening and writing scores. *Procedia Soc. Behav. Sci.* 15, 210–214. doi: 10.1016/j.sbspro.2011.03.075

Anam, S., and Stracke, E. (2020). The role of self-efficacy beliefs in learning English as a foreign language among young Indonesians. *TESOL J.* 11, 1–12. doi: 10.1002/tesj.440

Bailey, K. M. (1983). "Competitiveness and anxiety in adult second language learning: looking at and through the diary studies," in *Classroom Oriented Research in Second Language Acquisition*. eds. H. W. Seliger and M. H. Long (Rowley, MA: Newbury House), 67–102.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs: Prentice-Hall.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York: W. H. Freeman.

Baron, R. M., and Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *J. Pers. Soc. Psychol.* 51, 1173–1182. doi: 10.1037/0022-3514.51.6.1173

Busato, V. V., Prins, F. J., Elshout, J. J., and Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personal. Individ. Differ.* 29, 1057–1068. doi: 10.1016/S0191-8869(99)00253-6

Chen, X., Lake, J., and Padilla, A. M. (2021). Grit and motivation for learning English among Japanese university students. *System* 96:102411. doi: 10.1016/j.system.2020.102411

Chen, J., and Zhang, L. J. (2019). Assessing student-writers' self-efficacy beliefs about text revision in EFL writing. *Assess. Writ.* 40, 27–41. doi: 10.1016/j.asw.2019.03.002

Chou, M.-H. (2019). Predicting self-efficacy in test preparation: gender, value, anxiety, test performance, and strategies. *J. Educ. Res.* 112, 61–71. doi: 10.1080/00220671.2018.1437530

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Hillsdale: Erlbaum.

Deci, E. L., and Ryan, R. M. (1985). *Intrinsic Motivation and Self-determination in Human Behavior*. New York: Plenum.

Dewaele, J.-M., and MacIntyre, P. D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Stud. Second Lang. Learn. Teach.* 4, 237–274. doi: 10.14746/sslt.2014.4.2.5

Dikmen, Y., Aksakal, K. B., and Yılmaz, D. K. (2016). An investigation of cultural sensitivity of nurses in foreign patient care: a descriptive study in Turkey. *Int. J. Health Sci. Res.* 6, 254–261.

Doménech-Betoret, F., Abellán-Roselló, L., and Gómez-Artiga, A. (2017). Self-efficacy, satisfaction, and academic achievement: the mediator role of students' expectancy-value beliefs. *Front. Psychol.* 8:1193. doi: 10.3389/fpsyg.2017.01193

Dong, L., Liu, M., and Yang, F. (2022). The relationship between foreign language classroom anxiety, enjoyment, and expectancy-value motivation and their predictive effects on Chinese high school students' self-rated foreign language proficiency. *Front. Psychol.* 13:860603. doi: 10.3389/fpsyg.2022.860603

Dörnyei, Z. (2005). *The Psychology of the Language Learner: Individual Differences in Second Language Acquisition*. Mahwah, NJ: Lawrence Erlbaum.

Elkhafaifi, H. (2005). Listening comprehension and anxiety in the Arabic language classroom. *Mod. Lang. J.* 89, 206–220. doi: 10.1111/j.1540-4781.2005.00275.x

Gardner, R. C. (1985). *Social Psychology and Second Language Learning: The Role of Attitudes and Motivation*. London: Edward Arnold.

Gardner, R. C., Lalonde, R. N., and Pierson, R. (1983). The socio-educational model of second language acquisition: an investigation using LISREL causal modeling. *J. Lang. Soc. Psychol.* 2, 1–15. doi: 10.1177/0261927X8300200101

Gardner, R. C., and Lambert, W. E. (1972). *Attitudes and Motivation in Second Language Learning*. Rowley, MA: Newbury House.

Gardner, R. C., and Mac Intyre, P. D. (1993). On the measurement of affective variables in second language learning. *Lang. Learn.* 43, 157–194. doi: 10.1111/j.1467-1770.1992.tb00714.x

Gong, Y., Ma, M., Hsiang, T. P., and Wang, C. (2020). Sustaining international students' learning of Chinese in China: shifting motivations among New Zealand students during study abroad. *Sustainability* 12, 6289–6302. doi: 10.3390/su12156289

Graham, S., Woore, R., Porter, A., Courtney, L., and Savory, C. (2020). Navigating the challenges of L2 reading: self-efficacy, self-regulatory reading strategies, and learner profiles. *Mod. Lang. J.* 104, 693–714. doi: 10.1111/modl.12670

Horwitz, E. K. (2010). Foreign and second language anxiety. *Lang. Teach.* 43, 154–167. doi: 10.1017/S026144480999036X

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x

Dewaele, J.-M., and Ip, T. S. (2013). The link between foreign language classroom anxiety, second language tolerance of ambiguity and self-rated English proficiency among Chinese learners. *Stud. Second Lang. Learn. Teach.* 3:47. doi: 10.14746/sslt.2013.3.1.3

Jee, M. J. (2016). Exploring Korean heritage language learner's anxiety: 'we are not afraid of Korean!'. *J. Multiling. Multicult. Dev.* 37, 56–74. doi: 10.1080/01434632.2015.1029933

Jiang, Y., Rosenzweig, E. Q., and Gaspard, H. (2018). An expectancy-value-cost approach in predicting adolescent students' academic motivation and achievement. *Contemp. Educ. Psychol.* 54, 139–152. doi: 10.1016/j.cedpsych.2018.06.005

Kálmán, C., and Eugenio, E. G. (2015). Successful language learning in a corporate setting: the role of attribution theory and its relation to intrinsic and extrinsic motivation. *Stud. Second Lang. Learn. Teach.* 5, 583–608. doi: 10.14746/sslt.2015.5.4.4

Khaing, N. O. M. (2021). The relationship between motivation for learning English as a foreign language and English academic achievement of Pathein university students in Myanmar. *Lang. India* 21, 44–57.

Kim, D.-H., Wang, C., and Truong, T. N. N. (2021). Psychometric properties of a self-efficacy scale for English language learners in Vietnam. *Lang. Teach. Res.* 136216882110278. doi: 10.1177/13621688211027852

Lamb, M. (2003). Integrative motivation in a globalizing world. *System* 32, 3–19. doi: 10.1016/j.system.2003.04.002

Lanvers, U. (2017). Language learning motivation, global English and study modes: a comparative study. *Lang. Learn. J.* 45, 220–244. doi: 10.1080/09571736.2013.834376

Lavasani, M. G., Weisani, M., and Ejei, J. (2011). The role of achievement goals, academic motivation, and learning strategies in statistics anxiety: testing a causal model. *Procedia Soc. Behav. Sci.* 15, 1–13. doi: 10.1016/j.sbspro.2011.04.020

Liu, M., and Hong, M. (2021). English language classroom anxiety and enjoyment in Chinese young learners. *SAGE Open* 11, 1–13. doi: 10.1177/21582440211047550

Liu, M., and Zhang, Y. (2022). Relations among and predictive effects of Chinese-learning motivation, use of Chinese and proficiency in Chinese on international students' intercultural sensitivity. *J. Int. Intercult. Commun.* 1–21. doi: 10.1080/17513057.2022.2086993

Lou, N. M., and Noels, K. A. (2017). Measuring language mindsets and modeling their relations with goal orientations and emotional and behavioral responses in failure situations. *Mod. Lang. J.* 101, 214–243. doi: 10.1111/modl.12380

Luo, Z., Subramaniam, G., and O'Steen, B. (2020). Will anxiety boost motivation? The relationship between anxiety and motivation in foreign language learning. *Malays. J. ELT Res.* 17, 53–71.

MacIntyre, P. D. (2007). Willingness to communicate in the second language: understanding the decision to speak as a volitional process. *Mod. Lang. J.* 91, 564–576. doi: 10.2307/4626086

MacIntyre, P. D., Dörnyei, Z., and Clément, R. (1998). Conceptualizing willingness to communicative in a L2: a situational model of L2 confidence and affiliation. *Mod. Lang. J.* 82, 545–562. doi: 10.1111/j.1540-4781.1998.tb05543.x

MacIntyre, P. D., and Gardner, R. C. (1991). Language anxiety: its relationship to other anxieties and to processing in native and second languages. *Lang. Learn.* 41, 513–534. doi: 10.1111/j.1467-1770.1991.tb00691.x

MacIntyre, P. D., and Gardner, R. C. (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Lang. Learn.* 44, 283–305. doi: 10.1111/j.1467-1770.1994.tb01103.x

Mayfield, J., and Mayfield, M. (2012). The relationship between leader motivating language and self-efficacy: a partial least squares model analysis. *J. Bus. Commun.* 49, 357–376. doi: 10.1177/0021943612456036

Mendoza, L., Lehtonen, T., Lindblom-Ylänne, S., and Hyytinen, H. (2022). Exploring first-year university students' learning journals: conceptions of second language self-concept and self-efficacy for academic writing. *System* 106:102759. doi: 10.1016/j.system.2022.102759

Muircheartaigh, J., and Hickey, T. (2008). Academic outcome, anxiety and attitudes in early and late immersion in Ireland. *Int. J. Biling. Educ. Biling.* 11, 558–576. doi: 10.1080/13670050802149184

Nagle, C. (2021). Using expectancy value theory to understand motivation, persistence, and achievement in university-level foreign language learning. *Foreign Lang. Ann.* 54, 1238–1256. doi: 10.1111/flan.12569

Noels, K. A., Pelletier, L. G., and Vallerance, R. J. (2000). Why are you leaning a second language? Motivational orientations and self-determination theory. *Lang. Learn.* 50, 57–85. doi: 10.1111/0023-8333.00111

Onwuegbuzie, A. J., Baiely, P., and Daley, C. E. (1999). Factors associated with foreign language anxiety. *Appl. Psycholinguist.* 20, 217–239. doi: 10.1017/S0142716499002039

Özer, S. (2019). An investigation of attitude, motivation and anxiety levels of students studying at a faculty of tourism towards vocational English course. *J. Lang. Linguist. Stud.* 15, 560–577. doi: 10.17263/jlls.586246

Ozer, O., and Akçayoğlu, D. İ. (2021). Examining the roles of self-efficacy beliefs, self-regulated learning and foreign language anxiety in the academic achievement of tertiary EFL learners. *Particip. Educ. Res.* 8, 357–372. doi: 10.17275/per.21.43.8.2

Pawlak, M., and Csizér, K. (2022). The impact of self-regulatory strategy use on self-efficacy beliefs and motivated learning behavior in study abroad contexts: the case of university students in Italy, Poland, Turkey. *System* 105:102735. doi: 10.1016/j.system.2022.102735

Quacquarelli Symonds Limited (2021). QS World University Rankings 2022. Available at: https://www.topuniversities.com/university-rankings/world-university-rankings/2022

Sabti, A. A., Rashid, S. M., Nimehchisalem, V., and Darmi, R. (2019). The impact of writing anxiety, writing achievement motivation, and writing self-efficacy on writing performance: a correlational study of Iraqi tertiary EFL learners. *SAGE Open* 9:215824401989428. doi: 10.1177/2158255019894289

Saito, K., Dewaele, J.-M., Abe, M., and In'nami, Y. (2018). Motivation, emotion, learning experience, and second language comprehensibility development in classroom settings: a cross-sectional and longitudinal study. *Lang. Learn.* 68, 709–743. doi: 10.1111/lang.12297

Saito, Y., Horwitz, E. K., and Garza, T. J. (1999). Foreign language reading anxiety. *Mod. Lang. J.* 83, 202–218. doi: 10.1111/0026-7902.00016

Strack, J., Lopes, P. N., and Esteves, F. (2014). Will you thrive under pressure or burn out? Linking anxiety motivation and emotional exhaustion. *Cognit. Emot.* 29, 578–591. doi: 10.1080/02699931.2014.922934

Sun, P. P., and Teng, L. S. (2021). Why so nervous? Revisiting the sources of speech anxiety in Chinese as a second language. *System* 103:102647. doi: 10.1016/j.system.2021.102647

Teng, L. S., and Zhang, L. J. (2016). A questionnaire-based validation of multidimensional models of self-regulated learning strategies. *Mod. Lang. J.* 100, 674–701. doi: 10.1111/modl.12339

Timers Higher Education (2021). World University Rankings 2022. Available at: https://www.timeshighereducation.com/world-university-rankings/2022/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats

Wang, C., Harrison, J., Cardullo, V., and Lin, X. (2018). Exploring the relationship among international students' English self-efficacy, using English to learn self-efficacy, and academic self-efficacy. *J. Int. Stud.* 8, 233–250. doi: 10.5281/zenodo.1134299

Wang, X., Liu, Y., Ying, B., and Lin, J. (2021). The effect of learning adaptability on Chinese middle school students' English academic engagement: the chain mediating roles of foreign language anxiety and English learning self-efficacy. *Curr. Psychol.* 1–11. doi: 10.1007/s12144-021-02008-8

Wang, C., and Sun, T. (2020). Relationship between self-efficacy and language proficiency: a meta-analysis. *System* 95:102366. doi: 10.1016/j.system.2020.102366

Wen, Z., Zhang, L., Hou, J., and Liu, H. (2004). Testing and application of the mediating effect. *Acta Psychol. Sin.* 36, 614–620.

Wong, S. L. (2005). Language learning strategies and language self-efficacy: investigating the relationship in Malaysia. *Reg. Lang. Cent. J.* 36, 245–269. doi: 10.1177/0033688205060050

Xu, M., Wang, C., Chen, X., Sun, T., and Ma, X. (2022). Improving self-efficacy beliefs and English language proficiency through a summer intensive program. *System* 107:102797. doi: 10.1016/j.system.2022.102797

Yim, S. Y. (2014). An anxiety model for EFL young learners: a path analysis. *System* 42, 344–354. doi: 10.1016/j.system.2013.12.022

Yun, S., Hiver, P., and Al-Hoorie, A. J. (2018). Academic buoyancy: exploring learners' everyday resilience in the language classroom. *Stud. Second. Lang. Acquis.* 40, 805–830. doi: 10.1017/S0272263118000037

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EDITED BY
Yining Zhang,
Tsinghua University, China

REVIEWED BY
Xun Yan,
University of Illinois at Urbana-Champaign, United States
Jason Fan,
The University of Melbourne, Australia

*CORRESPONDENCE
Jie Gao
gao_jie@fudan.edu.cn

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Scales assessing L2 speaking anxiety: Development, validation, and application

Jie Gao*

College of Foreign Languages and Literature, Fudan University, Shanghai, China

Through featuring a historical review of the L2 speaking assessment scales applied in related studies, this paper targets at providing responses for the following three questions (a) How are the scales assessing L2 speaking anxiety developed and adapted in related research? (b) What are the frequently adopted methods for validating speaking anxiety scales? (c) How is L2 speaking anxiety represented and interpreted with a dynamic approach? Based on analyzing the development process of frequently-used scales for assessing test anxiety, foreign language classroom anxiety, and speaking anxiety, the author classified the scales into three categories: test-based scales measuring speaking anxiety, classroom-based scales measuring speaking anxiety, and activity-based scales measuring L2 speaking anxiety. As for the scale validation methods, Classical Testing Theory (CTT) and Rasch measurement were introduced as two major statistical paradigms for guaranteeing the reliability of the scales. This paper also summarizes the emerging themes generalized from research focusing speaking anxiety assessment, where the dynamic approach is discussed as a guideline to interpret the relationship among anxiety, language performance, and other factors involved in language learning. This paper ends with highlighting possible directions for anxiety-related research in the future, where technology intervention and the "positivity ratio" might become new attempts for pedagogical design.

KEYWORDS

anxiety assessment scales, L2 speaking anxiety, quantitative research methods, scale development, scale validity

Introduction

During the language learning process of second language speakers, the relationship between anxiety and their language performance has often been considered as a negative one. As a subjective feeling filled with "tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system" (Spielberger et al., 1983, p. 1), anxiety has been identified as the reason for causing unsatisfying language performance (Zhang, 2019), reducing language learners' willingness to communicate (Liu, 2018; Jiang and Dewaele, 2019), debilitating speakers' abilities in demonstrating critical thinking (Blume et al., 2010), and projecting a personal image that lacks communicative confidence (Araki and Raphael, 2018; Mulyono and Saskia, 2021).

Language teachers and learners are endeavoring to search for coping mechanisms to tackle anxiety, which has led to fruitful research outcome in identifying the sources of anxiety, as well as explicating the relationship between anxiety and other factors involved in language learning.

The measurement of speaking anxiety, or the transformation of speaking anxiety to a quantitative variable, heavily relies on the use of assessment scales. An accurate estimation of the anxiety perceived by L2 language learners not only presents solid data for further statistical analysis, but also reflects researchers' understanding of anxiety as an affective variable. This paper presents a narrative review of the scales used for assessing L2 speaking anxiety, and responds to the following research questions:

(a) How are the scales assessing L2 speaking anxiety developed and adapted in related research?
(b) What are the frequently adopted methods for examining the validity and reliability of speaking anxiety scales?
(c) How is L2 speaking anxiety represented and interpreted with a dynamic approach?

The development of scales assessing speaking anxiety was initiated with an explanation of anxiety as a general concept. Commonly-used frameworks have categorized anxiety as trait anxiety and state anxiety (Spielberger, 1966; Scovel, 1978), or facilitating anxiety and debilitating anxiety (Alpert and Haber, 1960). While trait anxiety remains constant across different contexts, state anxiety varies with changes that occur to specific circumstances. Foreign Language Anxiety (FLA), which encompasses L2 speaking anxiety, is considered as a state-related anxiety that is situation specific. This "situation specific" property of FLA, which is attributed to its persistency and multi-facetness (MacIntyre and Gardner, 1991; MacIntyre, 1999, 2007; Horwitz, 2010) has resulted in its frequent juxtaposition with test anxiety. It is highly possible that the evaluation of learners' language performance takes place in a testing environment. As was described by Pintrich and Schunk (2014, p. 265), test anxiety refers to "a set of phenomenological, physiological, and behavioral responses" caused by the fear of negative outcome or failure in evaluative situations such as examinations. The division between facilitating and debilitating anxiety, however, is dangerous and problematic according to Horwitz (2017). Placing facilitating anxiety and debilitating anxiety on the opposite end is eliminating the possible relatedness and interaction between the two, which might lead to a complete denial of the potential "positiveness" within certain types of anxieties. This interpretation of anxiety, or the confirmation of anxiety's multi-facetness, resonates with MacIntyre's (2017, p. 16) explanation for a dynamic approach to understanding anxiety:

> "This new, emerging tradition emphasizes situating anxiety among the multitude of interacting factors that affect language learning and development. Anxiety is continuously interacting with a number of other learner, situational, and other factors including linguistic abilities, physiological reactions, self-related appraisals, pragmatics, interpersonal relationships, specific topics being discussed, type of setting in which people are interacting, and so on."

Following the dynamic approach of interpreting Foreign Language Anxiety (FLA), this paper navigates the scales that are developed for measuring L2 speaking anxiety, which is closely related to test anxiety and classroom learning anxiety. This paper also analyzes the methods for examining the validity and reliability of scales measuring L2 speaking anxiety, and identifies themes emerging from research that applies L2 speaking anxiety scales. In the last section of this paper, suggestions are provided for the design and adoption of scales in the future, when language learning and communication are hugely intervened by online instructional methods and technologies in diverse forms.

Methods of article review

In response to the first question that examines the development and adaptation of L2 speaking anxiety assessment scales, the author adopted a historical review approach and started with investigating the scales that measure anxiety as a general concept. L2 speaking anxiety, which occurs in language assessment situations as well as daily communication scenarios, has been measured both in a testing environment and language classrooms. For this reason, the focus points of investigation also locate on scales in measurement of testing anxiety and language learning anxiety in classrooms. Learners, however, often experience speaking anxiety when participating in specific activities, because L2 speaking has also been concretized by various pedagogical practices in language classrooms. The synthesis of scales for assessing L2 speaking anxiety thus follows the outline of examining test-based scales measuring anxiety, classroom-based scales measuring anxiety, and activity-based scales measuring anxiety. The literature cited, which represents the first group of studies in discussion of relevant assessment scales, provides important content materials for scale revision and adaptation in a broader range of research related to speaking anxiety.

To provide answers for the second and third research question, the author combed through the most recent research with the keywords of "foreign language anxiety," "L2 speaking anxiety," "assessment scales," and "scale reliability and validity". The articles collected by the author have fulfilled the following requirements:

(1) L2 speaking anxiety is evaluated by scales as an individual dimension or a component embedded in FLA assessment.
(2) The articles have reported empirical research results regarding L2 anxiety assessment.
(3) The articles are published in peer-reviewed journals and book chapters after the year of 2010.

As is shown in Table 1, a total number of 49 articles were included in this literature review process. The author identified a list of topics from the studies based on the assessment purposes of the scales, and grouped these topics into more overarching themes that summarize the functioning of scales in speaking anxiety research. Detailed interpretation of the themes is presented in later sections of this paper, which embodies the dynamic approach in emphasis of speaking anxiety and its interaction with other factors.

The next section of this paper features a narrative review of the scales that were initially used for assessing anxiety, followed by a documentation of L2 speaking anxiety scale development and validation process. The section, "*The application of L2 speaking anxiety assessment scales with a dynamic approach*," explains the other themes identified from the articles at length and synthesizes the methods implemented to understand the role of anxiety in L2 learning.

Scales for assessing L2 speaking anxiety

In comparison to more fine-grained frameworks that recognize anxiety of specific types, anxiety has been regarded as a manifestation of medical disorder, the assessment tools of which were designed from a pathological perspective. For example, Spitzer et al. (2006) documented the development process of Generalized Anxiety Disorders (GAD) scale, which consists of items evaluating the feeling of nervousness, losing control, over-worrying, and difficulty of relaxing through a 4-point Likert scale.

Scales assessing speaking anxiety have also witnessed a development trend that starts from measuring anxiety as a broader concept. The measurement of speaking anxiety, however, is closely connected with the Foreign Language Classroom Anxiety Scale (FLCAS) constructed by Horwitz et al. (1986), which served as the foundation for a plethora of different versions of speaking anxiety assessment scales. In addition, foreign language speaking has been represented by specific speech activities such as L2 pronunciation practices and L2 public speaking, which resulted in the compilation of more detailed scales. This section of paper enlists a historical review of the scales frequently used for assessing speaking anxiety, which would provide researchers with a wide range of options for investigating related research inquires.

Test-based scales in evaluation of anxiety

Test-based scales measure anxiety as a situational concept, or more specifically, anxiety that occurs in a testing environment. Sarason (1984) defined anxiety as "a complex state that includes cognitive, emotional, behavioral, and bodily reactions" (p. 931), and specified the existence of test anxiety when the activities triggering anxiety take place in a context of academic evaluation. A large amount of efforts have been spent in developing Test Anxiety Scale (TAS) (Mandler and Sarason, 1952; Sarason, 1961, 1978, 1984). TAS consists of 39 true-or-false statements, which inquire respondents' cognitive, emotional, and behavioral reactions. Sample items include "If I know I was going to take an intelligence test, I would worry a great deal when taking it" and "Thoughts of doing poorly interfere with my performance on tests." Anxiety, which is highly situational and individual, is interpreted as a cognitive response characterized by one's feelings and doubts.

The difference between general anxiety and specific anxiety, or "the relative merits of situational specificity" has been mentioned in Alpert and Haber (1960, p. 208), which also explained the components of Achievement Anxiety Test (AAT). The 19-item AAT scale is composed of a 10-item Facilitating Anxiety Scale (FAS) and a 9-item Debilitating Anxiety Scale (DAS). Facilitating Anxiety Scale (FAS) foregrounds the positive connection between anxiety and productivity (e.g., "I work more efficiently under pressure, as when the task is very important."), Debilitating Anxiety Scale (DAS), in contrast, includes statements disclosing the negative influence of anxiety on performance (e.g., "Nervousness while taking an exam or test hinders me from doing well."). Respondents need to make a decision between "Always" and "Never" while answering the statements. In this study, specific anxiety scales have shown to be more efficient predictors for respondents' academic performance in comparison to general anxiety scales, which inspires the construction of scenario-based items in devising anxiety assessment scales.

Within the group of anxiety assessment scales, the Test Anxiety Inventory (TAI) (Spielberger, 1980) has been used on undergraduate students since the 1980s, the development of which is inseparable from the contribution of TAS. The TAI is a self-report scale consisting of 20 items with two subscales: (a) the "worry" subscale, which contains statements describing behavioral patterns in relation to test anxiety, such as "I believe I am going to fail the test." (b) the "emotionality" subscale, which contains items stating physiological responses associated with test anxiety, such as "my heart beats faster when I am taking a test". TAI adopts a 4-point Likert scale for evaluation, which ranges from "1 = almost never" to "4 = almost always". High scores indicate more intensive anxiety perceived by respondents.

Based on the differentiation between state anxiety and trait anxiety, Spielberger et al. (1983) further categorized the State Trait Anxiety Inventory (STAI) as a 40-item self-report

TABLE 1 Articles reviewed in identification of scales assessing L2 speaking anxiety.

Theme	Topic	No. of articles	Publication
The validity and reliability of L2 speaking anxiety scales are examined through multiple statistical procedures.	L2 speaking anxiety scales development and validation	6	- Ali, 2016 - Ali, 2017 - Apple, 2013 - Park, 2014 - Taat et al., 2020 - Yaikhong and Usaha, 2012
L2 speaking anxiety scales are adopted to assess pedagogical outcome.	The effects of English-medium instruction and classroom pedagogies on FLA	8	- Chou, 2018 - Galante, 2018 - Kralova et al., 2017 - Lee, 2016 - Liu, 2021 - Liu and Xiangming, 2019 - Jin et al., 2021 - Scida and Jones, 2017
	The effects of instructional technologies on FLA	10	- Aldukhayel, 2022 - Bashori et al., 2022 - Bárkányi, 2021 - Chen and Hwang, 2020 - Chen et al., 2022 - Chen and Lee, 2011 - Jebali, 2014 - Pan et al., 2022 - Xiangming et al., 2020 - York et al., 2021
	The effects of assessment approaches on FLA	3	- Estaji and Farahanynia, 2019 - Sohrabi and Ahmadi Safa, 2020 - Zheng et al., 2021
L2 speaking anxiety scales are adopted to unpack the relationship between anxiety and affective variables.	Identification of factors contributing to anxiety	3	- Mak, 2011 - Öztürk and Gürbüz, 2013 - Sun and Teng, 2021
	Interaction between FLA and Foreign Language Enjoyment (FLE)	4	- Chen et al., 2021 - Dewaele and Alfawzan, 2018 - Dewaele and MacIntyre, 2014 - Jiang and Dewaele, 2019
	Relationship between FLA and other affective variables (e.g., Willingness to Communicate, English learning motivation, and self-confidence)	7	- Baran-Łucarz, 2014 - Chung and Leung, 2016 - Dewaele and Dewaele, 2018 - Liu, 2017 - Liu and Huang, 2011 - Tridinanti, 2018 - Zhou et al., 2020
	Relationship between FLA and sociolinguistic variables (e.g., gender, personal experience, language background, and immigrant status)	4	- Sevinc, 2018 - Sevinç and Dewaele, 2018 - Thompson and Lee, 2012 - Thompson and Lee, 2014
L2 speaking anxiety scales are adopted to unpack the relationship between anxiety and language performance variables.	Relationship between FLA and L2 speaking performance/L2 proficiency level	4	- Baran-Łucarz, 2011 - Baran-Łucarz, 2013 - Huang, 2018 - Zheng and Cheng, 2018

measurement tool. The scale also made use of a 4-point Likert scale ranging from "1 = not at all" to "4 = very much so". Two 20-item subscales are included in the inventory: (a) the "state anxiety" subscale (STAI-S), representing the individual's anxiety level when he/she is answering the questionnaire. (b) the "trait anxiety" subscale (STAI-T), representing the respondent's overall anxiety level across a lengthy time span.

This collection of scales measuring anxiety, whether from a more general view or using detailed categorizing framework, laid the foundation of pinning down language learning as a situational specific activity. The anxiety assessment scales used for foreign language learning, or the research realm of Foreign Language Anxiety (FLA), will be introduced in the next section.

Classroom-based scales in evaluation of speaking anxiety

To fulfill the purpose of assessing FLA, researchers have developed scales to measure learners' anxiety while using a specific language, or learning a foreign language in the classroom. Gardner and Smythe (1975) used the French Class Anxiety Scale as a predictor for students' intention to learn French. In addition, Gardner et al. (1979) adopted an 8-item instrument as the French Use Anxiety Scale to disentangle the relationship among learners' attitudes, motivation, as well as their language proficiency level. Similar scales were also applied to examine learners' anxiety for learning and testing in English (Clément et al., 1977, 1980) and Spanish (Muchnick and Wolfe, 1982).

From a broader perspective, foreign Language classroom anxiety, as was defined by Horwitz et al. (1986) as a "distinct complex of self-perceptions, beliefs, feelings and behaviors related to classroom language teaching arising from a uniqueness of the language learning process" (p. 128), is measured by Foreign Language Classroom Anxiety Scale (FLCAS) developed by Horwitz et al. (1986). As for FLCAS, three categories of performative anxieties were identified in relation to foreign language anxiety, i.e., communication apprehension, test anxiety, and fear of negative evaluation. FLCAS consists of 33 items with a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree". Sample items include "In language class, I can get so nervous I forget things I know," "I don't worry about making mistakes in language class," and "I am usually at ease during tests in my language class".

FLCAS has played a pivotal role in the adaptation and construction of scales related to L2 speaking anxiety. For example, Öztürk and Gürbüz (2013) designed the Foreign Language Speaking Anxiety Questionnaire, where the researchers selected 18 items from the 33 items of FLCAS. The 18 items were directly related to foreign language speaking anxiety. Also, Liu (2021) extracted 12 items from FLCAS, which are associated with learners' anxiety/confidence when speaking English. These items were grouped as the English Speaking Anxiety Scale (ESAS) in related research. FLCAS has also been translated into a variety of languages, including Hungarian (Tóth, 2007), Persian (Alidoost et al., 2013), Thai (Tanielian, 2014), and Arabic (Dewaele and Al-Saraj, 2015).

Activity-based scales in evaluation of L2 speaking anxiety

Another group of speaking anxiety scales capture language learners' perception for specific speaking activities, which occur either in classrooms or during daily communication. Communication-bound anxieties have been extensively discussed in McCroskey (1970), where Personal Report for Communication Apprehension (PRCA) was developed to measure communication apprehension among individuals across different age groups. As for college students, or adult foreign language learners, the items of PRCA involve both interpersonal communication scenarios (e.g., making a conversation with an acquaintance) and small group communication (e.g., contributing to a small group discussion). A few items were also designed to evaluate communication apprehension in public speaking contexts. The PRCA questionnaire includes 20 items in total, and respondents were asked to use a 5-point Likert scale for assessment purposes.

A dual conceptualization of L2 speaking anxiety was also advocated by Woodrow (2006), as speaking activities happen both within classrooms for pedagogical purposes and in daily life to fulfill communicative goals. Woodrow (2006) mentioned that speaking anxiety "has a debilitating effect on the performance of speakers of English as a second language" (p. 308). The Second Language Speaking Anxiety Scale (SLSAS) constructed in Woodrow (2006) thus adopts the classification scheme of "in-class anxiety" and "out-of-class anxiety". SLSAS is composed of 11 items of in-class anxiety, 11 items of out-of-class anxiety, and 5 yes/no statements in description of the respondent's general personality. Contexts related to in-class activities include giving presentations and contributing to formal discussions, while stressors of out-of-class activities involve asking/answering questions and starting conversations with L1 English speakers.

In addition to incorporating daily communication scenarios, speaking anxiety scales are also represented by activities of more concrete forms. For example, Public Speaking Anxiety (PSA) has been recognized as a situation specific FLA overlapping with social anxiety. Efficient public speaking, as claimed by Lucas (2013), embodies "critical thinking, creative ideas, and logical construction" and has become a prominent teaching component on the syllabus of college English oral communication courses. Personal Report of Public Speaking Anxiety (PRPSA) adapted from McCroskey (1970) was used by Zheng et al. (2021) to

evaluate anxiety in connection to English public speaking. PRFSA consists of 34 items with a 5-Likert scale. Sample items are constructed based on public speaking scenarios, such as "Although I am nervous just before starting an English public speech, I soon settle down after starting and feel calm and comfortable" and "While giving an English public speech, I get so nervous I forget facts I really know."

Public Speaking Anxiety (PSA) has also been measured as one category of social anxiety through the lens of psychometric studies, where L1 speakers are recruited as participants. For instance, the Public Speaking Anxiety Scale (PSAS) introduced by Bartholomay and Houlihan (2016) measures cognitive, behavioral, and psychological anxiety based on the 3-component anxiety model proposed in Lang (1971). The 17-item self-report assessment tool uses a five-point Likert scale to measure public speaking anxiety. Another set of scale is named as Personal Report of Confidence as Speaker (PRCS), or a 12 true or false items adapted from Gilkinson (1942).

Apart from the scales designed in assessment of Public Speaking Anxiety, pronunciation practices in language learning classrooms are also the targets for L2 speaking anxiety evaluation. Baran-Łucarz (2013) developed Phonetics Learning Anxiety Scale (PhLA) to assess the level of anxiety language learners experience during a phonetics course. Pronunciation anxiety was clarified as a measurable dimension, which could be analyzed through self-perception of pronunciation, fear of negative evaluation, and beliefs concerning the pronunciation of the target language. The PhLA scale is a 44-item self-report questionnaire, in which a 6-point Likert scale is applied. The first part of PhLA includes 15 items that measure the general phonetics learning anxiety level, such as students' attitudes toward the phonetics class and identification of the cognitive symptoms of anxiety (e.g., "I am so nervous that I can't hear the new sounds of word stress properly"). The second section of PhLA contains 20 items, which aim at assessing L2 learners' concern of mistakes, oral performance apprehension, pronunciation self-image, pronunciation self-assessment, as well as test anxiety and learners' beliefs of pronunciation learning. Sample items for the second section include "I feel more embarrassed committing a pronunciation mistake than any other type of mistake" and "I think I sound ridiculous pronouncing English sounds and words the way they should be pronounced".

Methods of examining the reliability and validity of L2 speaking anxiety scales

As a prerequisite for applying assessment tools in a reliable and efficient manner, examining the reliability and validity of a scale is a necessary step for researchers to accomplish before reporting data analysis results. Speaking anxiety scales have been investigated through both Classical Testing Theory (CTT) approaches and probabilistic methods, the latter of which also formed an individual research strand in scale development and interpretation.

From the perspective of Classical Testing Theory (CTT), statistics in support of scale reliability and validity include Cronbach's alpha, test-retest reliability, and the correlational results between the scale to be examined and other established assessment instruments. Other frequently-used statistical methods include Exploratory Factor Analysis and Confirmatory Factor Analysis, which are capable of extracting the dimensions represented by multiple items on the scale. For example, Mak (2011) conducted Factor Analysis on FLCAS results collected from Chinese L2 English speakers, which revealed five factors in relation to students' in-class speaking anxiety. These five factors are explained as: "speech anxiety and fear of negative evaluation," "uncomfortableness when speaking with native speakers," "negative attitudes toward the English classroom," "negative self-evaluation," and "fear of failing the class/consequences of personal failure".

Factor Analysis has also been used to examine newly-developed scales. Yaikhong and Usaha (2012) constructed the Public Speaking Class Anxiety Scale (PSCAS), the Items on which were drawn from existing scales that assess L2 speaking anxiety. The researchers calculated Cronbach's alpha coefficient to test the internal consistency of PSCAS, and also used Factor Analysis to identify a list of components the new instrument contains. These statistics in combination have provided supporting evidence for the construct validity of the newly-developed scale. Similar methods have been used to analyze the structures of speaking anxiety assessment scales adopted in diverse L1 contexts (Park, 2014; Ali, 2016, 2017; Taat et al., 2020). The purpose of conducting Factor Analysis, however, is not restricted to examining the questionnaire's validity and reliability. As the dimensions presented by Factor Analysis vary across L2 English learners with different L1 backgrounds and in age groups, the results have also helped researchers pinpoint the sources of anxiety more accurately and explored for pedagogical implications accordingly.

In parallel with statistical methods grounded on the Classical Testing Theory (CTT), Rasch measurement has also been adopted for scale interpretation as a probabilistic method. Item analysis conducted within the CTT framework relies on the assumption that the Likert scales used by individual participants are interval in nature, where the distance between "1 = Strongly Disagree" and "2 = Disagree" is equal to that between "3 = Agree" and "4 = Strongly Agree". Rasch measurement, however, transforms the Likert scales to logit scales. Both item difficulties and human factors are thus put into consideration for result interpretation.

Multiple scales measuring learner anxiety have been analyzed through Rasch modeling. For example, Apple

(2013) conducted Rasch analysis on FLCAS, which was used among Japanese college students. According to Apple (2013, p. 21):

> "Researchers can use Rasch analysis to take into account measurement error, item location, person location, and fit statistics to better determine the degree to which speaking anxiety levels exist for individual students as well as to determine the degree to which speaking anxiety level exists for individual students as well as to determine which questionnaire items were the best indicators of speaking anxiety."

More recent studies featuring Rasch analysis of speaking anxiety scales include Lin et al. (2021), which examined the psychometric properties of the self-reported Public Speaking Anxiety Scale (PSAS) introduced by Bartholomay and Houlihan (2016). Lin et al. (2021) reported that although no systematic bias was detected in responses for age or gender, the PSAS demonstrated evidence of multidimensionality. The issue was resolved after splitting the scale into two discrete subscales: Emotional and Physiological. When scales are used among individuals with diverse backgrounds in L1, home culture, or language proficiency level, Rasch analysis could help explain the functioning of scales with sufficient details. The necessity of dividing questionnaires into different sections or subscales is often brought into attention, which provides researchers with abundant opportunities to re-interpret anxiety, the subconstructs of anxiety, and the interrelationship among multiple dimensions that surfaced from the same scale.

The application of L2 speaking anxiety assessment scales with a dynamic approach

Scales measuring L2 speaking anxiety have been used for multiple purposes in studies related to language learning. A few themes could be identified from the state-of-art research listed in Table 1, which range from assessing pedagogical outcome to explaining the relationship between speaking anxiety and variables concerning language performance. The evolvement of the dynamic approach to understanding anxiety has also led to novel explanations of its effects on foreign language learning. This section of paper maps out a research outline regarding L2 speaking anxiety, which has been quantifies by different sets of scales. The interpretation of the dynamic approach is also discussed, which hopefully would offer new insights into linking anxiety assessment results with pedagogical support provided in language classes.

Theme 1: Speaking anxiety scales in assessment of pedagogical outcome

An important usage of speech anxiety scales is to examine the effects of a myriad of pedagogical designs in language teaching classrooms, which often bear the purpose of reducing FLA. The instructional methods implemented in language classrooms, however, are usually housed within a certain pedagogical framework. For example, Lee (2016) examined the effectiveness of oral corrective feedback on international graduate students' speaking anxiety. The categorization of corrective feedback forms the backbone of the study, where learners received different formats of feedback from their instructors. Anxiety is considered as an affective variable, with scales assessing learners' anxiety level being the major research instrument.

EFL speaking classes also witnessed the application of the pedagogical approach that experiments with establishing a community of practice. In Kralova et al. (2017), the researchers designed a psycho-socio training program to reduce the foreign language pronunciation anxiety of L2 English pre-service teachers. The psycho-socio training program is composed of interventional sessions that help pre-service teachers cope with anxiety by understanding their own pronunciation through other group members' emotions and behaviors. The Foreign Language Pronunciation Anxiety (FLPA) scale, which was adapted from both the Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986) and the Phonetics Learning Anxiety Scale (Baran-Łucarz, 2013), was used for evaluating participants' English pronunciation anxiety level before and after the intervention. FLPA includes 20 declarative statements to probe into learners' perceptions of their pronunciation, during which the participants were asked to use a 6-point Likert scale to indicate the extent to which they agree/disagree.

When situated in a classroom learning environment, anxiety has been researched through a variety of assessment approaches. In Zheng et al. (2021), self-assessment and peer-assessment were arranged in different sequences before L2 learners completed delivering public speeches in English. The Personal Report of Public Speaking Anxiety (PRPSA) adapted from McCroskey (1970) was used to monitor the change of anxiety level among students, indicating that formative practices with self-assessment implemented first have efficiently reduced the impact of speaking anxiety. Dynamic assessment, which is characterized by scaffolded feedback and full recognition of learners' potentials, is also becoming a widely-accepted assessment approach in identifying the change of anxiety level among L2 learners. Chen et al. (2022) illustrated that speech recognition system has alleviated L2 learners' speaking anxiety to a larger extent when used with the guidance of dynamic assessment. Also, dynamic assessment has been used to build a more socially constructive classroom environment

for EFL learners (Sohrabi and Ahmadi Safa, 2020). Estaji and Farahanynia (2019), on the other hand, discussed the effectiveness of more nuanced dynamic assessment approaches on L2 learners' speaking anxiety, and explicated the differences between interactive and interventional dynamic assessment.

Another line of speaking anxiety research is stimulated by a stronger presence of technology in classrooms and the global impact of the COVID-19 pandemic. As Aydin (2018) advocated, technology is not the only factor that is inducing debilitating or facilitating anxiety over language learning. A dynamic approach is thus needed to comprehend the interrelationship among technology, anxiety, and other language learning variables. Multiple scales have thus been applied to quantify FLA caused by different reasons. In a virtual classroom equipped with instructional technology support, Xiangming et al. (2020) investigated the technological affordances of foreign language learners through observing their language performance scores as well as anxiety level fluctuation. In this study, the possible influence caused by technology was examined by FLCAS in combination with Self-Recalled Anxiety Changes (SRAC). As a complementary assessment instrument to FLCAS, SRAC is a 7-point Likert scale that records student evaluation of one single item at multiple time spots during a 16-week semester: "Please recall and record your learning anxiety level in week 1 (or week 4 or week 7 or week 10)". In a technology assisted learning environment, the concerted use of FLCAS and scales related to learning behaviors has presented language teachers with informative results to devise strategies for handling anxiety.

In terms of instructional technologies, Chen and Hwang (2020) researched the influence of flipped learning on EFL learners' speaking anxiety. In the flipping classroom mode, students navigated through the learning materials at their own pace, and adopted concept mapping as a strategy to organize their thoughts and ideas for classroom discussion. The Second Language Speaking Anxiety Scale (SLSAS) developed by Woodrow (2006) was used to assess EFL learners' speaking anxiety after using the mapping approach. Students' ratings for the anxiety were correlated with the measurement results for critical thinking awareness as well. Studies inspecting the effects of instructional technology also include Bárkányi (2021) and Pan et al. (2022), in which the influence of Massive Open Online Course (MOOC) and virtual interaction on EFL learners' foreign language speaking anxiety forms the major question.

The involvement of technology in speaking pedagogy is also manifested by the application of web-based software in classrooms. Bashori et al. (2022) tested whether web-based language learning might alleviate speaking anxiety, and invited L2 English speakers to participate in two Automatic Speech Recognition (ASR) experiments. L2 English learners responded to both Foreign Language Classroom Anxiety Speaking (FLCAS) (Horwitz et al., 1986) and Foreign Language Speaking Anxiety Scale (FLSAS) (Öztürk and Gürbüz, 2013). The level of FLSAS is higher than FLCAS, which corroborated with an assumption that speaking is the most anxiety provoking activity. However, students' anxiety level did not experience a significant drop after using the ASR application, implying that successful in-class implementation of web-based learning technology might need a larger amount of instructor guidance and technological support. The challenges encountered by L2 English learners through online communication have been discussed in a number of studies focusing on instructional technology, where Computer-Mediated Communication (CMC) is realized in virtual classrooms through technological advancement at full speed (e.g., video, chat, voice, and virtual technology) (Satar and Özdener, 2008; Jebali, 2014; York et al., 2021; Aldukhayel, 2022).

Theme 2: Speaking anxiety scales in connection with affective variables: A dynamic approach

As was mentioned in MacIntyre (2017), the interpretation of the connections between language learning anxiety and affective variables, such as attitudes, motivation, and Willingness to Communicate (WTC), is undergoing a shift toward the dynamic approach. The relationship between anxiety and affective variable has been explored in Baran-Łucarz (2014), in which learners' pronunciation anxiety was quantified and correlated with the measurement results for WTC. The study suggested that higher pronunciation anxiety would lead to lower WTC, and this pattern looms to be the most obvious for L2 speakers at intermediate anxiety level. In Liu (2017), L2 Chinese college students' speaking anxiety was also found to be negatively correlated with WTC. The negative impact of speaking anxiety is urging language teachers to scaffold language learning tasks and help L2 students familiarize with the target language culture, which might curb the effects of anxiety on using L2 for communicative purposes.

The dynamic approach to understanding anxiety, which is also represented by the interplay of variables such as age, L1 background, gender, and L2 proficiency level, has witnessed a growing body of "moderator" research in explanation of the negative impact caused by anxiety. Thompson and Lee (2014)'s study found that language learners' experience abroad and L2 proficiency were jointly related to their ratings of anxiety. Both Sevinc (2018) and Sevinç and Dewaele (2018) delved into the possible impact of immigration status and language background on heritage language speaking anxiety. In addition, Chou (2018) examined the influence of full and partial English Medium Instruction on L2 learner's anxiety level. Students receiving partial English Medium Instruction exhibited higher level of speaking anxiety and a lack of confidence. The pool of "moderator" factors is still expanding, which is enriched by language learners' individual background information and personal learning experience.

The dynamic interactions among all the factors are also symbolized by new perceptions of the relationship between anxiety and joy of language learning, or a re-conceptualization of facilitating anxiety and debilitating anxiety. In contrast with FLCAS, Dewaele and MacIntyre (2014) developed the scale of Foreign Language Enjoyment (FLE), which includes statements inquiring learners' attitudes toward a foreign language, the atmosphere in classroom, and the friendliness of language teachers. Results extracted from scales such as FLCAS and FLE are representative of the underlying constructs they measure, and the relationship between the scales reflects the dynamic interaction among different dimensions involved. From a pedagogical perspective, however, high level of enjoyment, does not necessarily lead to a low level of anxiety. A "constructive balance" (p. 262) needs to be maintained despite of the fact that successful learners would report rating scores slightly higher in enjoyment.

To search for interpretations of the non-linear relationship between anxiety and joy, Dewaele and MacIntyre (2014) discussed the theory of positivity ratio by resorting to Fredrickson (2013), who has suggested that the ratio of positive to negative emotions might be more prominent than the absence of negative emotion for predicting or evaluating L2 learners' performance. In Dewaele and MacIntyre (2014), the ratio of positive to negative emotion in the most advanced group of learners is "approximately 2:1, then 11/2:1 in the intermediate group, and finally 1:1 in the group self-described as performing far below average." The discussion was continued in Dewaele and Alfawzan (2018), as correlation results show that the positive effects of FLE on L2 learners' performance outweigh the negative effects of FLCAS on L2 learners' test performance. Furthermore, Chen et al. (2021) examined the interactions of trait emotional intelligence (trait EI), foreign language anxiety (FLA), and foreign language enjoyment (FLE) in the foreign language speaking classroom, where trait EI was found to be significantly interacting with both FLA and FLE. Investigation of the connections between enjoyment and anxiety, as well as the involvement of other affective factors, reflects the influence of dynamic approach on reconstructing the role of anxiety in language learning. The consideration of individual factors, such as studying abroad experiences, generational differences, and immigration status would also largely benefit the understanding of L2 speaking anxiety, as learners' reporting of anxiety level may differ across diverse backgrounds and everchanging contexts.

Theme 3: Speaking anxiety scales in connection with language performance factors: Statistical modeling

In search of explanations for the interactions among speaking anxiety and language performance factors, researchers have also harnessed the explanatory power of statistics in related studies. This trend frequently occurs when researchers are interpreting the relationship between speaking anxiety and learners' language performance. Variables that are predictive of language performance, such as students' language proficiency level, their perceived language competence level, and language test scores, are also added to research questions together with affective variables. As explicit indicators of students' learning achievement, both students' academic performance and language performance have been used as variables displaying the influence of speaking anxiety. Botes et al. (2020) conducted a meta-analysis on the connection between FLCAS (Horwitz et al., 1986) and language learners' academic achievement (i.e., general academic achievement, reading, writing, speaking, and listening academic achievement). Results showed that FLCAS has a moderate correlation with speaking academic achievement, and the majority of studies indicated a negative correlation between FLCAS and speaking achievement. Dikmen's (2021) meta-analysis presented similar findings in terms of the negative impact of FLA on learners' performance, but also pointed out the "moderator" effect of types of anxiety. According to Dikmen (2021), listening anxiety decreased students' EFL performance the most.

In addition to meta-analysis, correlational analysis is one of the most straightforward statistical procedures for analyzing the connection between anxiety and language performance variables. Baran-Łucarz (2011), for example, examined L2 English learners' performance on a pronunciation test, along with the learners' self-assessment measures for pronunciation and FLCAS. Results showed that perceived pronunciation level is more strongly correlated with anxiety, which articulated the necessity of designing efficient self-assessment tasks in pronunciation courses for anxiety reduction. A supportive classroom with positive dynamics would be beneficial to controlling students' fear of making errors.

Statistical methods applied for analyzing anxiety also include Structural Equation Modeling (SEM), the application of which is based on the abundant scale measurement results yielded by anxiety research. Chung and Leung (2016) inspected the structural relationship among English language learning motivation, foreign language speaking anxiety, perceived English competence, willingness to communicate, English learning engagement, and motivational intensity among L2 English speakers in Hong Kong. Anxiety is measured through the Public Speaking Class Anxiety Scale (McCroskey, 1970; Horwitz et al., 1986; Yaikhong and Usaha, 2012). Two significant SEM models are established, with Model 1 recognizing that both integrative and instrumental motivation are significant predictors of speaking anxiety. Speaking anxiety is also a significant predictor of WTC. Model 2, however, illustrates that WTC could also be significantly predicted by perceived English competence.

Path analytical modeling was also used in Huang (2018), who collected the measurement results for four anxiety assessment scales and the speaking score achieved by L2

learners at a large-scale standardized test. The study also aims at exploring the interactions occurring between all the scales and students' speaking test scores. The four assessment scales included in this study are: The Trait Anxiety Inventory, the State Anxiety Inventory, the English Classroom Anxiety Scale adapted from FLCAS, and the Text Anxiety Scale. Statistical analysis showed L2 learners' speaking test performance is significantly impacted by trait anxiety and language anxiety. Both trait anxiety and language anxiety are direct sources for state anxiety, the latter of which is indirectly attributed to test anxiety.

The broad selection of statistical methods in anxiety-related research has carved out a space for chances of data-mining. Unleashing the potential of statistical analysis, however, cannot be separated from an evolving understanding of anxiety as a measurable construct and an appropriate use of assessment scales. The development, validation, and application of assessment instruments is thus of great importance for future research, which will be further discussed in the conclusion section of this paper.

Concluding remarks

This paper presents a historical review of the scales commonly used to assess L2 speaking anxiety, and discussed the statistical methods applied for assuring the reliability and validity of scales. The dynamic approach to understanding anxiety, which has been reflected in recent studies published, is providing researchers with more diversified directions in configuring the relationship among anxiety, affective factors, and variables related to language learners' performance. In addition, the themes identified from anxiety-related research render some new thoughts about some future research questions:

(1) *The impact of technology on language learners' speaking anxiety*

While omnipresent technology is altering the landscape of language instruction, the complication caused by COVID-19 pandemic has led to a series of "unwanted" situations, such as limited opportunities for face-to-face contact, oral English communication courses and tests "accidentally" transformed into an online format, as well as job interviews in English that are conducted through a chatting room in cyber space. Learners of English as a second language are thus coping with challenges both interpersonally and technologically, which might become the new norms for their future academic/professional career. The scales of assessing L2 speaking anxiety, in this case, could be used in tandem with questionnaires evaluating social anxiety or technology anxiety to achieve a well-rounded understanding of all the stressors. Technology-related/testing related scales include the Attitude Toward Computerized Testing Scale (ATCAS) developed by Smith and Caputi (2004), in which respondents' cognitive and affective reactions toward computerized tests were also assessed.

(2) *The impact of pedagogical interventions on language learners' speaking anxiety*

From the perspective of L1 speaking research, speaking anxiety is sometimes treated as a speech disorder. Technology interventions such as Virtual Reality (VR) have been applied to reduce anxiety through exposure therapy (Lindner et al., 2021; Reeves et al., 2021), where speakers are placed in scenarios inducing anxiety and become strategically prepared for authentic communication. After Virtual Technology exposure therapy (VRET) sessions, patients needed to finish speaking tasks in contexts that stimulate daily conversation environment. It is highly problematic to mix L2 speakers, who are experiencing challenges of learning a new language, with L1 patients diagnosed with speech orders. The therapy sessions that are tentatively exploring for possible stressing scenarios, however, might lend new ideas to the design of L2 oral communication classes. For most of the times, the renovation of pedagogical approaches and instructional design has successfully reduced language learners' anxiety level. Creating activities that integrate the theory of "positivity ratio" would probably reveal the positive side of anxiety, which might be beneficial to students' language performance.

Limitations of the study

This review attempts to retrace the instruments that have largely contributed to the content development of scales assessing L2 speaking anxiety. Scales such as Test Anxiety Scale (TAS), Generalized Anxiety Disorders (GAD) scale, Test Anxiety Inventory (TAI), State Trait Anxiety Inventory (STAI), and Foreign Language Classroom Anxiety Scale (FLCAS) have been described at length as highly relevant to the construction of scales assessing L2 speaking anxiety. It is still possible, however, that the development of new scales has resorted to instruments that are beyond the literature surveyed in this paper.

It also needs to be pointed out that the assessment of L2 speaking anxiety is often embedded in the measurement of FLA in general. The interpretation of speaking anxiety, in this case, is in close connection with other types of anxiety (e.g., test anxiety, listening anxiety, writing anxiety). Within the 49 peer-reviewed articles selected by the author, L2 speaking is a highlighted activity investigated by the researchers. However, this review report would benefit from examining scale development literature regarding other language skills. Extending the scope of reviewed articles can help provide more insightful suggestions for compiling speaking anxiety assessment scales, which will better accommodate various research needs and multiple language learning contexts.

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

The author confirms being the sole contributor of this work and has approved it for publication.

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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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References

Aldukhayel, D. (2022). Remote presentations: Making L2 presentations less stressful. *Educ. Res. Int.* 2022, 1–11. doi: 10.1155/2022/5353819

Ali, M. (2016). Confirmatory factor analysis of english language learning anxiety scale (ELLAS) in the Egyptian context. *Int. Educ. E-J.* 5, 1–11.

Ali, M. (2017). English language anxiety: development and validation of a brief measure. *Int. J. Psychol. Educ. Stud.* 4, 42–53. doi: 10.17220/ijpes.2017.02.005

Alidoost, Y., Mirchenari, N. A. N., and Mehr, S. H. (2013). The effects of anxiety on Iranian EFL learners' performance on final achievement test in English classes of high schools. *Int. J. Lang. Learn. Appl. Linguist. World* 4, 284–292.

Alpert, R., and Haber, R. (1960). Anxiety in academic achievement situations. *J. Abnorm. Soc. Psychol.* 61, 207–215. doi: 10.1037/h0045464

Apple, M. (2013). Using Rasch analysis to create and evaluate a measurement instrument for foreign language classroom speaking anxiety. *JALT Journal* 35, 5–28. doi: 10.37546/JALTJJ35.1-1

Araki, N., and Raphael, J. (2018). "Firing the imagination: Process drama as pedagogy for "melting" EAP speaking anxiety and increasing Japanese university students' confidence in speaking," in *Teaching English for Academic Purposes (EAP) in Japan. English Language Education,* eds Ruegg, R. and Williams, C. (Singapore: Springer), 41–58. doi: 10.1007/978-981-10-8264-1_3

Aydin, S. (2018). Technology and foreign language anxiety: implications for practice and future research. *J. Lang. Linguist. Stud.* 14, 193–211.

Baran-Łucarz, M. (2011). The relationship between language anxiety and the actual and perceived levels of foreign language pronunciation. *Stud. Second Lang. Learn. Teach.* 1, 491–514. doi: 10.14746/ssllt.2011.1.4.3

Baran-Łucarz, M. (2013). Phonetics learning anxiety e results of a preliminary study. *Res. Lang.* 11, 57e79. doi: 10.2478/v10015-012-0005-9

Baran-Łucarz, M. (2014). The link between pronunciation anxiety and Willingness to Communicate in the foreign-language classroom: the Polish EFL context. *Can. Modern Lang. Rev.* 70, 445–473. doi: 10.3138/cmlr.2666

Bárkányi, Z. (2021). Motivation, self-efficacy beliefs, and speaking anxiety in language MOOCs. *ReCALL* 33, 143–160. doi: 10.1017/S0958344021000033

Bartholomay, E., and Houlihan, D. (2016). Public speaking anxiety scale: preliminary psychometric data and scale validation. *Pers. Individ. Dif.* 94, 211–215. doi: 10.1016/j.paid.2016.01.026

Bashori, M., van Hout, R., Strik, H., and Cucchiarini, C. (2022). Web-based language learning and speaking anxiety. *Comput. Assist. Lang. Learn.* 35, 1058–1089. doi: 10.1080/09588221.2020.1770293

Blume, B., Dreher, G., and Baldwin, T. (2010). Examining the effects of communication apprehension within assessment centres. *J. Occup. Org. Psychol.* 83, 663–671. doi: 10.1348/096317909X463652

Botes, E., Dewaele, J. M., and Greiff, S. (2020). The foreign language classroom anxiety scale and academic achievement: An overview of the prevailing literature and a meta-analysis. *J. Psychol. Lang. Learn.* 2, 26–56. doi: 10.52598/jpll/2/1/3

Chen, C., Koong, C., and Liao, C. (2022). Influences of integrating dynamic assessment into a speech recognition learning design to support students' English speaking skills, learning anxiety and cognitive load. *Educ. Technol. Soc.* 25, 1–14.

Chen, C., and Lee, T. (2011). Emotion recognition and communication for reducing second-language speaking anxiety in a web-based one-to-one synchronous learning environment. *Br. J. Educ. Technol.* 42, 417–440. doi: 10.1111/j.1467-8535.2009.01035.x

Chen, M., and Hwang, G. (2020). Effects of a concept mapping-based flipped learning approach on EFL students' English speaking performance, critical thinking awareness and speaking anxiety. *Br. J. Educ. Technol.* 51, 817–834. doi: 10.1111/bjet.12887

Chen, Z., Zhang, P., Lin, Y., and Li, Y. (2021). Interactions of trait emotional intelligence, foreign language anxiety, and foreign language enjoyment in the foreign language speaking classroom. *J. Multilinguist. Multicult. Dev.* 18, 1–21. doi: 10.1080/01434632.2021.1890754

Chou, M. (2018). Speaking anxiety and strategy use for learning English as a foreign language in full and partial English-Medium Instruction contexts. *TESOL Q.* 52, 611–633. doi: 10.1002/tesq.455

Chung, W., and Leung, M. (2016). "The structural relationships between foreign language speaking anxiety, perceived English competence, English learning motivation, Willingness to Communicate, English learning engagement and motivational intensity in Hong Kong secondary students," in *Applied Psychology Readings* (Singapore: Springer), 147–169. doi: 10.1007/978-981-10-2796-3_11

Clément, R., Gardner, R., and Smythe, P. (1977). Motivational variables in second language acquisition: a study of Francophones learning English. *Can. J. Behav. Sci.* 9, 123–133. doi: 10.1037/h0081614

Clément, R., Gardner, R., and Smythe, P. (1980). Social and individual factors in second language acquisition. *Can. J. Behav. Sci.* 12, 293–302. doi: 10.1037/h0081081

Dewaele, J., and Alfawzan, M. (2018). Does the effect of enjoyment outweigh that of anxiety in foreign language performance? *Stud. Second Lang. Learn. Teach.* 8, 21–45. doi: 10.14746/ssllt.2018.8.1.2

Dewaele, J., and Dewaele, L. (2018). Learner-internal and learner-external predictors of Willingness to Communicate in the FL Classroom. *J. Eur. Second Lang. Assoc.* 2, 24–37. doi: 10.22599/jesla.37

Dewaele, J.-M., and Al-Saraj, T. (2015). Foreign language classroom anxiety of Arab learners of English: the effect of personality, linguistic and sociobiographical variables. *Stud. Second Lang. Learn. Teach.* 5, 205–230. doi: 10.14746/ssllt.2015.5.2.2

Dewaele, J.-M., and MacIntyre, P. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Stud. Second Lang. Learn. Teach.* 4, 237–274. doi: 10.14746/ssllt.2014.4.2.5

Dikmen, M. (2021). EFL learners foreign language learning anxiety and language performance: A meta-analysis study. *Int. J. Contemp. Educ. Res.* 8, 206–222. doi: 10.33200/ijcer.908048

Estaji, M., and Farahanynia, M. (2019). The immediate and delayed effect of dynamic assessment approaches on EFL learners' oral narrative performance and anxiety. *Educ. Assess.* 24, 135–154. doi: 10.1080/10627197.2019.1578169

Fredrickson, B. (2013). Updated thinking on positivity ratios. *Am. Psychol.* 68, 814–822. doi: 10.1037/a0033584

Galante, A. (2018). Drama for L2 speaking and language anxiety: Evidence from Brazilian EFL learners. *RELC J.* 49, 273–289. doi: 10.1177/0033688217746205

Gardner, R., and Smythe, P. (1975). Second *Language Acquisition: A Social Psychological Approach*. Research Bulletin No. 332, University of Western Ontario.

Gardner, R., Smythe, P., and Clément, R. (1979). Intensive second language study in a bicultural milieu: an investigation of attitudes, motivation and language proficiency. *Lang. Learn.* 29, 305–320. doi: 10.1111/j.1467-1770.1979.tb01071.x

Gilkinson, H. (1942). Social fears as reported by students in college speech classes. *Speech Monographs* 9, 141–160. doi: 10.1080/03637754209390068

Horwitz, E. (2010). Foreign and second language anxiety. *Lang. Teach.* 43, 154–167. doi: 10.1017/S026144480999036X

Horwitz, E. (2017). "On the misreading of Horwitz, Horwitz and Cope (1986) and the need to balance anxiety research and the experiences of anxious language learners," in *New Insights into Language Anxiety: Theory, Research and Educational Implications,* eds C. Gkonou, M. Daubncy, and J.-M. Dewaele (Bristol, UK: Multilingual Matters), 31–48. doi: 10.21832/9781783097722-004

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Modern Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x

Huang, H. (2018). Modeling the relationships between anxieties and performance in second/foreign language speaking assessment. *Learn. Individ. Differ.* 63, 44–56. doi: 10.1016/j.lindif.2018.03.002

Jebali, A. (2014). *Does CMC Reduce Foreign Language Classroom Anxiety? In Learning and Collaboration Technologies. Technology-Rich Environments for Learning and Collaboration, Vol. 8524, Lecture Notes in Computer Science* (Cham: Springer International Publishing), 277–287. doi: 10.1007/978-3-319-07485-6_28

Jiang, Y., and Dewaele, J. M. (2019). How unique is the FL classroom enjoyment and anxiety of Chinese EFL earners? *System* 82, 13–25. doi: 10.1016/j.system.2019.02.017

Jin, Y., Dewaele, J., and MacIntyre, P. (2021). Reducing anxiety in the foreign language classroom: A positive psychology approach. *System.* 101, 102604. doi: 10.1016/j.system.2021.102604

Kralova, Z., Skorvagova, E., Tirpakova, A., and Markechova, D. (2017). Reducing student teachers' foreign language pronunciation anxiety through psycho-social training. *System* 65, 49–60. doi: 10.1016/j.system.2017.01.001

Lang, P. J. (1971). "The application of psychophysiological methods to the study of psycho- therapy ad behavior modification," in *Handbook of Psychotherapy and Behavior Change,* eds A. E. Bergin, and S. L. Garfield (New York, NY: Wiley), 75–125.

Lee, E. (2016). Reducing international graduate students' language anxiety through oral pronunciation corrections. *System*, 56, 78–95. doi: 10.1016/j.system.2015.11.006

Lin, X., Lee, T., Man, R., Poon, S., and Fenwick, E. (2021). Rasch analysis reveals multidimensionality in the public speaking anxiety scale. *Health Serv. Outcomes Res. Methodol.* doi: 10.1007/s10742-021-00265-5. [Epub ahead of print].

Lindner, P., Dagöö, J., Hamilton, W., Miloff, A., Andersson, G., Schill, A., et al. (2021). Virtual Reality exposure therapy for public speaking anxiety in routine care: a single-subject effectiveness trial. *Cogn. Behav. Ther.* 50, 67–87. doi: 10.1080/16506073.2020.1795240

Liu, M. (2017). Adult Chinese as a second language learners' willingness to communicate in Chinese: effects of cultural, affective, and linguistic variables. *Psychol. Rep.* 120, 423–442. doi: 10.1177/0033294117692808

Liu, M. (2018). Bilingual/,Mltilingual learners' willingness to communicate in and anxiety on speaking Chinese and their associations with self-rated proficiency in Chinese. *Int. J. Biling. Educ. Biling.* 21, 54–69. doi: 10.1080/13670050.2015.1127889

Liu, M. (2021). Changes in and effects of TED talks on postgraduate students' English speaking performance and speaking anxiety. *J. Lang. Educ.* 7, 104–118. doi: 10.17323/jle.2021.11632

Liu, M., and Huang, W. (2011). An exploration of foreign language anxiety and English learning motivation. *Educ. Res. Int.* 2011, 1–8. doi: 10.1155/2011/493167

Liu, M., and Xiangming, L. (2019). Changes in and effects of anxiety on English test performance in Chinese postgraduate EFL classrooms. *Educ. Res. Int.* 2019, 1–11. doi: 10.1155/2019/7213925

Lucas, S. E. (2013). English public speaking and the cultivation of talents for Chinese college students. *Chinese J. Appl. Linguist.* 36, 163–182. doi: 10.1515/cjal-2013-0011

MacIntyre, P. (2007). Willingness to communicate in the second language: understanding the decision to speak as a volitional process. *Modern Lang. J.* 91, 564–576. doi: 10.1111/j.1540-4781.2007.00623.x

MacIntyre, P. D. (1999). "Language anxiety: a review of the research for language teachers," in *Affect in Foreign Language and Second Language Learning: A Practical Guide to Creating a Low-Anxiety Classroom Atmosphere,* ed D. J. Young (Boston, MA: McGraw-Hill), 24–45.

MacIntyre, P. D. (2017). "An overview of language anxiety research and trends in its development," in *New Insights Into Language Anxiety: Theory, Research and Educational Implications,* eds C. Gkonou, M. Daubncy, and J.-M. Dewaele (Bristol, UK: Multilingual Matters), 11–30. doi: 10.21832/9781783097722-003

MacIntyre, P. D., and Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: a review of the literature. *Lang. Learn.* 4, 85117. doi: 10.1111/j.1467-1770.1991.tb00677.x

Mak, B. (2011). An exploration of speaking-in-class anxiety with Chinese ESL learners. *System* 39, 202–214. doi: 10.1016/j.system.2011.04.002

Mandler, G., and Sarason, S. (1952). A study of anxiety and learning. *J. Abnorm. Soc. Psychol.* 47, 166–173. doi: 10.1037/h0062855

McCroskey, J. (1970). Measures of communication-bound anxiety. *Speech Monographs* 37, 269–277. doi: 10.1080/03637757009375677

Muchnick, A. G., and Wolfe, D. E. (1982). Attitudes and motivations of American students of Spanish. *Can. Modern Lang. Rev.* 38, 2622281. doi: 10.3138/cmlr.38.2.262

Mulyono, H., and Saskia, R. (2021). Affective variables contributing to Indonesian EFL students' willingness to communicate within face-to-face and digital environments. *Cogent Educ.* 8, 1911282. doi: 10.1080/2331186X.2021.1911282

Öztürk, G., and Gürbüz, N. (2013). The impact of gender on foreign language speaking anxiety and motivation. *Procedia-Soc. Behav. Sci.* 70, 654–665. doi: 10.1016/j.sbspro.2013.01.106

Pan, H., Xia, F., Kumar, T., Li, X., and Shamsy, A. (2022). Massive open online course versus flipped instruction: impacts on foreign language speaking anxiety, foreign language learning motivation, and learning attitude. *Front. Psychol.* 13, 833616. doi: 10.3389/fpsyg.2022.833616

Park, G. (2014). Factor analysis of the foreign language classroom anxiety scale in Korean learners of English as a foreign language. *Psychol. Rep.* 115, 261–275. doi: 10.2466/28.11.PR0.115c10z2

Pintrich, P., and Schunk, D. (2014). *Motivation in Education: Theory, Research and Applications (4th Edn)*. Harlow, UK: Pearson Education.

Reeves, R., Elliott, A., Curran, D., Dyer, K., and Hanna, D. (2021). 360° Video virtual reality exposure therapy for public speaking anxiety: a randomized controlled trial. *J. Anxiety Disord.* 83, 102451. doi: 10.1016/j.janxdis.2021.102451

Sarason, I. G. (1961). Test anxiety and the intellectual performance of college students. *J. Educ. Psychol.* 52, 201–206. doi: 10.1037/h0049095

Sarason, I. G. (1978). "The test anxiety scale: concept and research," in *Stress and anxiety Vol. 5,* eds C Spielberger and I. Sarason (New York, NY: John Wiley and Sons), 193–216.

Sarason, I. G. (1984). Stress, anxiety and cognitive interference: reactions to tests. *J. Pers. Soc. Psychol.* 46, 929–938. doi: 10.1037/0022-3514.46.4.929

Satar, H., and Özdener, N. (2008). The effects of synchronous CMC on speaking proficiency and anxiety: text versus voice chat. *Modern Lang. J.* 92, 595–613. doi: 10.1111/j.1540-4781.2008.00789.x

Scida, E., and Jones, J. (2017). The impact of contemplative practices on foreign language anxiety and learning. *Stud. Second Lang. Learn. Teach.* 7, 573–599. Available online at: https://files.eric.ed.gov/fulltext/EJ1165600.pdf

Scovel, T. (1978). The effect of affect on foreign language learning: a review of the anxiety research. *Lang. Learn.* 28, 129–142. doi: 10.1111/j.1467-1770.1978.tb00309.x

Sevinc, Y. (2018). Language anxiety in the immigrant context: sweaty palms? *The International Journal of Bilingualism: Cross-disciplinary, Cross-linguistic Studies of Language Behavior* 22, 717–739. doi: 10.1177/1367006917690914

Sevinç, Y., and Dewaele, J. (2018). Heritage language anxiety and majority language anxiety among Turkish immigrants in the Netherlands. *The International Journal of Bilingualism: Cross-disciplinary, Cross-linguistic Studies of Language Behavior* 22, 159–179. doi: 10.1177/1367006916661635

Smith, B., and Caputi, P. (2004). The development of the attitude towards computerized assessment scale. *J. Educ. Comput. Res.* 31, 407–422. doi: 10.2190/R6RV-PAQY-5RG8-2XGP

Sohrabi, S., and Ahmadi Safa, M. (2020). Group dynamic assessment and EFL learners' oral production, motivation, and classroom anxiety. *English Teach. Learn.* 44, 353–376. doi: 10.1007/s42321-020-00054-2

Spielberger, C. (1966). *Anxiety and Behaviour*. New York, NY: Academic Press.

Spielberger, C. (1980). *Test Anxiety Inventory: Preliminary Professional Manual*. Palo Alto, CA: Consulting Psychologist Press.

Spielberger, C., Gorsuch, R., Lushene, R., Vagg, P., and Jacobs, G. (1983). *Manual for the State-Trait Anxiety Inventory (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.

Spitzer, R., Kroenke, K., Williams, J., and Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch. Intern. Med.* 166, 1092–1097. doi: 10.1001/archinte.166.10.1092

Sun, P., and Teng, L. (2021). Why so nervous? Revisiting the sources of speech anxiety in Chinese as a second language. *System* 103, 102647. doi: 10.1016/j.system.2021.102647

Taat, S., Samuel, M. S. G., Rasoolimanesh, S. M., and Ponniah, L. S. (2020). Development and validation of Foreign Language Speaking Anxiety Scale in light of facilitative and debilitative anxiety. *Appl. Linguist. Res. J.* 4, 136–147. doi: 10.14744/alrj.2020.07830

Tanielian, A. R. (2014). Foreign language anxiety in a new English program in Thailand. *Int. Educ. J.: Comp. Perspect.* 13, 60–81.

Thompson, A., and Lee, J. (2012). Anxiety and EFL: does multilingualism matter? *Int. J. Biling. Educ. Biling.* 16, 730–749. doi: 10.1080/13670050.2012.713322

Thompson, A., and Lee, J. (2014). The impact of experience abroad and language proficiency on language learning anxiety. *TESOL Q.* 48, 252–274. doi: 10.1002/tesq.125

Tóth, Z. (2007). "Predictors of foreign-language anxiety: Examining the relationship between anxiety and other individual learner variables," in *UPRT 2007: Empirical studies in English applied linguistics,* eds J. Horváth and M. Nikolov (Pécs, Hungary: Lingua Franca Csoport), 123–148.

Tridinanti, G. (2018). The Correlation between speaking anxiety, self-confidence, and speaking achievement of undergraduate EFL students of private university in Palembang. *Int. J. Educ. Literacy Stud.* 6, 35–39. Available online at: https://files.eric.ed.gov/fulltext/EJ1201652.pdf

Woodrow, L. (2006). Anxiety and speaking English as a second language. *RELC J.* 37, 308–328. doi: 10.1177/0033688206071315

Xiangming, L., Liu, M., and Zhang, C. (2020). Technological impact on language anxiety dynamic. *Comput. Educ.* 150, 103839. doi: 10.1016/j.compedu.2020.103839

Yaikhong, K., and Usaha, S. (2012). A measure of EFL public speaking class anxiety: scale development and preliminary validation and reliability. *English Lang. Teach.* 5, 23–35. doi: 10.5539/elt.v5n12p23

York, J., Shibata, K., Tokutake, H., and Nakayama, H. (2021). Effect of SCMC on foreign language anxiety and learning experience: a comparison of voice, video, and VR-based oral interaction. *ReCALL* 33, 49–70. doi: 10.1017/S0958344020000154

Zhang, X. (2019). Foreign language anxiety and foreign language performance: a meta- analysis. *Modern Lang. J.* 103, 763–781. doi: 10.1111/modl.12590

Zheng, C., Wang, L., and Chai, C. (2021). Self-assessment first or peer-assessment first: effects of video-based formative practice on learners' English public speaking anxiety and performance. *Comput. Assist. Lang. Learn.* doi: 10.1080/09588221.2021.1946562. [Epub ahead of print].

Zheng, Y., and Cheng, L. (2018). How does anxiety influence language performance? From the perspectives of foreign language classroom anxiety and cognitive test anxiety. *Lang Test Asia.* 8, 13. doi: 10.1186/s40468-018-0065-4

Zhou, L., Xi, Y., and Lochtman, K. (2020). The relationship between second language competence and willingness to communicate: The moderating effect of foreign language anxiety. *J. Multiling. Multicult. Develop.* doi: 10.1080/01434632.2020.1801697

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EDITED BY
Meihua Liu,
Tsinghua University, China

REVIEWED BY
Chin-Hsi Lin,
The University of Hong Kong,
Hong Kong SAR, China
J. Lake,
Fukuoka Jo Gakuin University, Japan

*CORRESPONDENCE
Jackie Xiu Yan
ctjackie@cityu.edu.hk

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Foreign language anxiety and dependency distance in English–Chinese interpretation classrooms

Jackie Xiu Yan[1]* and Junying Liang[2]

[1]Department of Linguistics and Translation, City University of Hong Kong, Kowloon, Hong Kong SAR, China, [2]Department of Linguistics, Zhejiang University, Hangzhou, China

Foreign language anxiety (FLA) has been identified as a crucial affective factor in language learning. Similar to the situation in language classes, university students in interpretation classes are required to perform in a foreign language when their language skills are inadequate. Investigations are needed to determine the specific impact of FLA on interpretation learning. This study investigated the effects of the specific interpretation classroom FLA (ICFLA) on interpretation learning and dependency distance (DD) as an indicator of learners' cognitive load. The participants were 49 undergraduate and graduate students enrolled in English–Chinese interpretation classes at a university in Hong Kong. The results showed a significant negative correlation between ICFLA levels and consecutive interpretation achievement scores. ICFLA was also negatively correlated with DD in consecutive interpretations. Four factors underlying ICFLA were identified. The findings of this study would provide useful insights for researchers and educators to understand the nature and effect of FLA in different settings.

KEYWORDS

foreign language anxiety, cognitive load, dependency distance, interpretation, language learning, interpretation learning, sight translation, consecutive interpretation

Introduction

Foreign language anxiety (FLA) has been identified as a crucial affective factor in students' language learning (Fallah, 2017; Abdurahman and Rizqi, 2020). College students' foreign/second language skills are still developing. When they are required to communicate in this language, they tend to feel anxious. Even though their command of the language is immature, their "individual communication attempts will be evaluated according to uncertain or even unknown linguistic and sociocultural standards, second language communication entails risk-taking and is necessarily problematic" (Horwitz et al., 1986, p. 31). Anxiety has been documented in both foreign language and interpretation classes (Chiang, 2010), and the negative effect of FLA on language learning has been found by many studies (e.g., Cheng et al., 1999; Yan and Wang, 2001;

Argaman and Abu-Rabia, 2002; Yan and Detaramani, 2008). Only a few studies have been conducted on the effect of FLA on the learning of interpretation see Chiang (2009); Chiang (2010); Wei et al. (2020). More studies are needed to investigate FLA in interpretation classes. More importantly, as both language and interpretation learning involve complex cognitive operations, it is important to see the role of FLA in affecting cognitive functions. This study is an attempt in this direction: It investigated the effects of FLA on interpretation learning and cognitive load. The findings of this study are expected to advance our knowledge of FLA in interpretation and language learning.

Literature review

Foreign language anxiety (FLA) is defined as a "distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz et al., 1986, p. 128). According to this definition, FLA is a situation-specific construct (MacIntyre, 1999; Teimouri et al., 2019), which suggests that people who do not normally feel anxious may be struck by anxiety in language classrooms. The Foreign Language Classroom Anxiety Scale (FLCAS), constructed by Horwitz et al. (1986) based on this understanding, has been used as a standard instrument in studies of FLA (Horwitz, 2010). With the breakthrough in conceptualizing this construct and the aid of this highly valid and reliable instrument, researchers have been able to conduct systematic investigations (e.g., MacIntyre and Gardner, 1991; Phillips, 1992; Aida, 1994; Saito and Samimy, 1996; Cheng et al., 1999; Yan and Detaramani, 2008; Liu and Li, 2019), and a consistent negative correlation has been found between FLA and achievement. The adverse effect of FLA on language achievement has been confirmed by studies on the learning of different languages (e.g., Kitano, 2001; Yan and Wang, 2001; Kondo and Yang, 2004; Matsuda and Gobel, 2004; Elkhafaifi, 2005; Frantzen and Magnan, 2005), and various aspects of language proficiencies (e.g., Oh, 1992; Cheng et al., 1999; Saito et al., 1999; Kim, 2000; Sellers, 2000; Argaman and Abu-Rabia, 2002; Elkhafaifi, 2005; Liu, 2006).

Based on the understanding of the negative influence of FLA on language performance, some researchers have devoted themselves to the search for sources of FLA (e.g., Young, 1991; Liu, 2006; Yan and Horwitz, 2008). Additionally, more and more studies have focused on the relationship between language anxiety and other learning variables (Oteir and Al-Otaibi, 2019). For example, studies on the relationship of FLA with the following variables: Willingness to communicate (Liu and Jackson, 2008; Rastegar and Karami, 2015; Yan et al., 2018; Kalsoom et al., 2020; Zhou et al., 2020), learning style (Bailey et al., 1999), self-efficacy (Mills et al., 2006; Eginli and Solhi, 2020; Wang et al., 2022), self-confidence (Bensalem and Thompson, 2022), self-esteem (Rubio-Alcalá, 2017), learning autonomy (Ahmadi and Izadpanah, 2019), learning strategies (Abdurahman and Rizqi, 2020; Demir and Zaimoğlu, 2021), motivation (Duvernay, 2009; Saito et al., 2018; Alamer and Almulhim, 2021; Ismail and Hastings, 2021), learner beliefs (Aslan and Thompson, 2021), and personality (Dewaele, 2017; Šafranj, 2018; Šafranj and Zivlak, 2019).

When students feel anxious about learning or using a foreign language, their "worry and negative emotional reaction [are] aroused" (MacIntyre, 1999, p. 27), but it remains to be established why FLA exerts a debilitating influence on students' language learning and performance. Researchers have proposed a number of mechanisms to explain the connection between the two. Krashen's (1987) affective filter hypothesis suggests that when the affective filter is active, input information can be filtered out and fail to reach the learners' brains. FLA may therefore activate and raise students' affective filter and block their understanding of the input information. Researchers have observed and attempted to explain the interference of FLA with learners' cognitive systems in each of their input, processing, and output stages see MacIntyre (1995); Shao et al. (2013). During the input stage, students' attention might be attracted by task-irrelevant concerns, for example, fear of negative evaluation from their peers or teachers. When students cannot concentrate on the language learning task, the input information cannot reach their brains. Following the input stage, students' speed and accuracy in storing information in the processing stage and the quality of their products in the output stage can also be affected by FLA (Abdurahman and Rizqi, 2020). MacIntyre and Gardner (1994) examined the effect of induced anxiety in the three stages of vocabulary learning. Stage-specific anxiety scales and stage-specific tasks were used to assess the "more specific, subtle effects of language anxiety" (p. 284). Their results showed that the effects of anxiety were evident during the input and processing stages, but not at the output stage of language learning. The increased effort during the previous stages ultimately reduced the effects of anxiety at the output stage. This supported Eysenck's (1979) suggestion that increased effort may sometimes compensate for the effects of anxiety on the quality of observed performance.

Similar to the situation in language classes, university students in interpretation classes are required to perform in a foreign language even though their language skills are still inadequate (Yan et al., 2010). The use of interpretation classes to complement language learning and vice versa has attracted research interest. Interpretation has been used as a tool for foreign language teaching. It is not uncommon for students to sign up for interpretation training to improve their foreign language proficiency (Chiang, 2006), and interpretation classes are often part of language programs (Pan and Yan,

2012). Yagi's (2000) research findings showed that simultaneous interpretation (SI) can be used as an effective tool for English as a foreign language (EFL) and confirmed that SI not only greatly contributes to students' oral English fluency but is also effective in identifying their grammar and vocabulary abilities. Although Zannirato (2008) pointed out that language skills are not synonymous with translation skills, he investigated the feasibility of using various interpretation techniques in foreign language acquisition. It is therefore understood that foreign language training and interpretation training could be mutually beneficial. The relationship between foreign language teaching and interpretation training is interesting and interlocking.

Given the above similarity in foreign language learning, the impact of FLA on interpretation learning is worth exploring. There are many causes and various types of anxiety in interpretation classes, but only a few studies have been conducted on the impact of FLA on interpretation learning. Chiang, Chiang's (2009, 2010) studies confirmed the negative correlation between FLA and interpretation learning achievement. These studies used the 33-item FLCAS developed by Horwitz et al. (1986), which is designed to measure students' anxiety in foreign language classrooms. Most of the items on the scale are not suitable for interpretation classroom learning; thus, it is necessary to adapt the wording of these items and choose those that are relevant to interpretation classes.

Interpretation is a highly complex cognitive activity, and it has a close association with working memory (Liang et al., 2017). It is still not clear how anxiety in general and FLA, in particular, interfere with the interpretation process and affect interpreters' performance.

Interpretation requires several patterns of attention-sharing and can overload the working memory, which tends to overwhelm students during interpreting practice. This cognitive overload could be a crucial factor mediating between FLA and interpreter performance. However, due to the absence of pertinent physiological approaches, it has been quite elusive to attempt to directly measure the working memory load or burden in such a complicated language processing activity. The dependency grammar approach (Hudson, 1995; Liu et al., 2017) comes right to the methodological rescue. Dependency grammar defines any grammatical relation in terms of a binary and asymmetric dependency relation between two syntactically related words, i.e., the head and the dependent, and accordingly proposes Dependency Distance (DD) as a measure of syntactic processing complexity. DD, coined by Heringer et al. (1980) and extended by Hudson (1995), is conceived simply as the linear word order difference between the head and dependent of a dependency. It has been theoretically and empirically validated as an effective means of quantifying the memory burden imposed on language processing that reflects the dynamic cognitive load of language processing demands (Hudson, 1995; Liu, 2008; Futrell et al., 2015; Liu et al., 2017; Wang and Liu, 2019; Jiang and Jiang, 2020).

As the interpreting task tends to push interpreters close to the saturation of their working memory capacity (Gile, 2009), it is plausible to assume stronger correlations between interpreters' cognitive load and the DD of their interpretation, making DD a promising index to help investigate and quantify potential relationships between FLA and interpreting performance/learning. Because there is a universal tendency to reduce cognitive load, given the principle of least effort (Zipf, 1949), there is a tendency to syntactically restructure sentences to minimize the overall DD (Liu et al., 2017). According to Liang et al. (2017), this least effort tendency is found across different languages (Liu, 2008; Futrell et al., 2015), genres (Wang and Liu, 2017), and code-switching discourses (Wang and Liu, 2013), suggesting that it is affected by external constraints, especially that of limited working memory. Thus, this propensity can also affect interpretation processes. Their study found that different interpreting types "yield different DD" (Liang et al., 2017, p 1), and consecutive interpreting (CI) texts entail smaller DD than those of SI and read-out translated speech, indicating that the cognitive demands are higher for CI than that of SI and read-out translated speech.

Based on Liang et al. (2017), we used in the present study a directed acyclic graph to present the dependency structure of a sentence as in **Figure 1**. The dependency analysis for the sentence "*The girl ate an apple*" is illustrated below.

Figure 1 shows the dependency relations between words in a sentence. For each pair of words linked by a dependency relation, one is called the dependent and the other the governor. The labeled arc extends from the governor to the dependent (Liu, 2008). The directed edge from governor to dependent illustrates the asymmetrical relation between these two units. The numbers below indicate the linear position of each word within the entire sentence. Liu et al. (2009) used the term Dependency Distance, and calculated the mean dependency distance (MDD) of a sentence with the following formula, where n is the number of words in a sentence and DDi is the dependency distance of the i-th syntactic link in the sentence:

$$\mathrm{MDD(the\ sentence)} = \frac{1}{n-1}\sum_{i=1}^{n-1} |\,\mathrm{DD_i}\,| \qquad (1)$$

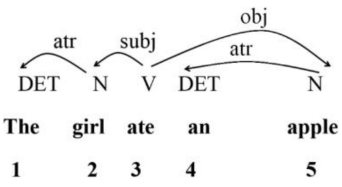

FIGURE 1
Dependency structure of sample sentence "*The girl ate an apple*" (Liang et al., 2017).

This formula can also be used to examine the MDD of a text or a treebank:

$$\text{MDD(the sample)} = \frac{1}{n-s}\sum_{i=1}^{n-s} |\,DD_i\,| \quad (2)$$

where *n* is the total number of words in the sample, *s* is the total number of sentences in the sample, and DDi is the dependency distance of the *i*-th syntactic link of the whole text.

Thus, in the sample sentence, *The girl ate an apple*, a series of DDs can be obtained: 1 1 0 1 2. Each DD is obtained by subtracting the number of the word and that of its governor. Then, using Formula (1), the MDD of this sentence is obtained as 5/4 = 1.25.

This study investigated the effects of FLA on interpretation learning and cognitive load. An adapted FLCAS was used to measure the specific interpretation of classroom FLA (ICFLA). Factors underlying ICFLA and the effect of ICFLA on students' self-perceived English ability were also explored. Five research questions were posed:

1. Is ICFLA related to learners' interpretation of learning outcomes?
2. Is ICFLA related to DD?
3. Do CI and sight translation (ST) entail different cognitive demands?
4. What are the factors underlying ICFLA?
5. Is ICFLA related to students' language competence (self-perceived)?

Materials and methods

Participants

The subjects were 49 undergraduate and graduate students enrolled in English–Chinese interpretation classes at a university in Hong Kong. Twenty of them were undergraduates (14 in Year 4 and 6 in Year 3) and 29 graduate students; there were 43 females and 6 males.

The courses were elective and students were mainly trained in CI and ST. In CI training, they normally engaged in a two-stage process in which they are required to listen to the speech first, and then start translating it orally into the target language right after the speaker pauses. In ST exercises, they were instructed to process the written text in the source language and translate it orally into the target language. They had a range of years of exposure to interpretation training.

Instruments

The questionnaire had three sections. The first was a scale to measure students' FLA levels in their interpretation classes. The scale was designed by the first author with reference to the 33-item FLCAS by Horwitz et al. (1986). Only the items relevant to interpretation classes were included, and the wording was adapted to suit interpretation learning. For example, item 1 in the FLCAS ("I never feel quite sure of myself when I am speaking in my foreign language class") was changed to "I never feel quite sure of myself when I am speaking English in my interpretation class." The adapted FLCAS comprised 15 items. The FLCAS 5-point Likert rating scale was retained in the adapted one, ranging from 1 (strongly disagree) to 5 (strongly agree). Some of the items were negatively worded and reverse-scored during the analysis. The internal consistency of the scale using Cronbach's alpha was 0.86, indicating fairly high reliability. The second section gathered students' demographic information, including age, gender, grade level, and years of training in interpretation. The third section examined the students' self-perceived English and interpreting competence, and the items were rated on a five-point Likert scale.

Data collection and analysis

The questionnaires were administered to the participants in class at the end of the semester during which they had taken interpretation classes on a weekly basis. The researchers first assured the students that the data collected would be used only for research purposes and that their participation was entirely voluntary. The participants signed a consent form before filling in the questionnaire, which took approximately 15 min to complete. Learning achievement was assessed using test scores from two quizzes that covered English-to-Chinese and Chinese-to-English ST and CI. Here is the design of the quizzes: Quiz 1: ST (English to Chinese), CI (Chinese to English); Quiz 2: ST (Chinese to English), and CI (English to Chinese). The test materials were authentic speeches or materials covering various topics (e.g., ceremony, international exchange, foreign policy, science, and education). The quizzes tested the students' ability in translating orally the source text they had read (in ST) or heard (in CI). The Chinese-to-English ST and CI parts of the tests, which are texts in English, were transcribed and used for DD analysis. There are around 569 Chinese characters on average in a CI source text and 457 Chinese characters on average in an ST source text. The data obtained from the questionnaires were analyzed using SPSS.

Results

Descriptive statistics

Table 1 reports descriptive statistics of the gender and grade levels of the subjects.

Table 2 reports descriptive statistics of test scores, self-perceived language competence, and ICFLA scores.

Foreign language anxiety and interpretation performance

Pearson product–moment correlation analysis was used to examine whether interpretation classroom foreign language anxiety (ICFLA) was correlated with student learning achievement in interpretation classes. As shown in Table 3, there was a significant negative correlation between ICFLA levels and average test scores. This result suggests that the higher the students' language anxiety levels, the lower their test scores were likely to be.

Interpretation of classroom foreign language anxiety and test type

Although the students' foreign language anxiety levels showed a significant negative correlation with their CI scores, as seen in Table 4, they were not significantly correlated with their ST scores. These results suggest that higher anxiety levels were related to lower consecutive test scores but not necessarily to ST scores.

TABLE 1 Descriptive statistics of gender and grade level.

		Frequency	Percent	Cumulative percent
Gender	Male	6	12.2	12.2
	Female	43	87.8	100.0
	Total	49	100.0	
Grade level	Undergraduate students	20	40.8	40.8
	Graduate students	29	59.2	100.0
	Total	49	100.0	

TABLE 2 Descriptive statistics of test scores, SPLC, and interpretation classroom foreign language anxiety (ICFLA) scores.

	N	Minimum	Maximum	Mean	SD
Test score	49	69.25	89.75	80.45	4.68
CI test score	49	66.00	88.50	78.76	5.81
ST test score	49	67.50	91.00	81.52	5.32
SPLC	48	12.00	25.00	19.77	2.78
ICFLA	49	20.00	66.00	42.65	7.80

SPLC, self-perceived language competence.

TABLE 3 Pearson product–moment correlation between interpretation classroom language anxiety levels and average test score at a Hong Kong tertiary institution.

Correlation			
		Average test score	ICFLA
Average test score	Pearson correlation	1	−0.32*
	Sig. (2-tailed)		0.02
ICFLA	Pearson correlation	−0.32*	1
	Sig. (2-tailed)	0.02	

*Significant at the 0.05 level (2-tailed).

TABLE 4 Pearson product–moment correlation between interpretation classroom foreign language anxiety levels and CI test performance.

Correlation			
		ICFLA	CI test score
ICFLA	Pearson correlation	1	−0.29*
	Sig. (2-tailed)		0.04
CI test score	Pearson correlation	−0.29*	1
	Sig. (2-tailed)	0.04	

*Significant at the 0.05 level (2-tailed).

Interpretation of classroom foreign language anxiety and dependency distance

The audio recordings of the students' ST and CI tests were transcribed, and the DD (indicating cognitive load) was run to calculate the students' cognitive load while they performed ST and CI. To determine whether FLA in the interpretation classroom was related to DD, the Pearson product-moment correlation analysis between these two variables was computed. Table 5 shows a significant negative correlation between ICFLA level and DD during the CI tests. This suggests that the higher the students' ICFLA level, the shorter the DD and the higher the cognitive load for students. However, no significant correlation was found between ICFLA levels and DD in the ST tests.

Factor structure of the adapted FLCAS measuring ICFLA to explore the factor structure of the 15-item adapted FLCAS, principal component analysis with varimax rotation was conducted. The selection of the best-rotated solution was based on the eigenvalues > 1 and scree test criteria. Four components had eigenvalues greater than 1 and accounted for 65.305% of the total variance.

Table 6 shows the rotated component matrix (sorted by factor). Factor 1 was defined by seven items (Q5, Q8, Q9, Q13, Q6, Q12, and Q1) mainly related to fear of speaking in class. This factor was labeled "public speaking fear." Factor 2 was defined by three factors (Q2, Q11, and Q10) related mainly to difficulty in understanding the source text. This factor was labeled "listening comprehension difficulty." Factor 3 was defined by three items (Q3, Q7, and Q15) mainly about fear

TABLE 5 Pearson product-moment correlation between interpretation classroom foreign language anxiety levels and dependency distance at a Hong Kong institution (CI test).

Correlation			
		ICFLA	DD in CI test
ICFLA	Pearson correlation	1	0.30*
	Sig. (2-tailed)		0.04
DD in CI test	Pearson correlation	0.30*	1
	Sig. (2-tailed)	0.04	

*Significant at the 0.05 level (2-tailed).

of speaking in front of peers. This factor was labeled "fear of negative evaluation by peers." Factor 4 comprised two items (Q4 and Q14) related to nervousness around native speakers and was labeled "apprehension about communicating with native speakers."

Interpretation classroom foreign language anxiety level and self-perceived language/interpretation competence

The correlation between self-perceived language competence (five aspects) and FLA in the interpretation classroom was explored, and a Pearson product-moment correlation analysis was conducted on the relationships between the ICFLA Levels and each of the abovementioned self-perceived competencies. As displayed in **Table 7**, significant negative correlations were found between the students' foreign language anxiety levels and their self-perceived competence in interpretation and foreign language (English) learning except for their self-perceived English reading and writing skills.

TABLE 7 Pearson product–moment correlation between interpretation classroom foreign language anxiety levels and self-perceived language competence.

	Anxiety	
	Pearson correlation	Sig. (2-tailed)
Self-perceived overall English ability	−0.35*	0.01
Self-perceived English speaking skill	−0.56**	0.00
Self-perceived English listening skill	−0.39**	0.01
Self-perceived English reading skill	−0.082	0.58
Self-perceived English writing skill	−0.20	0.18
Self-perceived interpreting skill	−0.62**	0.00

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

Discussion

Numerous studies over more than three decades have shown that FLA negatively affects students' language learning. However, relatively few studies have explored FLA in an interpreter training context, and its effect in interpretation classes is still unknown. Some studies (e.g., Chiang, 2009, 2010) have identified negative correlations between FLA and interpretation achievements, but the conceptualization and instruments used were not directly related to FLA in interpretation classes. For example, Chiang (2009, 2010) used the 33-item FLCAS (Horwitz et al., 1986) to measure students' FLA levels. Many FLCAS items are relevant only for foreign

TABLE 6 Factor analysis of ICFLCAS.

Rotated component matrix				
	Component			
	1	2	3	4
Q5. I feel confident when I speak English in interpretation classes.	**0.75**			
Q8. I feel very self-conscious about speaking English in front of other students.	**0.72**			
Q9. I get nervous and confused when speaking English in my interpretation class.	**0.68**			
Q13. I am afraid that the other students will laugh at me when I speak English.	**0.64**			
Q6. I am afraid that my interpretation teacher is ready to correct every mistake I make in English.	**0.57**			
Q12. I feel overwhelmed by the large vocabulary you have to learn to speak English.	**0.55**			
Q1. I never feel quite sure of myself when speaking English in my interpretation class.	**0.55**			
Q2. It frightens me when I don't understand the source text in English.		**0.74**		
Q11. I feel overwhelmed by the number of rules you have to learn to speak English.		**0.69**		
Q10. I get nervous when I don't understand every word in the English source text.		**0.68**		
Q3. I keep thinking that the other students in the interpretation class are better at language than I am.			**0.83**	
Q7. I always feel that the other students speak English better than I do.			**0.76**	
Q15. I feel embarrassed to open my mouth because I think I have poor pronunciation and intonation.			**0.57**	
Q4. I would not be nervous speaking English with native speakers.				**0.87**
Q14. I would probably feel comfortable around native speakers of English.				**0.55**

language classes and not for interpretation classes. For example, item 26 in the FLCAS includes the statement: "I feel more tense and nervous in my English class than in my other classes." In the present study, the undergraduate and graduate student participants no longer had English classes in their curriculum. Therefore, if comparable items had been used, the participants would have had to recall situations from secondary school when they last took English classes. If the "English class" is changed to "interpretation class," this item would not have directly addressed their FLA experiences during interpreting classes, because students may feel tense or nervous for other reasons in interpretation classes, for example, their poor translation skills. In contrast, the 15-item ICFLA asks students questions that are directly related to their FLA experience in interpretation classes, which enabled this study to identify the degrees and impact of FLA during interpretation training. Indeed, the appropriate design and use of an instrument to measure FLA in interpretation classes are important in foreign language classes, a setting in which the FLCAS has contributed greatly to the understanding of the roles of FLA.

As expected, a clear-cut negative correlation was identified between FLA and interpretation learning when the appropriate instrument was used. In the two classes examined in this study, two types of skill were tested: CI and ST. In CI, the students listened to the source text and then interpreted it. In ST, the students read the source text. The ICFLA scores correlated with the CI scores but not with the ST scores. This implies that the students felt more anxious during CI and found the task more difficult when listening to the source text than when reading it.

Interestingly, the correlation between ICFLA and DD in the CI test also echoes the above findings. That is, language anxiety was correlated with CI but not with ST. This finding may imply that CI is cognitively more demanding than ST. Liang et al. (2017) also found that different types of interpretation yielded different DDs; specifically, CI entailed the smallest DD and imposed heavier cognitive demands than simultaneous interpretation. This finding has been corroborated by a series of interpreting studies from multiple different linguistic perspectives, such as lexical simplification, lexical category distribution, language sequences, and syntactic networks (Liang et al., 2019; Lv and Liang, 2019; Jia and Liang, 2020; Lin et al., 2021)."

Compared with CI, ST is considered to be closer in nature to simultaneous interpreting, and it is often used as a preparatory exercise for simultaneous interpreting practices. In this sense, this study's results confirmed the finding of Liang et al. (2017) that CI is cognitively more demanding than simultaneous interpreting. This study is the first to examine the relationship between FLA and DD in classroom learning. More investigations along this line could yield further insights into how FLA affects students' language and interpretation learning.

Four factors were identified underpinning ICFLA: "fear of public speaking," "difficulty in listening comprehension," "fear of negative evaluation by peers," and "apprehension about communicating with native speakers." During interpretation classes, students are required to listen to (as source text) and speak (translate orally as target text or answer the instructor's questions) in a foreign language that they are still learning. This explains the identification of the first two factors, which are related to speaking and listening. In addition, during CI training, students are likely to be required to speak in front of others, while simultaneous interpretation is conducted in booths. Therefore, the first factor is intuitively related to CI. The third factor, "fear of negative evaluation from peers," is easily understood because students are frequently required to perform in front of their peers, whose language and interpreting skills vary greatly. The fourth factor, which relates to communicating with native speakers, is also explicable because interpretation activities usually serve native foreign language speakers' needs. However, students often report that the natural speech of native foreign language speakers is difficult to follow because of their fast speed, wide-ranging vocabulary, and complex grammatical structures. The four factors underpinning ICFLA are related to, but different from the three components of FLA, which are communication apprehension, test anxiety, and fear of negative evaluation in the foreign language classroom (Horwitz et al., 1986), indicating unique features of their respective learning context.

Students' self-perceptions of their learning achievements have been found to be highly reliable, which is helpful when estimating their real level of achievement (Cheng, 2002; Yan and Horwitz, 2008; Yan et al., 2010; Yan and Wang, 2012). Using the ICFLAS, the students' FLA levels were found to be significantly negatively correlated with their self-perceived overall English ability and listening and speaking skills, but not with their self-perceived reading and writing skills. These results are reasonable because interpreting activities involve only listening and speaking. In addition, the higher the students' FLA levels, the lower their perceived listening and speaking skills. FLA had a greater effect on the students' self-perceived speaking skills than on any other measured item, as shown by this relationship having the largest correlation coefficient. FLA was also significantly negatively correlated with the students' self-perceived interpretation skills, with a correlation coefficient of −0.615; this was much larger than the correlation coefficient between FLA and the students' real interpretation achievement (−0.293). Therefore, it is likely that FLA affected the students' self-perceptions and real performance in turn.

Conclusion

Adapting the FLCAS and using it to measure specifically FLA in interpretation classrooms, this study found clear-cut negative correlations between FLA and students' CI achievements, self-perceived interpretation ability, and speaking and listening skills. These findings indicated the negative effects of FLA in interpretation classes. More importantly, this study

revealed a negative relationship between FLA and DD in CI, which showed that the more anxious the students were, the heavier their cognitive burden during CI. However, in contrast to CI, ST was not significantly affected by FLA and the students were less cognitively burdened by ST activities. Four factors were found to underlie the construct of ICFLA: "fear of public speaking," "difficulty in listening comprehension," "fear of negative evaluation by peers," and "apprehension about communicating with native speakers." These findings provide useful insights for researchers and educators to understand the nature of FLA in different settings and facilitate appropriate methods for reducing its effect.

The findings have important implications for classroom teaching. In interpretation classes, there are different types of anxiety. The findings of this study may help teachers differentiate FLA from other types of anxiety. Arrangements can be made to facilitate students coping with FLA. For example, teachers may discuss with the students the different speaking styles of native and non-native speakers; let students talk with their peers before inviting an individual student to answer the teacher's questions or demonstrate interpretation in class; adjust the speaking speed of the speakers so that the students can gradually improve their listening comprehension in a foreign language; help students conduct guided peer evaluation.

Although the present study has revealed some interesting and important findings in FLA and interpretation learning, several limitations can be found. First, the problem is the small sample size, which resulted from the small interpretation classes. A larger sample size may reveal more interesting and convincing findings. Second, some important relationships have been established between several variables. More investigations on various factors associated with the relationship are needed in the future. In addition, qualitative investigations like focus groups or individual interviews can be conducted to find out more about students' FLA and cognitive load in interpretation classes.

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 Human Subjects Ethics Sub-Committee, City University of Hong Kong. The patients/participants provided their written informed consent to participate in this study.

Author contributions

JXY conceived and designed the research, collected the data, analyzed the data except for the part related to dependency distance, and wrote the manuscript. JL performed the data analysis concerning dependency distance. Both 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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References

Abdurahman, N. H., and Rizqi, M. A. (2020). Indonesian students' strategies to cope with foreign language anxiety. *TEFLIN J.* 31, 1–18. doi: 10.15639/eflinjournal.v31i1/1-18

Ahmadi, M., and Izadpanah, S. (2019). The study of relationship between learning autonomy, language anxiety, and thinking style: The case of Iranian university students. *Int. J. Res. English Educ.* 4, 73–88. doi: 10.29252/ijree.4.2.73

Aida, Y. (1994). Examination of Horwitz, Horwitz, and Cope's construct of foreign language anxiety: The case of students of Japanese. *Mod. Lang. J.* 78, 155–168. doi: 10.1111/j.1540-4781.1994.tb02026.x

Alamer, A., and Almulhim, F. (2021). The interrelation between language anxiety and self-determined motivation: A mixed methods approach. *Front. Educ.* 6:618655. doi: 10.3389/feduc.2021.618655

Argaman, O., and Abu-Rabia, S. (2002). The influence of language anxiety on English reading and writing tasks among native Hebrew speakers. *Lang. Cult. Curric.* 15, 143–160. doi: 10.1080/07908310208666640

Aslan, E., and Thompson, A. S. (2021). The interplay between learner beliefs and foreign language anxiety: Insights from the Turkish EFL context. *Lang. Learn.* 49, 189–202. doi: 10.1080/09571736.2018.1540649

Bailey, P., Daley, C. E., and Onwuegbuzie, A. J. (1999). Foreign language anxiety and learning style. *Foreign Lang. Ann.* 32, 63–76. doi: 10.1111/j.1944-9720.1999.tb02376.x

Bensalem, E., and Thompson, A. S. (2022). Multilingual effects on EFL learning: A comparison of foreign language anxiety and self-confidence experienced by bilingual and multilingual tertiary students. *Int. J. Biling. Educ. Biling.* 25, 2653–2667. doi: 10.1080/13670050.2021.1943306

Cheng, Y. (2002). Factors associated with foreign language writing anxiety. *Foreign Lang. Ann.* 35, 647–656. doi: 10.1111/j.1944-9720.2002.tb01903.x

Cheng, Y.-S., Horwitz, E. K., and Schallert, D. L. (1999). Language anxiety: Differentiating writing and speaking components. *Lang. Learn.* 49, 417–446. doi: 10.1111/0023-8333.00095

Chiang, Y.-N. (2006). *Connecting two anxiety constructs: An interdisciplinary study of foreign language anxiety and interpretation anxiety*. Ph.D. thesis. Austin, TX: The University of Texas at Austin.

Chiang, Y.-N. (2009). Foreign language anxiety in Taiwanese student interpreters. *Meta* 54, 605–621. doi: 10.7202/038318ar

Chiang, Y.-N. (2010). Foreign language anxiety and student interpreters' learning outcomes: Implications for the theory and measurement of interpretation learning anxiety. *Meta* 55, 589–601. doi: 10.7202/045079ar

Demir, A. N., and Zaimoğlu, S. (2021). The relationship between foreign language anxiety and decision-making strategies among university students. *J. Lang. Linguist. Stud.* 17, 18–32. doi: 10.17263/jlls.903294

Dewaele, J.-M. (2017). "Psychological dimensions and foreign language anxiety," in *The routledge handbook of instructed second language acquisition*, eds S. Loewen and M. Sato (London: Routledge), 433–450. doi: 10.4324/9781315676968-24

Duvernay, N. (2009). Motivation and anxiety in the Korean EFL classroom. *KLing* 3, 1–20.

Eginli, I., and Solhi, M. (2020). Perceived social self-efficacy and foreign language anxiety among undergraduate English teacher candidates: The case of Turkey. *Novitas R.* 14, 13–24.

Elkhafaifi, H. (2005). Listening comprehension and anxiety in the Arabic language classroom. *Mod. Lang. J.* 89, 206–220. doi: 10.1111/j.1540-4781.2005.00275.x

Eysenck, M. W. (1979). Anxiety, learning and memory: A reconceptualization. *J. Res. Pers.* 13, 363–385. doi: 10.1016/0092-6566(79)90001-1

Fallah, N. (2017). Mindfulness, coping self-efficacy and foreign language anxiety: A mediation analysis. *Educ. Psychol.* 37, 745–756. doi: 10.1080/01443410.2016.1149549

Frantzen, D., and Magnan, S. S. (2005). Anxiety and the true beginner-false beginner dynamic in beginning French and Spanish classes. *Foreign Lang. Ann.* 38, 171–190. doi: 10.1111/j.1944-9720.2005.tb02483.x

Futrell, R., Mahowald, K., and Gibson, E. (2015). Large-scale evidence of dependency length minimization in 37 languages. *Proc. Natl. Acad. Sci. U.S.A.* 112, 10336–10341. doi: 10.1073/pnas.1502134112

Gile, D. (2009). *Basic concepts and models for interpreter and translator training: Revised edition*. Amsterdam: John Benjamins. doi: 10.1075/btl.8

Heringer, H. J., Wimmer, R., and Strecker, B. (1980). *Syntax: Fragen, lösungen, alternativen*. München: Wilhelm Fink Verlag.

Horwitz, E. K. (2010). Foreign and second language anxiety. *Res. Timeline* 43, 154–167. doi: 10.1017/S026144480999036X

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x

Hudson, R. (1995). *Measuring syntactic difficulty. Draft of manuscript*. London: London University College.

Ismail, D., and Hastings, P. (2021). "Way to go! Effects of motivational support and agents on reducing foreign language anxiety," in *Artificial intelligence in education. AIED 2021. Lecture notes in computer science*, eds I. Roll, D. McNamara, S. Sosnovsky, R. Luckin, and V. Dimitrova (Cham: Springer), 202–207. doi: 10.1007/978-3-030-78270-2_36

Jia, H., and Liang, J. (2020). Lexical category bias across interpreting types: Implications for synergy between cognitive constraints and language representations. *Lingua* 239:102809. doi: 10.1016/j.lingua.2020.102809

Jiang, X., and Jiang, Y. (2020). Effect of dependency distance of source text on disfluencies in interpreting. *Lingua* 243:102873. doi: 10.1016/j.lingua.2020.102873

Kalsoom, A., Soomro, N. H., and Pathan, Z. H. (2020). How social support and foreign language anxiety impact willingness to communicate in English in an EFL classroom. *Int. J. English Linguist.* 10, 80–91. doi: 10.5539/ijel.v10n2p80

Kim, J.-H. (2000). *Foreign language listening anxiety: A study of Korean students learning English*. Ph.D. thesis. Austin, TX: University of Texas at Austin.

Kitano, K. (2001). Anxiety in the college Japanese language classroom. *Mod. Lang. J.* 85, 549–566. doi: 10.1111/0026-7902.00125

Kondo, D. S., and Yang, Y. L. (2004). Strategies for coping with language anxiety: The case of students of English in Japan. *ELT J.* 58, 258–265. doi: 10.1093/elt/58.3.258

Krashen, S. D. (1987). *Principles and practice in second language acquisition*. Englewood Cliffs, NJ: Prentice-Hall International.

Liang, J., Fang, Y., Lv, Q., and Liu, H. (2017). Dependency distance differences across interpreting types: Implications for cognitive demand. *Front. Psychol.* 8:2132. doi: 10.3389/fpsyg.2017.02132

Liang, J., Lv, Q., and Liu, Y. (2019). Quantifying interpreting types: Language sequence mirrors cognitive load minimization in interpreting tasks. *Front. Psychol.* 10:285. doi: 10.3389/fpsyg.2019.00285

Lin, Y., Xu, D., and Liang, J. (2021). Differentiating interpreting types: Connecting complex networks to cognitive complexity. *Front. Psychol.*12:590399. doi: 10.3389/fpsyg.2021.590399

Liu, H. (2008). Dependency distance as a metric of language comprehension difficulty. *J. Cogn. Sci.* 9, 159–191. doi: 10.17791/jcs.2008.9.2.159

Liu, H., Hudson, R., and Feng, Z. (2009). Using a Chinese treebank to measure dependency distance. *Corpus Linguist. Linguist. Theory* 5, 161–175. doi: 10.1515/CLLT.2009.007

Liu, H., Xu, C., and Liang, J. (2017). Dependency distance: A new perspective on syntactic patterns in natural languages. *Phys. Life Rev.* 21, 171–193. doi: 10.1016/j.plrev.2017.03.002

Liu, M. (2006). Anxiety in EFL classrooms: Causes and consequences. *TESL Rep.* 39, 13–32.

Liu, M., and Jackson, J. (2008). An exploration of Chinese EFL learners' unwillingness to communicate and foreign language anxiety. *Mod. Lang. J.* 92, 71–86. doi: 10.1111/j.1540-4781.2008.00687.x

Liu, M., and Li, X. (2019). Changes in and effects of anxiety on English test performance in Chinese postgraduate EFL classrooms. *Educ. Res. Int.* 2019, 1–11. doi: 10.1155/2019/7213925

Lv, Q., and Liang, J. (2019). Is consecutive interpreting easier than simultaneous interpreting? A corpus-based study of lexical simplification in interpretation. *Perspectives* 27, 91–106. doi: 10.1080/0907676X.2018.1498531

MacIntyre, P. D. (1995). How does anxiety affect second language learning? A reply to Sparks and Ganschow. *Mod. Lang. J.* 79, 90–99. doi: 10.1111/j.1540-4781.1995.tb05418.x

MacIntyre, P. D. (1999). "Language anxiety: A review of the research for language teachers," in *Affect in Foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere*, ed. D. J. Young (Boston, MA: McGraw-Hill College), 24–45.

MacIntyre, P. D., and Gardner, R. C. (1991). Language anxiety: Its relationship to other anxieties and to processing in native and second languages. *Lang. Learn.* 41, 513–534. doi: 10.1111/j.1467-1770.1991.tb00691.x

MacIntyre, P. D., and Gardner, R. C. (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Lang. Learn.* 44, 283–305. doi: 10.1111/j.1467-1770.1994.tb01103.x

Matsuda, S., and Gobel, P. (2004). Anxiety and predictors of performance in the foreign language classroom. *System* 32, 21–36. doi: 10.1016/j.system.2003.08.002

Mills, N., Pajares, F., and Herron, C. (2006). A reevaluation of the role of anxiety: Self-efficacy, anxiety, and their relation to reading and listening proficiency. *Foreign Lang. Ann.* 39, 276–295. doi: 10.1111/j.1944-9720.2006.tb02266.x

Oh, J. (1992). The effects of L2 reading assessment methods of anxiety level. *TESOL Q.* 26, 172–176. doi: 10.2307/3587386

Oteir, I. N., and Al-Otaibi, A. N. (2019). Foreign language anxiety: A systematic review. *Arab World English J.* 10, 309–317. doi: 10.24093/awej/vol10no3.21

Pan, J., and Yan, J. X. (2012). Learner variables and problems perceived by students: An investigation of a college interpreting program in China. *Perspectives* 20, 199–218. doi: 10.1080/0907676X.2011.590594

Phillips, E. M. (1992). The effects of language anxiety on students' oral test performance and attitudes. *Mod. Lang. J.*76, 14–25. doi: 10.1111/j.1540-4781.1992.tb02573.x

Rastegar, M., and Karami, M. (2015). On the relationship between foreign language classroom anxiety, willingness to communicate and scholastic success among Iranian EFL learners. *Theory Pract. Lang. Stud.* 5, 2387–2394. doi: 10.17507/tpls.0511.25

Rubio-Alcalá, F. (2017). "The links between self-esteem and language anxiety and implications for the classroom," in *New insights into language anxiety*, eds C. Gkonou, M. Daubney, and J. M. Dewaele (Bristol: Multilingual Matters), 198–216. doi: 10.21832/9781783097722-012

Šafranj, J. (2018). Effects of gender and interaction of gender and personality traits on foreign language anxiety. *J. Plus Educ.* 2, 67–82.

Šafranj, J., and Zivlak, J. (2019). Effects of big five personality traits and fear of negative evaluation on foreign language anxiety. *Croat. J. Educ.* 21, 275–306. doi: 10.15516/cje.v21i1.2942

Saito, K., Dewaele, J. M., Abe, M., and In'nami, Y. (2018). Motivation, emotion, learning experience, and second language comprehensibility development in classroom settings: A cross-sectional and longitudinal study. *Lang. Learn.* 68, 709–743. doi: 10.1111/lang.12297

Saito, Y., Horwitz, E. K., and Garza, T. J. (1999). Foreign language reading anxiety. *Mod. Lang. J.* 83, 202–218. doi: 10.1111/0026-7902.00016

Saito, Y., and Samimy, K. K. (1996). Foreign language anxiety and language performance: A study of learner anxiety in beginning, intermediate, and advanced-level college students of Japanese. *Foreign Lang. Ann.* 29, 239–251. doi: 10.1111/j.1944-9720.1996.tb02330.x

Sellers, V. D. (2000). Anxiety and reading comprehension in Spanish as a foreign language. *Foreign Lang. Ann.* 33, 512–521. doi: 10.1111/j.1944-9720.2000.tb01995.x

Shao, K. Q., Yu, W. H., and Ji, Z. M. (2013). An exploration of Chinese EFL students' emotional intelligence and foreign language anxiety. *Mod. Lang. J.* 97, 917–929. doi: 10.1111/j.1540-4781.2013.12042.x

Teimouri, Y., Goetze, J., and Plonsky, L. (2019). Second language anxiety and achievement: A meta-analysis. *Stud. Second Lang. Acquis.* 41, 363–387. doi: 10.1017/S0272263118000311

Wang, C., Teng, M. F., and Liu, S. (2022). Psychosocial profiles of university students' emotional adjustment, perceived social support, self-efficacy belief, and foreign language anxiety during COVID-19. *Educ. Dev. Psychol.* 1–12. doi: 10.1080/20590776.2021.2012085 [Epub ahead of print].

Wang, L., and Liu, H. (2013). Syntactic variations in Chinese-English code-switching. *Lingua* 123, 58–73. doi: 10.1016/j.lingua.2012.10.003

Wang, Y., and Liu, H. (2017). The effects of genre on dependency distance and dependency direction. *Lang. Sci.* 59, 135–147. doi: 10.1016/j.langsci.2016.09.006

Wang, Y., and Liu, H. (2019). The effects of source languages on syntactic structures of target languages in the simultaneous interpretation: A quantitative investigation based on dependency syntactic treebanks. *Glottometrics* 45, 89–113.

Wei, L. W., Chang, C. C., and Zhang, H. Y. (2020). "Self-investigation into foreign language anxiety in Chinese-English bilingual oral interpretation class," in *Proceedings of the 2nd China-ASEAN international conference 2020 & the 2nd international conference on tourism, business, & social sciences 2020: Insight to China and ASEAN's wellness, tourism, & innovation* (Bangkok: Dhurakij Pundit University), 546–557.

Yagi, S. M. (2000). Language labs and translation booths: Simultaneous interpretation as a learner task. *Lang. Cult. Curric.* 13, 154–173. doi: 10.1080/07908310008666596

Yan, J. X., and Detaramani, C. (2008). A comparison of language anxiety in English and Mandarin learning in Hong Kong. *English Teach. Learn.* 32, 45–85.

Yan, J. X., and Horwitz, E. K. (2008). Learners' perceptions of how anxiety interacts with personal and instructional factors to influence their achievement in English: A qualitative analysis of EFL learners in China. *Lang. Learn.* 58, 151–183. doi: 10.1111/j.1467-9922.2007.00437.x

Yan, J. X., Pan, J., and Wang, H. (2010). Learner factors, self-perceived language ability and interpreting learning. *Interpret. Transl. Train.* 4, 173–196. doi: 10.1080/13556509.2010.10798803

Yan, J. X., and Wang, H. (2012). Second language writing anxiety and translation. *Interpret. Transl. Train.* 6, 171–194. doi: 10.1080/13556509.2012.10798835

Yan, J. X., and Wang, P. (2001). The impact of language anxiety on students' Mandarin learning in Hong Kong. *Lang. Teach. Res.* 6, 1–7.

Yan, J. X., Pan, J., and Wang, H. (2018). *Research on translator and interpreter training: A collective volume of bibliometric reviews and empirical studies on learners*. Singapore: Springer. doi: 10.1007/978-981-10-6958-1

Young, D. J. (1991). Creating a low-anxiety classroom environment: What does language anxiety research suggest? *Mod. Lang. J.* 75, 426–439. doi: 10.1111/j.1540-4781.1991.tb05378.x

Zannirato, A. (2008). "Teaching interpreting and interpreting teaching: A conference interpreter's overview of second language acquisition," in *Translator and interpreter training*, ed. J. Kearn (London: Continuum), 19–38.

Zhou, L., Xi, Y., and Lochtman, K. (2020). The relationship between second language competence and willingness to communicate: The moderating effect of foreign language anxiety. *J. Multiling. Multicult. Dev.* 1–15. doi: 10.1080/01434632.2020.1801697 [Epub ahead of print].

Zipf, G. K. (1949). Human behavior and the principle of least effort: An introduction to human ecology. New York, NY: Hafner

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Yining Zhang,
Tsinghua University, China

REVIEWED BY
Abdullah Alamer,
King Faisal University, Saudi Arabia
Reza Pishghadam,
Ferdowsi University of Mashhad, Iran

*CORRESPONDENCE
Mengchen Xue
DrMengchenXue@163.com

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The implications of expectancy-value theory of motivation in language education

Qi Wang and Mengchen Xue*

School of International Education, Shandong University, Jinan, China

The successful performance of learners in any field of study, including a second/foreign language, is deemed as a pivotal concern in the educational system. Furthermore, the various learner variables, in particular, motivation should be taken into consideration, as a high level of motivation can yield many positive outcomes. Literature introduces the expectancy-value theory (EVT) as a recent approach to motivation, which has caught the attention of researchers. EVT as a basic and integrated paradigm helps the researchers and teachers to understand learners' motivations and behaviors, and it has proved to be very helpful in understanding cognitive processes used by the learners, as well as their achievement. Based on this theory, successful performance, including the successful completion of the task and future aspirations, is mainly impacted by perceived expectancies regarding the outcome and value of tasks or domains. EVT can be viewed as a lens through which the aspects of motivation can be seen. This would pave the way for learners' engagement and their achievement. EVT attaches great importance to learners' reasonable expectations regarding the accomplishment of a goal. It also emphasizes figuring out the value of achieving the learning goal, which would enhance the motivation for L2 learning. The current review is aimed at examining how the expectancy-value motivational model impacts academic motivation, engagement, and participation in educational tasks, and learners' academic performance.

KEYWORDS

expectancy-value theory, language education, motivation, cognitive processes, engagement and achievement

Introduction

Foreign language (FL) has proved to be very demanding, which entails unwavering perseverance, motivation, and efforts (Lou and Noels, 2020). In particular, motivation has been in the spotlight as one of the factors assumed to contribute to continued dedication to FL learning regardless of learners' aptitude, L1, and the target language

being learned (Dörnyei, 2008; Loh, 2019). As a mental process and an unobservable variable, motivation drives people to undertake goal-oriented actions and is deemed an essential contributor to the achievement of learning outcomes (Schunk, 2012; Alamer and Alrabai, 2022). Having no motivation has been mentioned as one of the main culprits regarding the poor performance of the learners in the context of L2. Studies show that academic success has emerged as a frequently cited phrase that is accompanied by multiple outcomes, such as scores, perseverance, learning, and goals (York et al., 2015; Goegan et al., 2020). Lacking motivation is one of the main culprits for the poor performance of learners in the L2 classroom (Daniels and Arapostathis, 2005). According to D'souza and Maheshwari (2015), learners must be driven by many sources of motivation when it comes to learning in L2 classes. Learners' active engagement out of eagerness, curiosity, relishing, or the materialization of their own academic and personal goals are manifestations of intrinsic motivation (Deci and Moller, 2005; Abdullah et al., 2019). In all, learners with intrinsic motivation outperformed the learners with external motivation. They were more likely to seek long-term learning and show perseverance in education even after graduation. This was because they took part wholeheartedly in academic activities without being externally motivated (Brewster and Fager, 2000).

Educational psychologists have sought to focus on the possible factors contributing to some learners' interest in learning more than others; moreover, the factors influencing their academic behaviors were of interest (Loh, 2019). Over the years, teachers and educators have been seeking to work out this problem, but it is still a serious challenge as before. This conundrum has been in the spotlight since the investigation of the relationship between language learning and motivation (Vanderbeen, 2005). Scholars have put forth multiple theories to account for what factors contribute to motivation and how people choose tasks. These theories have sought to untangle how people make efforts to obtain their objectives and how they control their sustained attempts to this effect (Yurt, 2015). Learners' variations in terms of their persistence, eagerness for learning, motivation, and accomplishment in L2 learning might be accounted for by their perceptions of their own ability, expected achievement, and subjective task values (Wigfield and Eccles, 2000) that are concerned with expectancy-value theory (EVT), which is an approach to the investigation of academic motivation. This is claimed to justify learners' task selection, sustained learning, and academic performance (Wigfield and Eccles, 2000; Wigfield and Cambria, 2010). The expectancy-value theory makes a connection between achievement, perseverance, and learners' expectancy-related beliefs and their perceptions regarding the task value (Eccles, 2011). Focusing on learners' psychological thinking (Eccles, 2009), EVT seeks to uncover how learners' perceptions are formed over time by different personal and social factors (Eccles and Wigfield, 2002). Sequentially, these insights, impact academic choices and achievement results. Moreover, EVT makes a distinction between learners' expected success (expectancy) and the extent to which they place value over the topic (value) as the main components of motivation. Indeed, EVT has been developed as a hypothetical frame aimed at painting a comprehensive picture of motivation, its underlying factors, and learners' sustained undertaking.

Moreover, EVT (Chen and Sheu, 2005; Mori and Gobel, 2006; Loh, 2019) makes a distinction between learners' expectations of success, expectancy, and how much value they place on the subject, value, as core aspects of motivation (Lee and Bong, 2019; Loh, 2019; McEown and Oga-Baldwin, 2019). The first one is expectancy, which refers to learners' perceptions regarding their future success in doing a task. This is also known as their expectancies for success (Eccles and Wigfield, 2020). Value beliefs refer to the degree of importance and value placed by the learners on a task (Eccles et al., 1983; Meece et al., 1990). Put it another way, an individual who thinks that his/her engagement in a task would lead to a positive outcome, but he/she lacks a strong reason to do so will avoid making efforts. Also, if he/she deems an important task to be unattainable, the individual tends to take part in an additional task with a greater expectancy of success (Putwain et al., 2019).

The expectancy-value theory is a useful framework through which one can understand how learners perceive themselves and their abilities, as well as how others see them. Moreover, research has proved that educational context influences learners' academic choices, goals, and success (Rosenzweig et al., 2019). Notwithstanding some studies conducted on the EVT of motivation in some areas (e.g., mathematics, ESL, and technical fields) (Jones et al., 2010; Perez et al., 2019), few studies have investigated the theory in the area of FL (Tremblay and Gardner, 1995; Nagle, 2021). The majority of EFL students may find EL courses very valuable. Learners' perception of L2 learning as an important endeavor inspires them to invest both time and energy to develop their competence. In China, English enjoys a special status for both government and people and it has a key function in educational success, trade, public administration, and technology. English is considered both a school subject and a yardstick for sophisticated education. More importantly, as an international language, English connects China with the other section of the world (Tan et al., 2017). It is anticipated that all learners study and use English well as English enjoys a distinctive value in teaching.

The expectancy-value theory is very promising for opening a new window unto motivation and L2 learning as it formulates testable hypotheses about the various aspects of motivation that can be the predictor of achievement. Moreover, this framework aimed to deal with learners' motivation, perseverance, and achievement. However, no review has dealt with the investigation of EVT in the L2 learning context.

Review of the literature: An introduction to expectancy value theory

Historically, the expectancy and value construct date back to the time when achievement motivation emerged as a research interest many years ago (Higgins, 2007; Wigfield et al., 2016). Building on the research findings of the earlier works conducted by Lewin and Tolman, Atkinson (1957) developed an expectancy-value model to capture people's different achievement-related behaviors, including perseverance, sustained efforts for accomplishment, and selection of achievement tasks. These behaviors were influenced by three main components related to a person: motives, perceived likelihood/expectancy of achievement, and the incentive value attributed to an activity. These components, namely, expectancy and value emanate from people's image of previous situations and socialization processes (Wigfield and Eccles, 1992), which result in the formation of task-specific convictions, such as capability beliefs, the perceived complexity of various activities, people's goals, and affective memories that, in turn, impact the development of expectancy and value beliefs (Eccles et al., 1998).

Based on this theory, a learner's motivation is driven by two subjective beliefs (Eccles and Wigfield, 2002) and in line with EVT, there is a close connection between achievement and its corresponding behavior and expectancy and value perceptions (Trautwein et al., 2012). Expectancies are concerned with an individual's prediction for achievement or beliefs about how well an individual will deal with a prospective task. As pointed out by Eccles and Wigfield (2002), expectancy for success serves as a contributor to driving performance, attempts, and perseverance regarding tasks. This type of expectancy is often assessed through questionnaires of self-efficacy or perceived ability, both of which cannot be empirically distinguished by the learners (Wigfield et al., 2006). Both competency and efficacy beliefs are essential parts of the expectancy model (Wigfield et al., 2004). According to Eccles et al. (1983), expectancies consist of one's perceived ability, perceived difficulty of a task, a mentality of expectations raised by others, attribution of causes, and locus of control. Indeed, ability and efficacy principles are sources in the expectancy model (Eccles and Wigfield, 2002). Ability self-concept was described as learners' mental judgment of the degree of their ability to accomplish the task, whereas perceived difficulty of tasks was characterized as learners' mental judgment of the difficulty involved in the successful completion of the task (Flake et al., 2015; Rosenzweig et al., 2019). Leaners who enjoy a positive perception of their ability are convinced that they can be successful in learning a language (e.g., because they had previous successful experience regarding language learning), whereas learners who perceive the task to be highly difficult deem their course to be challenging and tricky. Self-concept of ability in combination with the perceived difficulty of the task is at play to answer the question "Can I do this task?"(Schunk et al., 2007).

Another group of learners' perceptions has to do with the extent to which they value particular tasks or subjects. Based on a model developed by Eccles and Wigfield (2002), there are two types of expectancies, namely, beliefs regarding one's abilities and expectancies for success. The former is concerned with an individual's present perception of competence to carry out a task. Expectancies for success have to do with reflecting on how successful a person thinks his/her future will be. Generally, subjective task values are concerned with the "values" placed by a learner on a particular task, which may impact his/her persistence or choice of a particular task or activity (Wigfield et al., 2016). The term "subjective" invokes a learner's personal perceptions regarding an activity; therefore, values mean different things to different learners. Subjective task values involve the various qualities of particular activities which may impact the degree of willingness or motivation to carry out the activities (Wigfield and Cambria, 2010). Prior research shows that subjective task values can predict motivation better than expectancy and self-efficacy theories (Xiang et al., 2003). Expectancies are concerned with broad areas, which, in turn, are associated with general consequences while self-efficacy concerns more specific activities that are related to one's ability to obtain a specific result. For instance, an expectancy measure can assess a person's abilities in specific areas (English), and this measure can be used to make a prediction regarding the scores on that subject. A self-efficacy indicator can assess a person's abilities to carry out a precise activity in a class, and the reactions can be employed to predict the performance on this specific task (Hulleman et al., 2016).

According to EVT, four categories of subjective task values can be identified (Eccles and Wigfield, 2002). One of them is intrinsic value, which is also known as interest value. It is concerned with the natural relishing one can gain from doing the task and corresponds with intrinsic motivation in self-determination theory (SDT) (Anderman, 2020). The ideas of intrinsic and extrinsic motivation in SDT were taken from the idea that diverse kinds of achievement motivation can be defined by fluctuating levels of self-determination articulated as objective and peripheral (Alamer and Lee, 2019). This theory attributes intrinsic motivation to the endeavors and tasks carried out for their natural value (Ryan and Deci, 2020). Accordingly, the students driven by intrinsic motivation try to do the task as they are interested in doing it. Another concept is utility value which refers to the usefulness students find in completing a task, which serves their short- or long-term objectives (Eccles and Wigfield, 2020). Put it another way, the utility value has to do with the people's perceptions of a task's relevance or usefulness for their future goals. Learners who enjoy high utility value find English important as they should necessarily pass the present

English course to reach the next grade. These components are combined to answer the question, "Do I want to do this task, and why?" (Schunk et al., 2007). The more relations between the course material and the learners' everyday lives, the greater the utility value and; as a result, the better the learning achievement (Hulleman et al., 2017).

The other is the attainment value which is concerned with the significance of the successful completion of a task, which has to do with the learner's personal goals, such as gaining proficiency and skills (Eccles and Wigfield, 2002; Arens et al., 2019) that refers to the learners' efforts made to complete a task perceived by them to promote their identity (Perez et al., 2019). Attainment value was considered as the perceived personal importance and recently it has been found to reflect identity-based importance (Eccles and Wigfield, 2020). Tasks play an important role given that people see them as having a pivotal role in enabling them to demonstrate or confirm significant aspects of themselves (Wigfield et al., 2016). Moreover, as a motivation-related notion, the cost is generally viewed as the time and energy people invest in carrying out an activity (Eccles, 2009; Flake et al., 2015). Cost involves more than the financial burden incurred through spending time and energy on an activity. Cost refers to the external burden that may emanate from doing an activity (e.g., the cost of time). Cost is the least researched factor of sub-concept (Wigfield et al., 2009; Vernadakis et al., 2014; Wang and Guan, 2020) that has a noteworthy function in the value system, which is concerned with the extent to which one makes efforts, especially in the face of adversaries (e.g., stress, fear, apprehension of both failure and success), and missing out on other opportunities due to the selection of a particular task (Eccles and Wigfield, 2002; Plante et al., 2013). While making decisions, learners are also gauging the degree of their motive and sustained efforts they would invest in accomplishing the particular learning task, which is viewed by learners as an element regardless of expectancy and value (Flake et al., 2015).

In accordance with EVT, several factors determine learner motivation, including expectancy beliefs, the value one places on a task, and how the task is perceived. As pointed out by Eccles and Wigfield (2002), these factors have a direct impact on learner achievements and behavior choices. This theory takes account of various learners' factors, achievements, expectancy beliefs, perceived values, achievements, and experiences; consequently, it serves as a useful framework to account for these important issues. Based on this model, learners' motivation can be a predictor of their learning and their behaviors out of school, and that learning over time is a predictor of their achievement-related behavior (Eccles and Wigfield, 2002). Moreover, it can be stated that the interactive teacher-student relationships and also teacher stroking behavior enable not only learners but also the teacher to have better communication leading to a more attractive instructive development (Pishghadam et al., 2019, 2021).

Conclusion

As sophisticated knowledge and the acquisition of skills entail sustained effort and perseverance, educators should pave the way for a positively motivating experience for the learner (Alexander, 2006). In the majority of situations, motivation plays a determining role in the quality of learning; however, figuring out the connections between numerous parts of motivation and L2 learning outcomes is the first step in effectively enhancing motivation. Indeed, in the context of classrooms, learner motivation drives them to carry out their learning tasks and activities on the daily basis. Drawing on EVT, this review dealt with the various aspects of motivation that could serve as predictors of success, perseverance, and achievement when it comes to L2 learning. Indeed, language achievement has been considered to be meaningfully increasing among the learners, and such development was related to the development in motivation, so indicating the idea of an "immediate resource" that each aspect hinges on at a particular time point (Alamer and Alrabai, 2022). Based on these insights, some recommendations were made to help learners develop and sustain their L2 learning motivation (Nagle, 2021). The inclusive comprehension of the potential contributors to learners' motivations and intentions and their persistence in academia requires the consideration of learners' perceptions and values.

According to the EVT model, expectancies for success and subjective task values directly influence persistence, selection, and the level of motivation (Metallidou and Vlachou, 2007). Expectancies for success, which are the first component of the EVT model, have to do with the beliefs held by an individual regarding one's ability to carry out a task at present or in the future. It also concerns the perceived effort of the task (Matusovich et al., 2008; Wigfield and Cambria, 2010). One can use the term expectancy to mean both expectancies of one's successful performance and ability beliefs. As learners' expectancy beliefs are concerned with learners' present capabilities and their successes in the future, as well as the relationship between abilities and motivation, one can assume that learners' motivation may undergo some changes over time. The factors which can make these changes include the impact of test scores and competitions. L2 achievement can enhance positive educational motivation since learners tend to expend more time and energy when they have mastery over a subject. So, it should be tried to arouse emotions in language circumstances that refers to the notion of emotionacy as it might upsurge learners' confidence and compassion that might increase their motivational energy and assist language learning process (Pishghadam et al., 2016). Moreover, as research findings in the field of educational psychology show, expectancy of success can serve as an important predictor of academic achievement. It consequently provides a significant influence to the psychology of language learning (Mercer et al., 2012).

Research also shows that value appraisals can predict motivated behaviors and persistence (Guo et al., 2017), as well as the relationship between curriculum design and learners' lives. The great level of utility value leads to a great level of learning.

For instance, learners may think they are proficient in some skills. This, in turn, may make them believe that their performance in the related activities would be successful, as well. Such expectancy is likely to push the learner to choose specific classes in university, followed by being admitted into that field. Therefore, there are some features shared by both expectancies and other psychological constructs already studied (e.g., self-efficacy that is concerned with the learner's perceptions of his/her successful completion of a task (Bandura, 2010). In accordance with EVT, learners' self-efficacy, i.e., their perceptions of their current abilities, are concerned with their later expectancies regarding success and task value (Wigfield and Eccles, 2000). Task value is related to learner interest and positive emotions in class, which has also been called intrinsic value (Fredricks et al., 2004). There is some overlapping between intrinsic value and emotional engagement. The latter involves interest and enjoyment. As a result, based on this theory, self-efficacy results in emotional engagement. Furthermore, self-efficacy and emotional engagement result in behavioral engagement, which involves sustained effort, focused attention, compliance, etc. These behaviors are some instances of achievement-related choices, which are indicative of the learner's desire to succeed and fulfill classroom assignments. Therefore, EVT assumes that learner behavioral investment appears as a consequence of an internal motivation to learn. Such a type of motivation is characterized by self-efficacy and emotional engagement that they result in learners' achievement. Also, engagement with its sensory nature, relies on the psycho-linguistic notion of emotioncy, which is assumed to utilize great impact on motivation that also affect learners' success (Miri and Pishghadam, 2021).

Attainment value is another dimension, which has to do with learners' self-schemas. In other words, given that learners' choices and performances may reveal some angles of their identity (e.g., masculinity or competence), they are likely to perform a certain behavior driven by certain motivation. Utility value is likely to impact learner' motivation as if L2 learners see language learning as an important contributor to their success in the future, they take these subjects and study them (Black et al., 2010). Utility value is concerned with the learner's perceptions of the usefulness one obtains due to the performance of a task. Given the overwhelming power of extrinsic performance rewards, one can equalize utility value with extrinsic motivation, which is one of the components of SDT (Trautwein et al., 2012). According to Ryan and Deci (2020), intrinsic value corresponds to intrinsic motivation, while utility values correspond to extrinsic motivations. This is because both values have to do with relishing in the pursuit of the subject and future goals, respectively.

The new version of EVT emphasizes learners' motivational beliefs and maintains that such beliefs impact learners' achievement-related behaviors, academic goals, academic options, participation, and successful performance (Trautwein et al., 2012; Guo et al., 2017; Putwain et al., 2019; Zeynali et al., 2019; Wang and Guan, 2020). Research evidence shows that expectancy of success and value can drive a multitude of educational outcomes. In a nutshell, it can be argued that the two components of this model, namely, expectancy for success and task values, mutually reinforce each other. Learners tend to take part in the tasks they value. Also, their participation in those activities will impact their expectancy for success. This, in turn, leads to some changes in values (Nagle, 2021). Learners make conscious or unconscious decisions on how they would invest their energy and time, that is, their level of engagement. Individually, these decisions are mainly impacted, at least in the early stages, by the degree of confidence a learner has about successful performance on a task, the valuable chances the task provides for the person in terms of the amount of input and control, their enthusiasm for the task and to what extent the learners feel prepared to address the task. For example, people may choose to acquire an L2 since they find it appealing or useful or merely due to a requirement. Their good performance on L2 courses will lead to an increase in their expectancy of success. This, in turn, would yield more enjoyment of L2 tasks (intrinsic value). By the passage of time, enjoyment may induce the impression that it is personally important to become a competent L2 speaker (attainment value), particularly, if L2 learning is seen as an inseparable part of becoming an effective learner and/or a global citizen.

Literature shows that expectancy and attainment values can mutually enhance each other in L2 learning situations. Put it another way, learners' high expectations of successful performance can neutralize the negative impacts of low attainment value on foreign language success. As a result, teachers are recommended to emphasize improving attainment value as their behavior is an effective way to enhance the foreign language achievement of learners (Pishghadam et al., 2021). Meanwhile, attempts made to enhance learners' expectancies of success can be seen as an effective strategy to boost learners' low level of attainment value, which, in turn, enhances their foreign language achievement. The expectancy component is concerned with learners' beliefs regarding their own competence and self-efficacy (Wigfield and Eccles, 2000; Eccles and Wigfield, 2002), while, the value component has to do with the rationale one has for participating in a specific task.

Following the EVT, cultural environment and social beliefs and behaviors impact learners' perceptions of their experiences (attribution), their perceptions of abilities, and their purposes. These variables, in turn, impact their predictions of success and the value they place on the tasks. This results in the emergence of achievement-related choices and performances. Put it another way, a meta-analysis of the previous studies conducted on

motivation shows that learners are seen both as decision-makers and meaning creators; furthermore, the learner variables such as expectations, perceptions, and social backgrounds play an important role in their achievement motivation (Cho and Hwang, 2019).

Pedagogical implications and suggestions for further research

It is assumed that based on EVT theory, learners always engage in constant assessment of their competence with respect to the task at hand to learn successfully (Eccles et al., 1984). Meanwhile, learners' expectations of the value involved in learning tasks; the values placed by learners on tasks function as contributors to meaningful engagement in learning (Wigfield, 1994). They offer an essential source of motivation for learners to get past difficulties, which will yield positive outcomes related to the learning experience. Learners' expectancy and value beliefs can effectively predict academic outcomes and success. Moreover, being proficient and having the skills to learn and persevere amid various challenges are pivotal to learners' future success (obtaining educational credentials, picking a job, or advancing in long-term employment). Therefore, the adjustment of the associations between expectancy-value motivation and learning consequences requires the identification of the origins of expectancy and value that can be changed. It should be noted that motivation is considered a changeable, collaborative construct (Dörnyei et al., 2015; Fan and Wang, 2022), so curriculum designers, teachers, policy-makers, and researchers can bridge the achievement gaps, driving more learners to make sustained efforts in academic situations, both in the short and long term.

Task values mutually impact each other and they also have interactions with the expectancy of successful performance over time, which drives motivation and learning. Therefore, studies in the future need to investigate EVT constructs longitudinally for purpose of understanding how changes in task values and expectancy influence efforts and achievement. The present investigation reviews the previous studies; however, more investigations, particularly, qualitative and mixed-methods ones must be conducted to shed light on motivation–persistence–achievement links. Prospective investigations can examine the potential interplay among the value constructs, along with other motivational variables as mediators. These studies contribute valuable info to the literature. Moreover, experimental research needs to be carried out in this regard as well. This type of research makes changes to motivational factors as precursors of academic procrastination and persistence in EVT. Also, taking into account the variables such as cultural milieu and gender socialization can provide some insights into the efficacy of motivation in L2 learning.

Author contributions

Both authors wrote the manuscript and approved its final submission to Frontiers in Psychology.

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

References

Abdullah, M. Z., Othman, A. K., and Besir, M. S. M. (2019). Predictors of intrinsic motivation among university students: An application of expectancy-value theory. *Mag. Publ.* 6, 40–61.

Alamer, A., and Alrabai, F. (2022). The causal relationship between learner motivation and language achievement: New dynamic perspective. *Appl. Linguist.* 2, 1–22. doi: 10.1093/applin/amac035

Alamer, A., and Lee, J. (2019). A motivational process model explaining L2 Saudi students' achievement of English. *System* 87:102133. doi: 10.1016/j.system.2019.102133

Alexander, B. (2006). Web 2.0: A new wave of innovation for teaching and learning? *Educ. Rev.* 41, 33–34. doi: 10.1002/tl.231

Anderman, E. M. (2020). Achievement motivation theory: Balancing precision and utility. *Contemp. Educ. Psychol.* 61, 3–7. doi: 10.1016/j.cedpsych.2020.101864

Arens, A. K., Schmidt, I., and Preckel, F. (2019). Longitudinal relations among self-concept, intrinsic value, and attainment value across secondary school years in three academic domains. *J. Educ. Psychol.* 111, 663–684. doi: 10.1037/edu0000313

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychol. Rev.* 64, 359–372. doi: 10.1037/h0043445

Bandura, A. (2010). "Self-efficacy," in *The Corsini encyclopedia of psychology*, eds B. Weiner and W. E. Craighead (New York, NY: Wiley), 1534–1536. doi: 10.1002/9780470479216

Black, L., Williams, J., Hernandez-Martinez, P., Davis, P., Pampaka, M., and Wake, G. (2010). Developing a 'leading identity: The relationship between students' mathematical identities and their career and higher education aspirations. *Educ. Stud. Math.* 73, 55–72. doi: 10.1007/s10649-009-9217-x

Brewster, C., and Fager, J. (2000). *Increasing student engagement and motivation: From time-on-task to homework*. Portland, OR: Northwest Regional Educational Laboratory 6, 40–61.

Chen, I. J., and Sheu, S. P. (2005). Applying the expectancy-value theory to foreign language learning motivation: A case study with Takming college students. *J. Natl. Taipei Teach. Coll.* 18, 201–218.

Cho, E., and Hwang, S. (2019). Exploring changes in multi-ethnic students' mathematics achievement motivation: A longitudinal study using expectancy-value theory. *Math. Educ.* 58, 101–120.

Daniels, E., and Arapostathis, M. (2005). What do they really want? Student voices and motivation research. *Urban Educ.* 40, 34–59. doi: 10.1177/0042085904270421

Deci, E. L., and Moller, A. C. (2005). "The concept of competence: A starting place for understanding intrinsic motivation and self-determined extrinsic motivation," in *Handbook of competence and motivation*, eds A. J. Elliot and C. S. Dweck (New York, NY: Guilford Press), 579–597.

Dörnyei, Z. (2008). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.

Dörnyei, Z., MacIntyre, P. D., and Henry, A. (2015). *Motivational dynamics in language learning*. Bristol: Multilingual Matters. doi: 10.4324/9781315772714

D'souza, K. A., and Maheshwari, S. K. (2015). A methodological approach for studying public bus transit driver distraction. *Int. J. Sustain. Dev. Plan.* 10, 229–244. doi: 10.2495/SDP-V10-N2-229-244

Eccles, J. (2009). Who am I and what am I going to do with my life? Personal and collective identities as motivators of action. *Educ. Psychol.* 44, 78–89. doi: 10.1080/00461520902832368

Eccles, J., Adler, T., Futterman, R., Goff, S., Kaczala, C., Meece, J., et al. (1983). "Expectancies, values, and academic behaviors," in *Achievement and achievement motivation*, ed. J. Spence (San Francisco, CA: W. H. Freeman), 75–146.

Eccles, J. S., Adler, T. F., and Meece, J. L. (1984). Sex differences in achievement: A test of alternate theories. *J. Pers. Soc. Psychol.* 46, 26–43.

Eccles, J. S. (2011). Gendered educational and occupational choices: Applying the Eccles et al.' model of achievement-related choices. *Int. J. Behav. Dev.* 35, 195–201. doi: 10.1177/0165025411398185

Eccles, J. S., and Wigfield, A. (2002). Motivational beliefs, values, and goals. *Ann. Rev. Psychol.* 53, 109–132. doi: 10.1146/annurev.psych.53.100901.135153

Eccles, J. S., and Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and sociocultural perspective on motivation. *Contemp. Educ. Psychol.* 61:101859. doi: 10.1016/j.cedpsych.2020.101859

Eccles, J. S., Wigfield, A., and Schiefele, U. (1998). "Motivation to succeed," in *Handbook of child psychology: Social, emotional, and personality development*, eds W. Damon and N. Eisenberg (Hoboken, NJ: John Wiley and Sons), 1017–1095.

Fan, J., and Wang, Y. (2022). English as a foreign language teachers' professional success in the Chinese context: The effects of well-being and emotion regulation. *Front. Psychol.* 13:952503. doi: 10.3389/fpsyg.2022.952503

Flake, J. K., Barron, K. E., Hulleman, C., McCoach, B. D., and Welsh, M. E. (2015). Measuring cost: The forgotten component of expectancy-value theory. *Contemp. Educ. Psychol.* 41, 232–244. doi: 10.1016/j.cedpsych.2015.03.002

Fredricks, J. A., Blumenfeld, P. C., and Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Rev. Educ. Res.* 74, 59–109. doi: 10.3102/00346543074001059

Goegan, L. D., Radil, A. I., Brooks, A., and Daniels, L. M. (2020). Pre-service and in-services teachers perspectives on academic success: More than just a grade. *Pract. Assess. Res. Eval.* 25, 10–30.

Guo, C., Pleiss, G., Sun, Y., and Weinberger, K. Q. (2017). "On calibration of modern neural networks," in *Proceedings of the international conference on machine learning*, Sydney, NSW.

Higgins, E. T. (2007). "Value," in *Social psychology handbook of basic principles*, eds A. W. Kruglanski and E. Higgins (New York, NY: Guilford), 454–472.

Hulleman, C. S., Barron, K. E., Kosovich, J. J., and Lazowski, R. A. (2016). *Student motivation: Current theories, constructs, and interventions within an expectancy-value framework. In psychosocial skills and school systems in the 21st century*. Cham: Springer, 241–278. doi: 10.1007/978-3-319-28606-8_10

Hulleman, C. S., Kosovich, J. J., Barron, K. E., and Daniel, D. B. (2017). Making connections: Replicating and extending the utility value intervention in the classroom. *J. Educ. Psychol.* 109, 387–404. doi: 10.1037/edu0000146

Jones, B. D., Paretti, M. C., Hein, S. F., and Knott, T. W. (2010). An analysis of motivation constructs with first-year engineering students: Relationships among expectancies, values, achievement, and career plans. *J. Eng. Educ.* 99, 319–336. doi: 10.1002/j.2168-9830.2010.tb01066.x

Lee, M., and Bong, M. (2019). Relevance of goal theories to language learning research. *System* 86, 102–122. doi: 10.1016/j.system.2019.102122

Loh, E. K. Y. (2019). What we know about expectancy-value theory, and how it helps to design a sustained motivating learning environment. *System* 86, 102–119. doi: 10.1016/j.system.2019.102119

Lou, N. M., and Noels, K. A. (2020). Mindsets matter for linguistic minority students: Growth mindsets foster greater perceived proficiency, especially for newcomers. *Mod. Lang. J.* 104, 739–756. doi: 10.1111/modl.12669

Matusovich, H., Streveler, R., Loshbaugh, H., Miller, R., and Olds, B. (2008). Will I succeed in engineering? Using expectancy-value theory in a longitudinal investigation of students' beliefs. *Paper presented at the American society for engineering education 2008 annual conference and exposition*, Pittsburgh, PA. doi: 10.18260/1-2--3593

McEown, M. S., and Oga-Baldwin, W. Q. (2019). Self-determination for all language learners: New applications for formal language education. *System* 86, 102–124. doi: 10.1016/j.system.2019.102124

Meece, J. L., Wigfield, A., and Eccles, J. S. (1990). Predictors of math anxiety and its influence on young adolescents' course enrollment intentions and performance in mathematics. *J. Educ. Psychol.* 82, 60–70. doi: 10.1037//0022-0663.82.1.60

Mercer, S., Ryan, S., and Williams, M. (2012). *Psychology for language learning: Insights from research, theory and practice*. London: Palgrave Macmillan. doi: 10.1057/9781137032829

Metallidou, P., and Vlachou, A. (2007). Motivational beliefs, cognitive engagement, and achievement in language and mathematics in elementary school children. *Int. J. Psychol.* 42, 2–15. doi: 10.1080/00207590500411179

Miri, M. A., and Pishghadam, R. (2021). Toward an emotioncy based education: A systematic review of the literature. *Front. Psychol.* 12:727186. doi: 10.3389/fpsyg.2021.727186

Mori, S., and Gobel, P. (2006). Motivation and gender in the Japanese EFL classroom. *System* 34, 194–210.

Nagle, C. (2021). Using expectancy value theory to understand motivation, persistence, and achievement in university-level foreign language learning. *Foreign Lang. Ann.* 54, 1238–1256. doi: 10.1111/flan.12569

Perez, T., Wormington, S. V., Barger, M. M., Schwartz-Bloom, R. D., Lee, Y., and Linnenbrink-Garcia, L. (2019). Science expectancy, value, and cost profiles and their proximal and distal relations to undergraduate science, technology, engineering, and math persistence. *Sci. Educ.* 103, 264–286. doi: 10.1002/sce.21490

Pishghadam, R., Derakhshan, A., Jajarmi, H., Tabatabaee Farani, S., and Shayesteh, S. (2021). Examining the role of teachers' stroking behaviors in EFL learners' active/passive motivation and teacher success. *Front. Psychol.* 12:707314. doi: 10.3389/fpsyg.2021.707314

Pishghadam, R., Derakhshan, A., and Zhaleh, K. (2019). The interplay of teacher success, credibility, and stroke with respect to EFL students' willingness to attend classes. *Pol. Psychol. Bull.* 50, 284–292.

Pishghadam, R., Jajarmi, H., and Shayesteh, S. (2016). Conceptualizing sensory relativism in light of emotioncy: A movement beyond linguistic relativism. *Int. J. Soc. Cult. Lang.* 4, 11–21.

Plante, I., O'Keefe, P. A., and Théorêt, M. (2013). The relation between achievement goal and expectancy-value theories in predicting achievement-related outcomes: A test of four theoretical conceptions. *Motiv. Emot.* 37, 65–78. doi: 10.1007/s11031-012-9282-9

Putwain, D. W., Nicholson, L. J., Pekrun, R., Becker, S., and Symes, W. (2019). Expectancy of success, attainment value, engagement, and achievement: A moderated mediation analysis. *Learn. Instr.* 60, 117–125. doi: 10.1016/j.learninstruc.2018.11.005

Rosenzweig, E. Q., Wigfield, A., and Eccles, J. S. (2019). "Expectancy-value theory and its relevance for student motivation and learning," in *The Cambridge handbook of motivation and learning*, eds K. A. Renninger and S. E. Hidi (Cambridge: Cambridge University Press), 617–644. doi: 10.1017/9781316823279.026

Ryan, R. M., and Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemp. Educ. Psychol.* 61, 1–11. doi: 10.1016/j.cedpsych.2020.101860

Schunk, D., Pintrich, P., and Meece, J. (2007). *Motivation in education: Theory, research, and applications*. Hoboken, NJ: Prentice Hall.

Schunk, D. H. (2012). *Learning theories an educational perspective*, 6th Edn. Boston, MA: Pearson.

Tan, O. S., Low, E. L., and Hung, D. (2017). "Introduction," in *Lee Kuan Yew's educational legacy: The challenges of success*, eds O. S. Tan, E. L. Low, and D. Hung (Singapore: Springer), 1–16. doi: 10.1007/978-981-10-3525-8_1

Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., and Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy-value theory: A latent interaction modeling study. *J. Educ. Psychol.* 104, 763–777. doi: 10.1037/a0027470

Tremblay, P. F., and Gardner, R. C. (1995). Expanding the motivation construct in language learning. *Mod. Lang. J.* 79, 505–518. doi: 10.1111/j.1540-4781.1995.tb05451.x

Vanderbeen, T. (2005). Situating the expectancy-value model of motivation in EFL in Japan. *Int. Manag. Forum* 16, 205–213.

Vernadakis, N., Kouli, O., Tsitskari, E., Gioftsidou, A., and Antoniou, P. (2014). University students' ability-expectancy beliefs and subjective task values for exergames. *Comput. Educ.* 75, 149–161. doi: 10.1016/j.compedu.2014.02.010

Wang, Y. L., and Guan, H. F. (2020). Exploring demotivation factors of Chinese learners of English as a foreign language based on positive psychology. *Rev. Argent. Clin. Psicol.* 29, 851–861. doi: 10.24205/03276716.2020.116

Wigfield, A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educ. Psychol. Rev.* 6, 49–78.

Wigfield, A., and Cambria, J. (2010). Students' achievement values, goal orientations, and interest: Definitions, development, and relations to achievement outcomes. *Dev. Rev.* 30, 1–35. doi: 10.1016/j.dr.2009.12.001

Wigfield, A., and Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Dev. Rev.* 12, 265–310. doi: 10.1016/0273-2297(92)90011-P

Wigfield, A., and Eccles, J. S. (2000). Expectancy value theory of achievement motivation. *Contemp. Educ. Psychol.* 25, 68–81. doi: 10.1006/ceps.1999.1015

Wigfield, A., Eccles, J. S., Schiefele, U., Roeser, R., and Davis-Kean, P. (2006). "Development of achievement motivation," in *Handbook of child psychology: Social, emotional, and personality development*, eds W. Damon and N. Eisenberg (New York, NY: John Wiley), 933–1002. doi: 10.1002/9780470147658.chpsy0315

Wigfield, A., Tonks, S., and Eccles, J. S. (2004). "Expectancy value theory in cross-cultural perspective," in *Big theories revisited*, eds D. M. McInerney and S. V. Etten (Greenwich, CT: Information Age Publishing), 165–198.

Wigfield, A., Tonks, S., and Klauda, S. L. (2009). "Expectancy-value theory," in *Handbook of motivation at school*, ed. D. Miele (New York, NY: Routledge), 69–90.

Wigfield, A., Tonks, S. M., and Klauda, S. L. (2016). "Expectancy-value theory," in *Handbook of motivation at school*, eds K. R. Wentzel and D. B. Miele (New York, NY: Taylor and Francis), 55–74.

Xiang, P., McBride, R., Guan, J., and Solmon, M. (2003). Children's motivation in elementary physical education: An expectancy-value model of achievement choice. *Res. Q. Exerc. Sport* 74, 25–35. doi: 10.1080/02701367.2003.10609061

York, T. T., Gibson, C., and Rankin, S. (2015). Defining and measuring academic success. *Pract. Assess. Res. Eval.* 20, 5–25.

Yurt, E. (2015). Understanding middle school students' motivation in math class: The expectancy-value model perspective. *Int. J. Educ. Math. Sci. Technol.* 3, 288–297. doi: 10.18404/ijemst.26938

Zeynali, S., Pishghadam, R., and Fatemi, A. H. (2019). Identifying the motivational and demotivational factors influencing students' academic achievements in language education. *Learn. Motiv.* 68:101598. doi: 10.1016/j.lmot.2019.101598

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EDITED BY
Meihua Liu,
Tsinghua University, China

REVIEWED BY
Angelica Moè,
University of Padua, Italy
Davoud Amini,
Azarbaijan Shahid Madani University, Iran

*CORRESPONDENCE
Haniye Seyri
Haniye.seyri@ut.ac.ir

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Curbing boredom in online teaching: Effects of an autonomy-oriented intervention with EAP students

Abbas Ali Rezaee and Haniye Seyri*

Faculty of Foreign Languages and Literatures, University of Tehran, Tehran, Iran

Despite the growing body of research on boredom and its causes in face-to-face classes, little is known about how pedagogical interventions can mitigate this negative emotion. The purpose of this study was to examine boredom experienced by EAP students in online classes and investigate the effects of an autonomy-oriented intervention program on students' boredom. The boredom scale was administered to 84 students before and after the autonomy-oriented intervention. By designing and implementing autonomy-oriented intervention based on the autonomy enhancement model, positive results were obtained with reduced levels of boredom. The results revealed that the intervention was effective and boredom was reduced to a noticeable extent. In addition, the qualitative results contributed to our understanding of the learners' experiences throughout the intervention. We conclude the study with implications for EAP instructors to employ different pedagogical interventions to mitigate negative emotions in online EAP classes.

KEYWORDS

boredom, EAP students, autonomy-oriented intervention, online EAP classes, pedagogical intervention

Introduction

Learning English involves interaction, which in turn makes it an essentially emotional venture (Richards, 2020). It has been reported in various studies that among various emotions involved, language learners are susceptible to frequently experiencing boredom in university contexts (e.g., Sharp et al., 2017; Derakhshan et al., 2021). The Control-value Theory of achievement emotions (Pekrun, 2006; Pekrun et al., 2010) posits that learners may find themselves "in or out of control of achievement activities" (Pekrun et al., 2010, p. 534), and boredom is aroused when achievement emotions are conceptualized as not having value and as lacking control over the learning process (Acee et al., 2010; Pekrun et al., 2010).

Bored students show "lower perceived control" (Pekrun et al., 2010, p. 533). Moreover, Sharp et al. (2016) stress that less engagement and less opportunity to exert

control on classroom events are among the main reasons for boredom. In the same vein, Zawodniak et al. (2021) remark that students are bored in teacher-centered classes in which students are provided with less freedom of choice. Given that, if students are provided with freedom of choice and autonomy over content and method of studying, they experience less boredom (Acee et al., 2010; Sharp et al., 2016, 2017). By promoting autonomy in learners, negative emotions like boredom would decrease and evidence from earlier research corroborates this assumption (e.g., Sharp et al., 2016; Yazdanmehr et al., 2021; Zawodniak et al., 2021).

On the other hand, with the significance of social distancing announced by World Health Organization (World Health Organization [WHO], 2020) as a result of the spread of COVID-19, online education has gained momentum (Ribeiro, 2020). As a result, higher education practices have been influenced by the changes in their delivery method, the incorporated material, mode of teaching, and also interactions (Adedoyin and Soykan, 2020). Review of literature on online classes indicates that students often feel bored in their online English language courses (Derakhshan et al., 2021; Pawlak et al., 2021). Due to the lack of simultaneous oral and visual presentation of materials (De Beni and Moè, 2003), the encoding of the input might be cumbersome in online classes and students' concentration might waver and they might get bored during the class. Moreover, students in EAP (English for academic purposes) classes are susceptible to experiencing boredom due to teacher control and repetitive and boring activities (Zawodniak et al., 2017), disengagement (Pawlak et al., 2020a), which leads to severe negative consequences in the classroom. This aversive emotion is also tied to lower academic achievement (Mousavian Rad et al., 2022) and negative cognitive perceptions such as perceptions of time passing slowly (Goetz et al., 2014), cognitive passivism (Li et al., 2022).

Investigating the underlying factors contributing to boredom and when and how students succumb to this negative emotion would not be enough and different pedagogical interventions are required in order to reduce it to a noticeable extent (Pawlak et al., 2020a, 2021). Due to the dire consequences of these negative emotions, an intervention program based on autonomy-oriented instruction, which reduces boredom by increasing students control over the learning process (Sharp et al., 2016; Zawodniak et al., 2021), is designed and implemented to alleviate students' boredom in EAP classes. Moreover, paucity of appropriate pedagogical interventions is considered as a prominent factor leading to academic failure (Pawlak et al., 2021). The present study's educational significance is justified through the autonomy-oriented intervention program as it sheds light on how teachers can deal with negative emotions and raise their sensitivity to students' emotions in EAP classes. To best of our knowledge, few, if any, studies have taken measure to reduce boredom through a pedagogical intervention program. Therefore, the present study aims at implementing an autonomy-oriented intervention program which intends to increase the autonomy of EAP students and in turn decrease boredom experienced during online EAP courses.

Review of the related literature

Boredom

Learners' emotions, positive or negative, exert influence on the process of language learning and their attitude toward what they learn (Resnik and Dewaele, 2020; Richards, 2020). Among different types of emotions, boredom is the most frequently experienced one in different educational contexts (Goetz et al., 2014). Despite being the subject of many studies in psychology, this concept has recently gained momentum in L2 (second language) research (Chapman, 2013; Kruk and Zawodniak, 2017). Boredom has been also trivialized in schools or higher education settings since teachers attribute boredom to other factors such as students' laziness, anxiety, or personality characteristics (Macklem, 2015).

Boredom is considered as "complex, multifaceted, and evasive," however, it can be discussed in relation to its "symptoms, causes, stability, degree of intensity, and valence and arousal" (Derakhshan et al., 2021, p. 2). This negative emotion is mainly manifested in disengagement, dissatisfaction, and negative emotional perceptions emanating from non-arousing settings (Lewinski, 2015). Bored students often feel detached from their goals and are less involved in the activities and as a result, they reflect signs of disengagement from the educational settings to which they belong (Henry and Thorsen, 2018; Zawodniak et al., 2021). As for the causes of boredom, different factors have been mentioned, among which unchallenging tasks (Larson and Richards, 1991), teacher control (Hill and Perkins, 1985), trivializing the importance of activity at hand (Pekrun et al., 2010), and having no purpose for learning (Yeager and Walton, 2011) have received attention. According to the control-value theory of achievement emotions (Pekrun, 2006; Pekrun et al., 2010), learners succumb to boredom when they attach little value to the task and when they lack control over the learning process. As for the deleterious effects of boredom, depression (Macklem, 2015), disengagement and lack of interaction (Tvedt et al., 2019), reticence (Shea, 2017), L2 speaking anxiety (Galante, 2018), demotivation (Mercer and Dörnyei, 2020), among others, have attracted empirical attention recently.

Until recently, boredom was mainly investigated indirectly and in relation to other negative emotions. For example, Kormos and Csizér (2014) probed the influence of motivational factors and self-regulatory strategies on Hungarian EFL high school students, university students, and adult learners' autonomy. The results suggested that the efforts put by learners were

pertinent to their potentials for overcoming boredom. Being the first study to explore boredom explicitly and directly in L2 classes, Chapman (2013) explored German L2 students' beliefs about boredom and their three teachers. The results indicated that feelings about their teachers were the main predictor of boredom and also textbook activities, less challenging classes, and unengaged peers resulted in students' boredom.

Other research projects focusing on boredom in L2 classes were conducted mainly in the Polish educational context (Kruk and Zawodniak, 2018, 2020; Pawlak et al., 2020a; Zawodniak et al., 2021), and very recently in Asian contexts (Li and Dewaele, 2020; Derakhshan et al., 2021; Li, 2021; Li et al., 2021; Nakamura et al., 2021), some of which are briefly outlined here. In their quantitative study, Pawlak et al. (2020b) investigated differences in the boredom level experienced by second- and third-year English major students. The findings suggested that second-year students experienced more boredom than third-year students due to the content provided during the 3-year program. Moreover, they indicated that factors underlying boredom were mainly uninteresting topics of discussion, negative past experiences, negative perceptions, and paucity of creativity and involvement. Regarding studies conducted in Asian context, Nakamura et al. (2021), using surveys and focus group interviews, investigated the predictors of students' boredom in English oral communication courses. The results showed nine factors among which mismatch between internal leaner factors and external classroom factors such as activity mismatch, challenging tasks, and lack of adequate proficiency in L2 skills played influential role in students' boredom.

Boredom in online classes

On the other side, the sudden shift to online education due to unexpected events such as COVID-19 outbreak demands the investigation of students' feelings such as boredom in online English classes (Pawlak et al., 2021). Three recently published articles have investigated boredom during online courses (Li and Dewaele, 2020; Derakhshan et al., 2021; Pawlak et al., 2021). Li and Dewaele (2020) collected information from 348 university students to explore the predictive role of boring online language classes. The results indicated moderate but higher levels of boredom in online classes in comparison to face-to-face classes. The analysis revealed that learners who had higher emotional intelligence and learning achievement perceptions experienced lower levels of boredom in online classes. Adopting a qualitative measure, Pawlak et al. (2021) examined the difference between online and face-to-face classes and also content-based and skill-based courses in relation to boredom. The results indicated that online classes were more boredom-inducing than face-to-face classes and found content-based classes more boring. In another recent study in Iran, Derakhshan et al. (2021) examined the causes and also remedies to boredom of English major students during online classes due to the pandemic by drawing on data from open-ended questionnaires and semi-structured interviews. It was revealed that teacher-learner related factors, computer-related factors, task-related factors, and student-related factors were the main causes of boredom. Moreover, five categories for coping with boredom including making the class livelier, improving IT infrastructure and individuals' IT know-how, involving students in discussions and encouraging participation, improving interpersonal relationships, and changing the lifestyle were identified.

Learner autonomy

Learner autonomy (LA) is considered to be the definitive goal of language learning process over the years (Teng, 2019) since it is inexorably tied to promoted L2 achievement (Little, 2007). According to Holec (1981), LA is one's ability to shoulder the responsibility for their learning process which may include decision making in terms of the objectives, content, method, evaluation of the possible outcomes of learning. LA is conceptualized as "a precondition for effective learning" (Benson, 2013, p. 1), which implies that when autonomy is developed and enhanced, the process of learning languages is facilitated since the learner has taken charge of their learning.

Language teachers have the responsibility to enhance autonomy in their learners to ensure that learning takes place (Benson, 2011). It is believed that enhancement of autonomy leads to efficiently dealing with negative emotions such as boredom (Kormos and Csizér, 2014; Zawodniak et al., 2021). That said, teachers who make attempts to foster autonomy can provide opportunities which increase students' engagement and involvement in the classroom (Reeve and Jang, 2006) which in turn will lead to lower levels of boredom (Mercer and Dörnyei, 2020). For example, Kormos and Csizér (2014) explored the effect of motivational factors and self-regulatory strategies on EFL learners', university students', and adult learners' autonomous learning. The results showed that their efforts were linked to their ability to overcome boredom. They inferred that controlling negative emotions results in autonomy enhancement of learners.

To date, studies have focused on the level of boredom and also the relationship of the concept with other variables such as achievement, anxiety, etc. However, what remains underexplored is investigating the effects of pedagogical interventions on this emotion. Different researchers have called for implementing pedagogical interventions to mitigate boredom (e.g., Sharp et al., 2016; Pawlak et al., 2020a, 2021).

Aims and hypotheses

The present study aims at reducing the rate of boredom experienced by Iranian EAP learners through implementing

an online autonomy-oriented intervention program in which learners' autonomy will be fostered through autonomy enhancement approaches. The enhancement approaches were adopted from Benson's (2011) model which will be explained in the "Materials and methods" section. The present study seeks to answer the following research question:

Does an autonomy-oriented intervention program reduce learners' boredom in Iranian EAP classes?

Accordingly, this study intends to test the following hypotheses:

Autonomy-oriented intervention program has no significant effect on learners' boredom in Iranian EAP classes. Regarding the qualitative section of the study, it is expected to gain useful information regarding the processes and strategies learners have experienced during the intervention sessions.

Materials and methods

Research design

The present study adopted a mixed-method design including questionnaires and reflective journals in order to measure the rate of boredom. The intervention was applied in order to mitigate boredom in EAP students. In doing so, an autonomy-oriented intervention was employed during which four different approaches to autonomy enhancement including resource-based approaches, learner-based approaches, classroom-based approaches, and curriculum-based approaches, developed by Benson (2011), were adopted to foster the autonomy of learners.

The intervention included 10 sessions with each session lasting about 90 mins and focusing on one particular approach to fostering autonomy. Each approach was implemented in two separate sessions. The first and last sessions of the intervention were allocated to completing the questionnaires to ensure that learners take enough care in responding to each question. Moreover, during the first session, the researcher illuminated the process of data collection and intervention, and briefed learners on their responsibilities during the intervention. Moreover, to tap into the inner processes through which learners developed their autonomy and reduced their boredom, they were asked to deliver weekly reflective journals to the researcher via Telegram messaging application.

Participants and context

The present study was conducted at a university in Iran. The students partaking in this study have to take a three-credit semester-long online course which meets 4 h per week within different faculties such as faculty of Computer Engineering, Chemistry, Physics, etc. Students are normally put into these classes regardless of their majors. Since this is an intervention program and the changes need to be scrutinized meticulously, two classes with the total number of 84 students were selected.

The participants were aged between 18 and 22 years. The majority of the participants had studied English language in private institutes or at least, to improve their English language, they had read English materials apart from what they had been taught during their education at school, like reading books, newspapers or watching English programs.

Due to the pandemic, the classes were held online at the time of data collection. The online classes in Iran are held using different online platforms such as Adobe Connect, Big Blue Botton, and Skyroom among which Adobe connect was used for the purpose of this study because of the affordances it provides. This application is user friendly, but the most notable reason for which it was used is related to the breaking out mode through which the main room can be broken into different rooms in which students can do different pair-work and group-work activities.

Instruments

The questionnaire used in the present study is a modified version of a similar instrument employed in the study conducted by Kruk and Zawodniak (2017) inclining 28 five-point Likert-scale items. However, the item-total correlation for four items was under the minimum criteria of 0.30 and they were removed from the main data. The present instrument consists of 23 seven-point Likert-scale statements, which tap into the intensity of boredom in the L2 classroom. Higher scores on each statement of the scale and also entire scale will indicate higher levels of boredom (Pawlak et al., 2020a). Moreover, the results of explanatory factor analysis for 23 items revealed factor loadings above 0.30 indicating that all items had large contributions to their underlying constructs. To ensure the content validity, two experts in Applied Linguistics were requested to check each item carefully. Despite the high proficiency level of students, all items of the inventory were translated into Persian, the learners' mother tongue, in order to diminish the possibility of any misunderstanding. Then, the internal consistency reliability of the inventory was calculated for the learners partaking in this study and it was 0.91 based on Cronbach's alpha. Some sample items include: "Time always seems to be passing slowly in my language classes," "I often have to do repetitive or monotonous things in my language classes," "It seems that English classes are the same all the time; it is getting boring."

Data collection procedure

This study was comprised of three different phases. In the first phase of the study, the participants were asked to

complete the questionnaires on boredom to measure the level of this emotion before the intervention. In the second phase of the study, the researcher implemented 10-week intervention program in which approaches of autonomy enhancement were employed with the intention of reducing boredom. Each session of the program focused on one approach including *resource-based approaches, learner-based approaches, classroom-based approaches*, and *curriculum-based approaches* (Benson, 2011). Each approach was fully implemented via different tasks during the class in order to increase autonomy and diminish the negative states of boredom. *Resource-based approaches* provide learners with opportunities to direct their own learning and emphasize independent interaction with learning materials, *learner-based approaches* focus on learner development and changes within the learner, classroom-*based approaches* attend to the control learners have over the learning process including planning and evaluation, and finally, *curriculum-based approaches* emphasize learner control over the curriculum and learning material (Benson, 2011). Finally, in the third phase, after the intervention program was finished, learners were asked to complete the questionnaires on boredom again in order to make comparison and see whether any changes had been made in the level of this negative state.

As for the processes through which learners developed their autonomy and reduced their boredom as a result of taking part in each session of the intervention, they were required to reflect on their experiences after each session of the intervention. The questions included: *How did you feel during the class? Talk about your positive and negative emotions during the class, did you feel engaged in the tasks? What did you like about the activities and classes? Did you feel bored? If yes, please describe your feeling, etc.* The reflections were in form of written dairies which were sent to the researcher through Telegram in a weekly schedule.

Autonomy-oriented intervention program

One approach to fostering autonomy is classroom-based approaches which may include different instructional activities such as peer teaching, project works, and peer assessment. The review of literature indicates that lack of cooperation among learners is a crucial factor in students' boredom (Yazdanmehr et al., 2021; Zawodniak et al., 2021). Therefore, adopting classroom-based approaches such as pair work, group work, and project-based approaches would foster learner autonomy. In this study, classroom-based approaches are operationalized in terms of pair work and group work in which students need to do different activities. In online adobe connect classes, there is the possibility of breaking the class into groups and at the same time monitoring their activities. In the first session of the pair work, students were asked to divide the reading into two sections and each student summarized one section and explained to her/his partner. Then they were asked to do the comprehension questions in pairs. Finally, the answers to questions were checked in the class as a whole. In the second session of this approach, the class was divided into seven groups. First, some discussion questions were raised and then the students had to discuss them in their groups. While they were doing the task, the teacher observed the rooms to ensure their participation and passed her comments if necessary.

Moreover, the fact that students have no choice in English classes have been an important matter in making students feel bored (Pawlak et al., 2020a; Yazdanmehr et al., 2021; Zawodniak et al., 2021). Therefore, adopting curriculum-based approaches in which students can have a role in determining the content of the classes can make them feel autonomous and give them the right to choose their learning material (Benson, 2011). Curriculum-based approach has been conceptualized via adopting process-based syllabus through which learners play an important role in deciding the content and process of the class (Benson, 2011). In the present study, students are involved in developing process-based syllabus for two sessions based on their language needs and interest. That said, learners negotiated the content of classroom. In doing so, different poles were run in order to determine the general area which they preferred to work on. Because the coursebook taught at university is mainly reading-based, most of them selected grammar and listening skills to work on. Then, the general area of grammar was narrowed down to several parts including tenses, conditionals, modals, clauses, etc. As for two sessions of this approach, the instructor taught some grammatical points to the students via adopting task-based language teaching. Regarding the listening skill, the researcher assigned a task to work on their listening and also enhance learner-centered approaches. In doing so, students were divided to seven groups and each group had to choose a Ted Talk relevant to the content of the reading passage of the coursebook. In their groups, they had to watch the Talk, work on the new words, summarize it and then the leader of the group presented the main points to the class.

Resource-based approaches are important in fostering learners' autonomy since using extracurricular activities and task could be a way to reduce boredom (Yazdanmehr et al., 2021). Hill and Hannafin (2001) defines resources as the "media, people, places, or ideas that have the potential to support learning" (p. 38) and the effectiveness of these resources is interconnected with their potentials to offer collaborative experiences and the sense of engagement with other people in learning process (Benson, 2011). During the intervention sessions, different resources were utilized. For instance, one session was allocated to watching a 15-mins video clip about the content of the unit (how civilizations end). The students were asked to watch the video clip and then answer some questions. First the questions were answered individually then they were asked to discuss the content of the videos in groups. Moreover, in order to draw on technological affordances in EAP classes, students had to do certain tasks and then share with the instructor on Telegram messaging application. For instance,

they were required to share their ideas about one of the topics (Social robots, exploring space, etc.) and record their voices then share them via telegram. The other session was allocated to analyzing a piece of newspaper in the class. Each group could bring their own newspaper to the class so that they can analyze the structures and new words utilized in the newspaper.

Among the main causes of boredom, we can refer to teacher-centered classes in which students get bored as a result of long teacher talk, teacher control over classroom procedure, and teachers' instructional practices (Derakhshan et al., 2021; Yazdanmehr et al., 2021; Zawodniak et al., 2021). Therefore, moving from teacher-centered to learner-centered approaches would help alleviate students' boredom. Learner-centered approaches which are among autonomy enhancement techniques utilize a variety of activities to promote autonomy (Benson, 2011) and in turn reduce boredom. In this present study, learner-centered approaches are operationalized through adopting task-based teaching which are valid methods for promoting autonomy (Viera, 2017). The inclusion of tasks into the traditional syllabi would provide opportunities for communicate language use which in turn would enhance autonomy (Bygate, 2016). During each session of the intervention, different tasks such as watching video clips, analyzing newspapers, focusing on Ted Talks, discussing different topics were implemented. For each task, the three phases of pre-task, while task, and post-task activities were considered and implemented. The summary of the approaches utilized are provided in **Table 1**.

Data analysis

First, descriptive statistics were conducted to measure the rate of boredom before and after the intervention. The mean of each questionnaire was calculated before and after the intervention to be able to compare the scores and the possible changes in the level of boredom. Following that, paired sample *t*-test was run to see whether any significant differences are found between pre- and post-test scores of boredom as a result of taking part in the intervention.

Since we aimed to explore how intervention experiences had affected students' boredom and how their autonomy was enhanced during the intervention sessions, we engaged in analyzing the reflective journals written by them based the guidelines of qualitative data analysis through thematic analysis (Braun and Clarke, 2006). They introduced six stages of inductive analysis including familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report. Following these six steps, we initially collected the data inductively to discover the general themes of the journals and then it was coded deductively by drawing on the theoretical background of the study including the approaches to autonomy enhancement. As the second researcher was the instructor who implemented the intervention and also collected the data, she had already engaged in making sense of students' experiences and feelings. However, the first researcher cross-checked the data and interpretations by the second researcher to confirm the analyses.

Results

The result of this study is reported in two separate sections including quantitative and qualitative results.

Quantitative results

The research question explored the differences between students' boredom before and after the intervention. To achieve this purpose, the overall mean score of students' pre-test on boredom is compared to the overall mean score of their post-test.

A paired *t*-test was used to compare the pre and post-tests results of the participants. The results indicates that there was a significant difference in the scores of pre-test (M = 68.4, SD = 8.1) and posttest (M = 65, SD = 6.8), $t(2.72) = 0.008$, $p < 0.001$ (two-tailed) (**Table 2**). Regarding the effect size, Cohen's d is reported to be 1.14 indicating a large effect size.

The descriptive and the paired samples *t*-test results revealed that the students' boredom reduced as a result of adopting the autonomy-oriented program. These results showed that the application of this intervention program has significantly

TABLE 1 Summary of autonomy-enhancement approaches.

Autonomy-enhancement approaches	Content and procedure
Classroom-based approaches	Implementing different pair work and group work activities for different sections of the class namely reading comprehension activities, discussion sections, etc.
Curriculum-based approaches	Developing process-based syllabus by giving the students the chance to determine the content of the based on their needs and interests. The listening skill and grammar were selected by the students to be included in the syllabus
Resource-based approaches	Drawing on various resources namely audio-visual medias for discussion in the class, technological affordances such as interaction through social medias, analyzing authentic texts, etc.
Learner-based approaches	Implementing Task-based teaching by inclusion of different tasks such as watching topic-based videos, analyzing authentic texts like newspapers, introducing and working on Ted Talks, etc.

impacted the students' boredom. Moreover, these results are strongly corroborated by the qualitative data obtained from reflective journals written by the participants. In the following section, the results of the qualitative data are reported.

Qualitative results

This section reports the result of qualitative data gathered through reflective journals. The four dominant themes were classroom-based, curriculum-based, resource-based, and learner-based experiences. In the following sections, these experiences are introduced and the related sub-themes are provided with the participants' excerpts.

Classroom-based experiences

The students' journals revealed that they were satisfied with new approaches and they were mainly engaged in learning processes in online EAP classes. Regarding the classroom-based approaches, a number of subthemes including, collaboration and socialization and psychological affects were extracted.

Collaboration and socialization

As a result of attending online university classes, students could communicate and interact less than face-to-face classes. However, by adopting strategies such as pair work and group works or presentations, which helped them have communicative interactions with each other, they felt more active and involved:

> **Participant 11:** We were more intimate in these groups, no stress, a friendly atmosphere in which we could learn.
> **Participant 54:** We hadn't met each other face to face, so first we didn't know to how to communicate with each other, but little by little we knew how to move on and do the tasks.

They were also assigned different tasks which required their collaboration and cooperation. For instance, they needed to help each other with the correct pronunciation of the new words "*Breakout room made the class more productive, I guess. We certainly were more engaged. We were involved in reading the passage and interpreting it*" (Participant 45). "*We had more cooperation and interaction and helped each other through difficult tasks or pronunciation of different words*" (Participant 32).

Psychological affects

Taking part in group and pair work activities helped students manage their stress because they were working with their classmates and friends who were at the same social status as them. The students said that:

> **Participant 10:** Sometimes we are shy to ask questions in front of everyone but in our groups, we could do it easier.
> **Participant 72:** I'm not good at English but today's class was more comprehensible for me, I also felt more confident, I thought they are my friends so it was easier.

Moreover, they could use sense of humor in the groups to make the activity more interesting. As a result of making the class funnier, they believed they would feel less bored: "*It was really fun; I had little stress; we could joke around with the classmates and enjoy the moments.*" (participant14), "*my classmates used their sense of humor in the class and this kept me interested and engaged in the activities*" (participant 31).

Curriculum-based experiences

The students were highly involved in classroom procedures through the curriculum-based approaches adopted by the instructor. A number of themes including feeling autonomous and novel university classes were extracted.

Feeling autonomous

In parallel with the quantitative results, some learners reported that having control over the content of the classroom or tasks protected them against feeling bored as the following extracts from the journals show:

> **Participant 15:** I felt as if I am an independent person who can decide what to learn based on her own needs.

TABLE 2 Paired sample *T*-test of pre- and post-test scores of participants.

Paired samples test									
		Paired differences					*t*	*df*	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% Confidence interval of the difference				
					Lower	Upper			
Pair 1	PreTest–PostTest	3.47059	11.76515	1.27611	.93290	6.00827	2.720	84	0.008

Participant 82: I had the power to choose whatever I want. I wasn't forced to study s.th imposed by the university and this made me feel autonomous.
Participant 19: We had more autonomy to choose how we can manage out time, we could allocate more time to the sections which we thought was more difficult.

Novel university classes

The participants believed that it's typical for the instructor of the course to choose the material and design the syllabus and the students need to follow the pre-determined materials in the class. However, the EAP classes have been totally different from other university classes which made it appalling for students: "*I felt like this was not a university class, so I willingly attended the classes each session*" (Participant 47*);* "*The class was interesting and exciting, it was different from normal university classes*" *(participant 64).* The fact that they have been considered as important individuals during the class time made them feel motivated: "*Thinking that the prof cares about the students' choices and helps them make progress in their weaknesses is awesome*" (Participant 22)*; "It's a great feeling to think you are important in the class procedure and the fact that the prof pays attention to our needs makes us motivated*" (Participant 77).

Resource-based experiences

The participants of this study considered resource-based approaches as real life activities and entertainment and engagement, which contributed to their involvement in online classroom procedure and prevented them from succumbing to boredom.

Real life activities

Drawing on different sources to be utilized in online classes made the students feel they were doing useful tasks which would contribute to the knowledge they need in real life: "*It was like real life activities that I will face in real life. I had to try to understand authentic texts or videos*" (Participant 59); "*I found the activities useful for my future because I was getting familiar with the real English used by native speakers*" (Participant 8). Moreover, they believed bringing new sources to the classroom creates challenge for them, which requires their hard work and attention during the classes: "*Listening sources were added, watching a movie was great, the struggle I was faced with made me try more*" (Participant 3); "*I had to understand the content of the newspaper, so I had to try more, look up the new words, ask more questions*" (Participant 80).

Entertainment and engagement

Utilizing different resources during the online classes made the students entertained and engagement because they believed the variety included in the materials to be worked on added sense of excitement and engagement to the classes as the following journal extracts show:

Participant 55: Novel and unexpected activities were included so it engaged me a lot, during the class I normally checked my cellphone but, in this class, I was focused on what was going on.
Participant 46: It wasn't boring, I didn't consider it as a class which bores me, I thought this was a group meeting in which I can learn new things!
Participant 62: Honestly, cool, I wish other classes had the same entertaining sessions.

Learner-based experiences

Adopting different tasks helped alleviate the boredom experienced in online EAP classes. The participants referred to some advantages including time passing quickly and strategy development.

Time passing quickly

The students believed that while they were doing different activities, the time passed quickly since they were engaged in the learning process through different activities which demanded their active participation in the classes as the following extracts reveal:

Participant 84: Time passes quickly in these classes because I'm engaged in doing the tasks assigned to me.
Participant 70: I keep checking the time in normal classes but time passes so slowly; however, when I first looked at my watch, I noticed half of class had passed because I was fully involved in the task.

Strategy development

Application of learner-based approaches lead to strategy development of students since they were in charge of controlling the classroom procedure. When faced with difficulties, they could draw on different strategies such as checking their dictionaries, using their L1 for better comprehension, etc. as the excerpts below indicate:

Participant 29: We used different dictionaries to check the words in our groups when none of us knew the meaning.
Participant 33: We could even use Persian equivalents, which was only possible in our groups not in the class as a whole.

Discussion

The findings indicated positive effects of the autonomy-oriented intervention on learners' boredom in EAP classes, which was caused through four different approaches including

classroom-based, curriculum-based, resources-based, and learner-based approaches. The significant decline in learners' boredom can be attributed to the tasks which were applied during each session of the intervention. In addition to the statistical results, the qualitative data gathered weekly contributed to our understanding of the learners' experiences throughout the intervention. The qualitative data allowed a much more fine-grained understanding of how students were able to manage this negative emotion. The themes and subthemes highlight the prominent role of pedagogical interventions on mitigating negative emotions during online courses (Derakhshan et al., 2021).

Boredom of students in online classes could be explained in terms of teachers long and monotonous talks in the classes (Derakhshan et al., 2021; Pawlak et al., 2021). The results showed that providing students with opportunities through which they can experience peer teaching and active participation in the classes could contribute to reduction of the monotony of the class. This shred of evidence is supported by cooperative learning tasks through which teacher assigns different responsibilities to the learners and monitors them while conducting the tasks, which would lead to arousing positive emotions in learners (Mennim, 2017; Pawlak et al., 2021). In addition, due to the lack of interaction and cooperation in online classes, students succumb to boredom (Derakhshan et al., 2021; Yazdanmehr et al., 2021). However, using different approaches such as pair works and group works created resemblance to face-to-face classes in which students had great interactions with each other. As indicated in their journals, they had a sense of socialization to their community when engaged in pair work tasks. Moreover, adopting classroom-based approaches contributed to the psychological status of learners. Since they were interacting with their friends, they did not fear to make mistakes. In addition, they added a sense of humor to the tasks, which is in line with other studies (Derakhshan et al., 2021; Pawlak et al., 2021) which deem humor and fun as factors reducing boredom in online classes.

Equally important is students' choice in the content and procedure of the classroom. According to Pekrun et al., 2010, p. 533, bored students have "lower perceived control" over their learning process. This can be explained with reference to control-value theory of achievement emotions (Pekrun, 2006; Pekrun et al., 2010) which highlights the fact that when lacking control over the learning process, students will feel bored. Therefore, if we provide them with freedom of choice, they perceive themselves in control and accordingly, feel less bored (Yazdanmehr et al., 2021). This is supported by Yazdanmehr et al.'s study in which the case participant attributed boredom to teacher control over the class which would cause disengagement in online courses. In addition, this is corroborated by findings of the study conducted by Pawlak et al. (2021) whose participants found content-based classes less boring in comparison to lecture-based presentations since they had more freedom to choose the content of the class. The participants of this study believed by choosing the content, they will be more autonomous which is in line with Benson's (2011) approach to fostering autonomy namely curriculum-based approaches. Moreover, these approaches adopted during the online classes were less similar to typical university classes which seemed novel to the students and made them more engaged and less susceptible to boredom. As Pawlak et al., 2021, p. 19 remarks being "less reliant on university level English instruction" can made students more autonomous and alleviate their boredom in online classes.

Regarding the role of resource-based approaches in reduction of autonomy, learners were satisfied with the fact that they are using different resources with which they will be faced in out of class activities. This is in line with the findings of Pawlak et al. (2021) who found that relating tasks to real life activities will make the instruction more practical and reduce students' boredom in online classes. However, when the tasks have nothing or little to do with real life activities, students feel bored (Zawodniak et al., 2021). Using authentic materials such as analyzing newspapers or Ted Talks also leads to reduction of boredom (Benson, 2011; Derakhshan et al., 2021). One important antecedent of boredom is reported to be disengagement of learners (Pawlak et al., 2020a). Therefore, provision of different resources which seems engaging and entertaining would mitigate boredom among university students (Pawlak et al., 2020a) since preventing disengagement is a direct strategy for overcoming boredom (Macklem, 2015). In the same vein, teachers in Pawlak et al.'s (2021) study utilized different strategies among which increasing students' engagement was the most popular one to mitigate boredom. In addition, resource-based approaches provide opportunities for developing autonomy and control over the learning process through combination of self-access materials and class material to expand different skills in learners (Benson, 2011). Inclusion of various sources such as online resources can also be beneficial in mitigating boredom as well (Pawlak et al., 2021).

On the other side, the tasks utilized in the class play a pivotal role in alleviating students' boredom. According to the participant's journals, when the instructor adopted new tasks, they were engaged and this resonates well with the studies which regarded repetitive tasks as main indicator of students' boredom (Derakhshan et al., 2021; Yazdanmehr et al., 2021). In the same vein, Zawodniak et al. (2021) also remarks that similarity in the tasks leads to feeling bored therefore, adopting novel approaches would provoke students' engagement and reduce their boredom. Moreover, if instructors can adopt different pedagogical instructions and refrain from repetitious teaching methods, boredom would diminish in students in online courses (Derakhshan et al., 2021). Furthermore, tasks can offer communicative contexts in which students get involved in

language learning and therefore foster their autonomy (Bygate, 2016; Viera, 2017). Task-based language teaching promotes learner-centeredness which requires taking one step away from traditional teaching methods and moving forward to learner empowerment and autonomy enhancement (Viera, 2017). As implied by qualitative analysis, learners were able to develops strategies for learning language which is a way of developing autonomy in learners (Benson, 2011), which leads to reduction of boredom (Mercer and Dörnyei, 2020). As Harmer, 2007, p. 394 remarks, learner-centered approaches help learners to be "the doers rather than the recipients of learning action," which results in higher positive emotions and lower negative emotions. Moreover, learners posited that time passed by quickly during the learner-based approaches while one major factor for boredom is considered as the perceptions of time slowing down (Sharp et al., 2016).

Conclusion

This study was designed to investigate the effect of an autonomy-oriented intervention program on reducing boredom among EAP students. The findings of qualitative and quantitative measures revealed significant changes in the boredom of learners before and after our intervention. The study, therefore, has brought to the fore the need for online English courses to be delivered in a more engaging manner which utilizes different approaches to foster the autonomy of learners so that they can take charge of their learning and as a result overcome their boredom.

The present study offers pedagogical approaches helpful in reducing boredom among EAP learners at university levels. Introducing variety and avoiding repetitive tasks in the classroom provides ample opportunities for engaging students since task repetition over a long period of time leads to less engagement and eventually boredom of students. Moreover, teachers should refrain from acting authoritative in the classes and do their best to encourage involvement during different activities.

Due to COVID-19 pandemic and other unforeseen disastrous pandemics, there must be attempts to enhance the quality of online classes. The inadequacies of online courses should be dealt with through strategic instructions which engage students in various types of tasks. Moreover, by keeping balance between adopting different approaches such as whole class, pair work, group work mode would lead to reduced boredom (Zawodniak et al., 2021).

Limitations and future avenues

Findings of the present study along with the pedagogical instructions employed during the intervention could aid learners and teachers in mitigating their negative emotions during online courses. However, the findings should be interpreted with circumspection since the individual factors and their roles on students feeling has not be considered. Future studies should take a further step to explore the effect of individual differences on how students feel bored and how they would react to different pedagogical interventions. Moreover, the enhancement of autonomy requires instructors who are familiar with the autonomy enhancement approaches since this process is "a more active process of guidance and encouragement to help learners extend and systematize the capacities that they already possess" (Benson, 2011, p. 91). Another significant limitation with which this study was faced is related to the lack of control group since having two groups of participants would yield more accurate results. Therefore, caution must be taken in the interpretation of the results and future studies might include a control group for obtaining more generalizable and accurate results.

Data availability statement

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

Author contributions

All 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.

Publisher's note

References

Acee, T. W., Kim, H., Kim, H. J., Chu, H. R., Kim, M., Cho, Y., et al. (2010). Academic boredom in under- and over-challenging situations. *Contemp. Educ. Psychol.* 35, 17–27. doi: 10.1016/j.cedpsych.2009.08.002

Adedoyin, O. B., and Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interact. Learn. Environ.* 1, 1–13. doi: 10.1080/10494820.2020.1813180

Benson, P. (2011). *Teaching and Researching: Autonomy in Language Learning*. New York, NY: Routledge.

Benson, P. (2013). *Teaching and Researching Autonomy in Language Learning*, 2nd Edn. New York, NY: Routledge. doi: 10.4324/9781315833767

Braun, V., and Clarke, V. (2006). Using thematic analysis in psychology. *Qual. Res. Psychol.* 3, 77–101. doi: 10.1191/1478088706qp063oa

Bygate, M. (2016). Sources, developments and directions of task-based language teaching. *Lang. Learn. J.* 44, 381–400. doi: 10.1080/09571736.2015.1039566

Chapman, K. E. (2013). *Boredom in the German Foreign Language Classroom*, Ph.D Thesis. Madison, WI: University of Wisconsin-Madison.

De Beni, R., and Moè, A. (2003). Imagery and rehearsal as study strategies for written or orally presented passages. *Psychon. Bull. Rev.* 10, 975–980. doi: 10.3758/BF03196561

Derakhshan, A., Kruk, M., Mehdizadeh, M., and Pawlak, M. (2021). Boredom in online classes in the Iranian EFL context: Sources and solutions. *System* 101:102556. doi: 10.1016/j.system.2021.102556

Galante, A. (2018). Drama for L2 speaking and language anxiety: Evidence from Brazilian EFL learners. *RELC J.* 49, 273–289. doi: 10.1177/0033688217746205

Goetz, T., Frenzel, A. C., Hall, N. C., Nett, U. E., Pekrun, R., and Lipnevich, A. A. (2014). Types of boredom: An experience sampling approach. *Motiv. Emot.* 38, 401–419. doi: 10.1007/s11031-013-9385-y

Harmer, J. (2007). *The Practice of English Language Teaching*, 4th Edn. Harlow: Pearson Longman.

Henry, A., and Thorsen, C. (2018). Disaffection and agentic engagement: "Redesigning" activities to enable authentic self-expression. *Lang. Teach. Res.* 24, 456–475. doi: 10.1177/1362168818795976

Hill, A. B., and Perkins, R. E. (1985). Towards a model of boredom. *Br. J. Psychol.* 76, 235–240. doi: 10.1111/j.2044-8295.1985.tb01947.x

Hill, J. R., and Hannafin, M. J. (2001). Teaching and learning in digital environments: The resurgence of resource-based learning. *Educ. Technol. Res. Dev.* 49, 37–52. doi: 10.1007/BF02504914

Holec, H. (1981). *Autonomy and Foreign Language Learning*. London: Pergamon.

Kormos, J., and Csizér, K. (2014). The interaction of motivation, self-regulatory strategies, and autonomous learning bevavior in different learner groups. *TESOL Q.* 48, 275–299. doi: 10.1002/tesq.129

Kruk, M., and Zawodniak, J. (2017). Nuda a praktyczna nauka jêzyka angielskiego. *Neofilolog* 49, 115–131. doi: 10.14746/n.2017.49.1.07

Kruk, M., and Zawodniak, J. (2018). "Boredom in practical English language classes: Insights from interview data," in *Interdisciplinary Views on the English Language, Literature and Culture*, eds L. Szymanski, J. Zawodniak, A. Łobodziec, and M. Smoluk (Zielonogorski: Uniwersytet Zielonogorski), 177–191.

Kruk, M., and Zawodniak, J. (2020). A comparative study of the experience of boredom in the L2 and L3 classroom. *English Teach. Learn.* 44, 417–437. doi: 10.1007/s42321-020-00056-0

Larson, R. W., and Richards, M. H. (1991). Boredom in the middle school years: Blaming schools versus blaming students. *Am. J. Educ.* 99, 418–433. doi: 10.1086/443992

Lewinski, P. (2015). Effects of classrooms' architecture on academic performance in view of telic versus paratelic motivation: A review. *Front. Psychol.* 6:746. doi: 10.3389/fpsyg.2015.00746

Li, C. (2021). A control-value theory approach to boredom in English classes among university students in China. *Modern Lang. J.* 105, 317–334. doi: 10.1111/modl.12693

Li, C., and Dewaele, J. M. (2020). The predictive effects of trait emotional intelligence and online learning achievement perceptions on foreign language class boredom among Chinese university students. *Foreign Lang. Foreign Lang. Teach.* 5, 33–44.

Li, C., Dewaele, J. M., and Hu, Y. (2021). foreign Language learning boredom: Conceptualization and measurement. *Appl. Linguist. Rev.* 1–27. doi: 10.1515/applirev-2020-0124

Li, C., Dewaele, J. M., Pawlak, M., and Kruk, M. (2022). Classroom environment and willingness to communicate in English: The mediating role of emotions experienced by university students in China. *Lang. Teach. Res.* 13621688221111623. doi: 10.1177/13621688221111623

Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *Innov. Lang. Learn. Teach.* 1, 14–27. doi: 10.2167/illt040.0

Macklem, G. L. (2015). *Boredom in the Classroom: Addressing Student Motivation, Self-Regulation,and Engagement in Learning*. New York, NY: Springer.

Mennim, P. (2017). Discourse-based evaluation of a classroom peer teaching project. *ELT J.* 71, 37–49. doi: 10.1093/elt/ccw046

Mercer, S., and Dörnyei, Z. (2020). *Engaging Students in Contemporary Classrooms*. Cambridge: Cambridge University Press. doi: 10.1017/9781009024563

Mousavian Rad, S. E., Roohani, A., and Mirzaei, A. (2022). Developing and validating Precursors of Students' boredom in EFL classes: An exploratory sequential mixed-methods study. *J. Multiling. Multicult. Dev.* 1–18. doi: 10.1080/01434632.2022.2082448

Nakamura, S., Darasawang, P., and Reinders, H. (2021). The antecedents of boredom in L2 classroom learning. *System* 98:102469. doi: 10.1016/j.system.2021.102469

Pawlak, M., Derakhshan, A., Mehdizadeh, M., and Kruk, M. (2021). Boredom in online English language classes: Mediating variables and coping strategies. *Lang. Teach. Res.* 13621688211064944. doi: 10.1177/13621688211064944

Pawlak, M., Kruk, M., Zawodniak, J., and Pasikowski, S. (2020a). Investigating factors responsible for boredom in English classes: The case of advanced learners. *System* 91:102259. doi: 10.1016/j.system.2020.102259

Pawlak, M., Zawodniak, J., and Kruk, M. (2020b). The neglected emotion of boredom in teaching English to advanced learners. *Int. J. Appl. Linguist.* 30, 497–509. doi: 10.1111/ijal.12302

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educ. Psychol. Rev.* 18, 315–341. doi: 10.1007/s10648-006-9029-9

Pekrun, R., Goetz, T., Daniels, L. M., Stupinsky, R. H., and Perry, R. P. (2010). Boredom in achievement settings: Exploring control-value antecedents and performance outcomes of a neglected emotion. *J. Educ. Psychol.* 102, 531–549. doi: 10.1037/a0019243

Reeve, J., and Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *J. Educ. Psychol.* 98, 209–218. doi: 10.1037/0022-0663.98.1.209

Resnik, P., and Dewaele, J. M. (2020). Trait emotional intelligence, positive and negative emotions in first and foreign language classes: A mixed-methods approach. *System* 94:102324. doi: 10.1016/j.system.2020.102324

Ribeiro, R. (2020). *How University Faculty Embraced the Remote Learning Shift. EdTech Magazine April 14th, 2020*. Available online at: https://edtechmagazine.com/higher/article/2020/04/howuniversity-faculty-embraced-remote-learning-shift (accessed April 14, 2020).

Richards, J. C. (2020). Exploring emotions in language teaching. *RELC J.* 53, 225–239. doi: 10.1177/0033688220927531

Sharp, J. G., Hemmings, B., Kay, R., and Sharp, J. C. (2017). Academic boredom and the perceived course experiences of final year education studies students at university. *J. Further High. Educ.* 43, 601–627. doi: 10.1080/0309877X.2017.1386287

Sharp, J. G., Hemmings, B., Kay, R., Murphy, B., and Elliott, S. (2016). Academic boredom among students in higher education: A mixed-methods exploration of characteristics, contributors and consequences. *J. Further High. Educ.* 41, 657–677. doi: 10.1080/0309877X.2016.1159292

Shea, D. P. (2017). Compelled to speak: Addressing student reticence in a university EFL classroom. *Asian J. Appl. Linguist.* 4, 173–184.

Teng, M. F. (2019). *Autonomy, Agency, and Identity in Teaching and Learning English as a Foreign Language*. Singapore: Springer. doi: 10.1007/978-981-13-0728-7

Tvedt, M. S., Bru, E., and Idsoe, T. (2019). Perceived teacher support and intentions to quit upper secondary school: Direct, and indirect associations via emotional engagement and boredom. *Scand. J. Educ. Res.* 65, 101–122. doi: 10.1080/00313831.2019.1659401

Viera, F. (2017). Task-Based instruction for autonomy: Connections with contexts of practice, conceptions of teaching, and professional development strategies. *Tesol Q.* 51, 693–715. doi: 10.1002/tesq.384

World Health Organization [WHO] (2020). *Coronavirus Disease (COVID-19) Pandemic. World Health Organization. January 30th, 2020*. Available online at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019 (accessed January 30, 2020).

Yazdanmehr, E., Elahi Shirvan, M., and Saghafi, K. (2021). A process tracing study of the dynamic patterns of boredom in an online L3 course of German during COVID-19 pandemic. *Foreign Lang. Ann.* 54, 714–739.

Yeager, D. S., and Walton, G. M. (2011). Social-psychological interventions in education: They're not magic. *Rev. Educ. Res.* 81, 267–301. doi: 10.3102/0034654311405999

Zawodniak, J., Kruk, M., and Chumas, J. (2017). Towards conceptualizing boredom as an emotion in the EFL academic context. *Konin Lang. Stud.* 5, 425–441.

Zawodniak, J., Kruk, M., and Pawlak, M. (2021). Boredom as an aversive emotion experienced by english majors. *RELC J.* 1–15. doi: 10.1177/0033688220973732

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EDITED BY
Yining Zhang,
Tsinghua University,
China

REVIEWED BY
Zhonggen Yu,
Beijing Language and Culture University,
China
Ahmad Ridho Rojabi,
Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember, Indonesia
Muhammad Amir Saeed,
Dhofar University,
Oman

*CORRESPONDENCE
Siros Izadpanah
cyrosizadpanah@yahoo.com

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The impact of flipped teaching on EFL students' academic resilience, self-directed learning, and learners' autonomy

Siros Izadpanah*

Department of English Language Teaching, Zanjan Branch, Islamic Azad University, Zanjan, Iran

Introduction: This study attempted to investigate the impact of flipped teaching (FT) on EFL (English Foreign Language) students' academic resilience (AR), self-directed learning (SDL), and learners' autonomy (LA).

Method: To do this, the researcher selected 354 participants by the two-stage cluster sampling method. This research was quasi-experimental based on the pretest, and post-test, with experimental and control groups. Three questionnaires were administered to collect data. The questionnaires were analyzed using SPSS 24 software and inferred analysis of covariance (ANCOVA).

Results: The covariance study showed that FT significantly affected AR, SDL, and LA in learning with the help of the pre-test covariate variable ($p<00.5$). Also, the mean scores of students in the pre-test and post-test in the experimental group were significantly different. The mean scores of EFL students' AR, SDL, and LA were higher through FT. It is suggested that school principals provide the ground for teachers' participation in workshops on new teaching strategies so that teachers can benefit from new teaching approaches, including FT in the classroom.

Discussion: The study results showed that the mean AR of students in the experimental group's post-test compared to the pre-test in both groups has significantly increased. The research findings indicate a positive effect of the flipped class on the levels of SDL. Based on the results, the flipped lesson class approach significantly affected the LA of English language learners as a foreign language. The findings of this study confirm previous relevant studies on the impact of flipped course classes on the LA of English language learners as a foreign language.

KEYWORDS

academic resilience, autonomy, flipped learning, flipped teaching, selfdirected learning

Introduction

Due to the progress of technology and science, the acceleration of the evolution and development of science and technology in the present age is very high and significant (Shakarami et al., 2017; Dogan et al., 2021). Researchers produce new technologies every day. Due to social and technological changes, the knowledge and science taught in schools and universities needs revision (Bolzani et al., 2021). In recent decades, with the dramatic changes and the expansion of science, the need to upgrade human

knowledge, skills and develop lifelong learning skills is one of the primary goals of the educational system (Mirzaei and Hatami, 2019). With information technology and the increasing development of the educational system, it has shifted its activities to e-learning. The general popularity of this type of education is that some people ignore the benefits of traditional education and the interaction between teachers and students and consider e-learning as the only way of teaching for sustainable learning in formal education.

This increasing advancement in technology in the world has led to the fact that traditional teaching methods no longer meet the needs of students (Safari, 2020). Researchers have made many efforts to provide new and innovative approaches based on students' needs to develop them as creators and producers of science and technology. In recent decades, we have also witnessed the progress of novel approaches to transferring delegated knowledge from a behavioral perspective to a constructivist perspective (Schultz et al., 2014; DeLozier and Rhodes, 2016; Bahmani et al., 2017).

Therefore, the researcher argued that flipped classroom education with all these benefits can significantly affect students' academic resilience, self-directed learning, and learner autonomy because flipped education's effectiveness in the classroom is unclear. Therefore, to respond appropriately to their primary concern, the researcher in this study tries to study the effectiveness of flipped education as an independent variable on the dependent variables of students' academic resilience, self-directed learning, and learner autonomy. However, since the study results can explain the effectiveness of flipped education on students' academic resilience, self-directed learning, and learner autonomy; the results can be a great guide for policymakers and educational designers.

An obstacle to learning a foreign language in Iran is communicating in the English language. However, English is part of the educational curriculum in guidance and high schools.

A problem that English learners often face is that modern technology is not sufficiently used in teaching English (Maniei, 2003; Lin et al., 2022). Two primary tools in teaching language can be the Internet and Educational videos; however, teachers do not use them enough in language classes (Fariborzi and Abu Bakar, 2011). So far, instructors have made various decisions and implemented new methods and approaches to improve the unfavorable conditions of foreign language teaching in Iran. Scholars have corrected many textbooks and educational programs by trial and error in teaching and learning English but achieving the desired goals in this field is not clear yet (Safari and Rashidi, 2015).

Over the past few decades, technological advances have introduced alternative forms of active learning with the challenge of effective foreign language teaching. These important technological advances include high-capacity Internet, cloud computing, video-sharing websites, and recent news publishing. The collaboration between effective active learning-teaching methods and technological advancements is the "flipped classroom" method. A type of instructional style involves transferring a lecture's component to a lesson outside the classroom to incorporate other instructional activities during the classroom session (Strayer, 2012).

Review of literature

Flipped classroom

The flipped teaching method was introduced and developed in (2012) by two chemistry teachers, Bergman and Sam. Later, this approach gained credibility among researchers and experts. Like the traditional teaching method, the primary teaching philosophy of this method emphasized the principle of students' homework.

The flipped classroom is an educational strategy and mixed learning. It turns education into a student-centered model in which the class examines topics more deeply and creates learning opportunities. In traditional education, lessons in the flipped classroom may include learning based on homework activities (DeLozier and Rhodes, 2016). On the one hand, students can spend more time in the classroom in this type of learning. They are more active in learning and creating knowledge. Meanwhile, they test and evaluate their knowledge (Thomas and Philpot, 2012).

Flipped teaching includes spending time in the classroom for individual learning and using different teaching and learning methods. Encourage learners to take responsibility for their learning (Helgeson, 2015). Content is set aside in the classroom, and teachers can provide classroom activities by teaching learners how to find the cause of problems and apply information in real life. The teacher and educational approach must be efficient and practical (Jahed Motlagh et al., 2015).

However, modern teaching approaches and methods keep track of learners' needs to reinforce students' engagement in the process of learning and create opportunities for mutual interactions. In addition, it is attempted to consider the learners' interests, capabilities, differences, and affective factors to provide better facilitative instructional outcomes. This way of teaching creates an interactive and dynamic atmosphere in which learners actively engage in doing tasks (Du, 2021). Besides, it is required to keep up with the technological advancements that have been part of the language classroom to complete tasks and activities, support learners' achievements, encourage learners' engagement, and direct learners toward successful performance in the technology age (Sakulprasertsri, 2017). It has been said that Flipped Learning (FL) is a modern phenomenon in education that includes the changes in learner and teacher roles and the digital era.

Academic resilience

Academic resilience means that students achieve good educational outcomes despite adverse conditions and challenges by changing existing behaviors or creating new behaviors, such as discipline, practice, or planning (Shakarami et al., 2017; Aliyev et al., 2021; Rich et al., 2022). Researchers argue that flipped teaching with all these benefits in the classroom can significantly affect students' academic resilience because the effectiveness of flipped teaching in the school on students' academic resilience is

not apparent. There are no tools to measure the effectiveness of flipped teaching in the classroom.

Resilience is the ability to adapt to threatening situations, which means positive adaptation in response to unfavorable conditions. It significantly reduces students' stress and increases students' motivation to learn (Bahmani et al., 2017; Sahebyar et al., 2019).

Various studies show that students' perceptions of teaching and learning activities are positive. They prefer visual classroom lectures but are more inclined to have more interactive classroom activities (Thomas and Philpot, 2012; Kavyani et al., 2015). Also, because the researcher in this study found that such research has not been done on female students in Zanjan, explaining the effectiveness of flipped teaching is essential to students' academic resilience. In addition, the most crucial concern of researchers is that flipped teaching can transform traditional teaching methods (Bahmani et al., 2017) - develop critical thinking (Dehghanzadeh et al., 2018) – positively promote students' creativity (Jafari et al., 2020), facilitate the learning of work (MobserMaleki and Kian, 2018) and technology lessons can be a practical comparison to conventional equipping methods and lead to learners' academic achievement (Kavyani et al., 2015; Azimi and Bahmani, 2017). In the following, these articles discuss a few internal and external research that contribute to the quality of the study.

Nazaripour and Laei (2020), in a study investigating the effect of flipped learning (FL) on academic self-efficacy and learning mathematics of students with learning disabilities, found that FL is effective on academic self-efficacy and learning math lessons for students with learning disabilities.

Melissa (2020), in a study aimed at investigating "Facilitating student engagement through the FL approach in K-12: A systematic review," found that the films produced by our respective teachers lead to more academic engagement in students.

Zamzami (2018), in a study, aimed to evaluate "Students' learning performance and perceived motivation in gamified flipped-class instruction," along with games based on the self-determining theory of receiving flipped education causes more motivation in students, and this leads to academic engagement and their participation will be in the classroom. Students, in particular, were so motivated that they competed with their classmates to the point where they were beaten. The findings led to the emergence of four important categories: 1-Motivation to learn before class. 2-Pre-class competition 3-Students 'learning independence 4-Students' participation or social interaction.

Ahanjan (2018), in a study aimed at investigating 'academic achievement motivation and self-efficacy receiving flipped education in podcasting method based on model 5E (Engagement, Explore, Explain, Elaborate, and Evaluate) affect the academic achievement of students' motivation and self-efficacy. The results showed that the podcast and the 5E model of academic achievement are effective, increase the motivation to study, and increase the involvement and self-efficacy of the subjects.

While learners have academic resilience, they can improve academic resilience skills by (a) associating new information with previous knowledge, (b) pondering on abstract and conceptual notions, (c) making use of particular strategies in completing tasks, and (d) perceiving their own opinions and thoughts (Hwang et al., 2019).

Self-directed learning

The most important factor influencing students' success and progress is the students themselves, whether the cause is internal or external (Jonathan and Aaron, 2016). In a world where conditions, technology, and science are changing rapidly, it's important to have a comprehensive approach to content and how to learn it. Students must have appropriate learning skills, including self-directed learning (SDL) skills.

SDL is introduced as a process and learners with or without the help of others to identify learning needs, set goals, identify resources, select and implement necessary self-management plans (Field management including social environment of resources and facilities) with self-monitoring. The process by which learners become familiar with monitoring, evaluating, and formulating their cognitive learning strategies. SDL is a state of mind in which the learner feels individually responsible for their learning (Radnitzer, 2010; Khodaei et al., 2022).

SDL states that learners learn self-directed with their learning needs, setting goals, choosing a learning strategy, and evaluating the learning process results (Fisher et al., 2001; Hendry and Ginns, 2010; Bell, 2015). SDL increases learners' confidence and capacity to learn independently in challenging educational and work environments. SDLis also an approach to the learning process that helps learners identify their own learning goals or needs through shared cognition and decision-making that makes a close and smooth partnership (Sarani and Aayati, 2014). Studies that have dealt with the effects of the flipped class include:

Kavyani et al. (2015), in applied research, have investigated the effect of flipped classes on the variables of academic self-regulatory academic achievement, group interaction, and students' academic motivation. The statistical analysis results showed that the flipped class approach has a positive effect on all dependent variables.

Piri et al. (2018), in a study about flipped education, found that students who took the unit in flipped classes achieved better results in this course compared to the control group, and students in flipped classes performed better in solving problems, understanding educational concepts and content differed significantly from performing students who had traditional classes. Students' feedback in flipped classes has also been positive, contributing to their efforts and conveying educational concepts.

Entezari and Javdan (2016), in a study about flipped class teaching in anatomy and physiology at Algardia College in New York claimed that the students' performance in the exams and their satisfaction with the training course favored the students who had used the flipped class. They also concluded that flipped classes, combined with active learning strategies, were most effective.

Learner autonomy

Some researchers have extensively used the Vygotsky theory-based framework for learning autonomy (Oxford, 2003; Abuhassna et al., 2022). A modification of Benson's (1997) model refers to approaches based on Vygotsky's theory of learning in which the social environment is highlighted. Asgari and Rahimi (2014) examined the effects of using a technology-based language learning framework on students' perceptions or perceptions of the English classroom environment as a foreign language. They concluded that the language-based learning environment is more efficient, language-oriented, and facilitative than traditional teaching methods. Thus, using technology in the flipped class approach can increase language learners' autonomy (Ankan and Bacall, 2011; Jarvis, 2013).

In addition, Hung (2015) concluded in his study that the FL approach improves students' attitudes toward learning and their levels of participation. Zainuddin and Halili (2016) also conducted a content analysis of twenty reference articles on FL and concluded that most flipped class studies sought to examine students' autonomous learning needs. In addition, Little (2022) hypothesized that the flipped class approach could address students' need for autonomy, a sense of connection, skill, and efficiency. Davies et al. (2013) also pointed out that students in the flipped course can learn at their own pace, which increases their sense of autonomy. In addition, Rahman (2013) conducted a study on the relationship between CALL (computer-aided language learning) and autonomy of English language learners as a foreign language, which makes technology an important and efficient tool in learning, and concluded that computer-assisted language learning (CALL) has a positive effect on the autonomy of language learners if language learners find this helpful tool and take full advantage of it. In a similar study, Meri (2012) examined the relationship between learners 'autonomy and CALL in Turkey, and her research showed that the CALL method promotes learners' autonomous language learning. However, some studies, while demonstrating the benefits of learning environments using CALL to increase students' autonomy and independence, also point to some of the limitations or problems associated with these environments. These findings confirm the concerns that the learner's involvement in the computer-based approach does not necessarily lead to an increase in responsibility for learning management. For example, Kaur and Sidehu (2010) found that asynchronous online interactions *via* email could encourage autonomy in Malaysian university students. Still, more training in the optimal use of learning tools was needed to make the experience more efficient and effective. For this reason, in this study, we hypothesize that digital practice opportunities at home and outside the classroom can enhance learners' autonomy and lead to greater individual responsibility for language learning.

Therefore, due to the volume of educational information and the short time for education, it was necessary to go beyond traditional methods and seek to create and strengthen academic skills in students, including skills: in academic resilience, self-directed learning, and learner autonomy in learning. Considering that there is little research in the database about the flipped classroom and, on the other hand, the importance of skills, academic resilience, self-directed learning, and learner autonomy in education and the need to teach English and the inefficiency and weakness of traditional methods in the process of teaching and learning, still more studies need to be conducted on these variables.

This study investigates these hypotheses

1. Flipped teaching significantly affects the academic resilience of the eleventh of female high school students in language learning.
2. Flipped teaching significantly affects the SDL of the eleventh of female high school students in language learning.
3. Flipped teaching significantly affects the autonomy of the eleventh of female high school students in language learning.

Materials and method

Design of study and participants

This study was a quasi-experimental study with pretest, posttest, and control groups. It was conducted on 177 students in Zanjan, a city in northwest of Iran, in (2022). Inclusion criteria were female students who were studying in public high schools, in eleventh grade, and willing to participate in this study.

Sample size

Considering the 95% confidence level ($Z1\text{-}\alpha = 1.96$), the test power of 80% ($Z1\text{-}\beta = 0.84$) and based on the SDL variable in the studey of Soleymani et al. (2021) with the mean and standard deviation in the experimental group ($M1 = 38.25$ and $S1 = 1.30$), control group ($M2 = 37.71$ and $S2 = 2.02$), and using the formula for calculating the sample size in two independent groups, the total sample size was calculated to be 156 people. Taking into account the 10% drop in the sample, the final sample size was 177 participants in each group.

Sampling method

The research setting was the public high schools of Zanjan, a city in the northwest of Iran. The research population included female students who were studying in the eleventh grade. In Iran, there are female and male schools separately. Zanjan city has 25 public high schools. Of these public high schools, 10 public high

schools are for females' students. The multi-stage sampling method was used for selecting participants. In the first stage, two public high schools were selected randomly. In the second stage, they were randomly divided into two experimental and control groups. In Zanjan, each public high school consists of 5 to 6 eleventh grade students that were studying in different fields. Also, each class has between 35 and 40 students. In the third stage, using the convenience sampling method 5 classes were selected for accessing to total sample size. A teacher who was fluent in flipped teaching was chosen to teach English.

Procedure

In this regard, the educational content of the 11th-grade English course was prepared. After informing the experimental group about the purpose of the performance, the organized files were provided to them for 16 sessions. For this purpose, the teacher recorded 16 sessions of one and a half hours in audio and video for teaching in flipped teaching. With the help of an educational technologist, electronic content was prepared for each session. This electronic content was provided to the experimental group of students in a compact disc 1 week before the beginning of the classes and the relevant lesson plan. In addition, a virtual group consisting of teacher and students were formed in the Iranian social network. Students can access the teacher and ask them technical questions and problems during the program. By studying the lesson plan, students realized which electronic content and reference book pages they should read before each class to collect data from the standard questionnaire.

Data collection tools were standard academic resilience, self-directed learning, and autonomy questionnaires. These questionnaires were completed by the control and experimental groups in two pretest and post-test periods.

Instruments

Academic resilience

Collect data from the standard questionnaire of academic resilience of Samuels (2004), which was standardized has three components: "communication skills," "future and problem-oriented orientation," and "positivity" and 55 items with a five-point Likert scale (from never with a score of 1 to always with a score of 5). Ten professors confirmed its face and content validity in the field of educational sciences. The reliability of the questionnaire was calculated through Cronbach's alpha coefficient at a total of 0.81 (Omrani et al., 1400).

SDL questionnaire

A self-directed assessment questionnaire in student learning was designed by Fisher et al. (2001). This questionnaire consists of 40 questions that include three subscales. These subscales include self-control, willingness to learn, and self-management. This questionnaire has been standardized in Iran by Nadi and Sajjadyan (2011).

Shokar et al. (2002) obtained the validity of this scale by Cronbach's alpha method for the whole test, 0.82, and for the self-management subscales, 0.78, 0.71 willingness to learn, and 0.60, self-control. In Iran, Soltani and Naeemi (2012) obtained the reliability of Cronbach's alpha SDL questionnaire for the whole test, 0.92, and the self-management subscales, 0.85, 0.87 willingness to learn, and 0.84, self-control. Also, the construct validity and content validity of the questionnaire in this study were confirmed by three experts.

Autonomy questionnaire

Zhang and Li's (2004) learner autonomy questionnaire consisted of 21 items. This questionnaire has two parts: the first part includes 11 items, and the second part contains 10 items. The first 11 items are in the form of a Likert scale and have five options ranging from "never" to "always." The second part is in the form of multiple-choice questions, and participants must choose the closest answer to their beliefs and views or opinions between options. Participants are expected to answer questions within 33 min, with a maximum score of 105. Based on Zhang and Li's (2004) design and using Cronbach's alpha coefficient, the reliability of this questionnaire is estimated to be 0.80. In addition, Zhang and Li (2004) reported that this questionnaire also has high validity. The reliability of this tool in the present study has been estimated using Cronbach's alpha coefficient of 0.61.

Cronbach's alpha

Regarding the reliability of the questionnaires, Cronbach's alpha index obtained for the questionnaires is expressed in Table 1.

The results showed that Cronbach's alpha of autonomy, resilience, and SDL questionnaires were equal to 0.78, 0.84, and 0.79 and higher than 0.7, respectively, and the questionnaires had the necessary reliability.

Statistical tests

This research used central indicators and dispersion such as mean and standard deviation to analyze the data in descriptive statistics. Univariate analysis of covariance was used in inferential statistics. Then it was analyzed using spss24 software and univariate analysis of covariance (ANCOVA).

TABLE 1 Cronbach's alpha calculated for research questionnaires.

Questionnaires	Questions	Cronbach's alpha
Autonomy	21	0.78
Resilience	40	0.84
Self-directed learning	55	0.79

Results

Inferential analysis

Multivariate analysis of covariance has been used to test the research hypotheses. Covariance analysis is a comprehensive form of analysis of variance. While comparing the means of one or more groups and estimating one or more independent variables, the effect of one or more intervening variables, or covariates, is excluded from the equation.

Assumptions of analysis of covariance

Before analyzing the research data, the assumptions of the ANCOVA test, i.e., the normality of the data and the homogeneity of variance, are examined; the results of them are presented in the following tables:

Normality and homogeneity of variables

Data's default normality was checked by the Kolmogorov–Smirnov test and variance homogeneity test with Leven's test. The results are as follows:

According to the results of the Kolmogorov–Smirnov test in Table 2, the hypothesis of normality of research variables by control and experimental groups was confirmed (sig > 0.05). Also, according to Table 2, the Leven test accepted the hypothesis of homogeneity of variances (sig > 0.05).

Assumptions 4 and 5: Regression slope homogeneity and confirmation of the effect of the auxiliary variable

The results were performed through an analysis of covariance, which is presented in Table 3.

According to Table 4, the assumption of homogeneity of regression slope was accepted by analysis of covariance ($p > 0.05$). Based on the results of Table 4, the selection of the variable (pretest) as a covariate is confirmed in this study ($p < 0.05$).

Investigation of research hypotheses

> *Hypothesis 1*: Flipped teaching significantly affects the academic resilience of the eleventh of female high school students in language learning.

Analysis of covariance was used to test the above hypothesis. The necessary assumptions for the covariance study have been examined, and these assumptions are valid. The results of the study of covariance are recorded in the following tables:

As shown in Table 3, flipped teaching has a significant effect on resilience ($p = 0.001$, $F = 699.44$). Therefore, it was concluded that the mean of the two groups in the post-test after adjusting the pretest scores was significantly different from each other. As seen in the tables, the mean resilience scores in the control group in the pretest was 161.03, and in the post-test was 160.46, while the mean of this variable in the experimental group was 158.80 in the pretest and 183.03 in the post-test was reported. Due to the significant difference between the scores in the post-test in the control and experimental groups, it was concluded that by eliminating the pretest factor (Covariate), the flipped teaching increases resilience scores and according to the effect of the quadratic power factor of ETA 1 to 0.73, the resilience variability in the experimental group is due to flipped teaching.

> *Hypothesis 2*: Flipped teaching significantly affects female high school students' SDL of the language course.

Analysis of covariance was used to test the above hypothesis. The necessary assumptions for the covariance study have been examined, and these assumptions are valid. The results of the analysis of covariance are recorded in the following tables:

As shown in Table 5, flipped teaching significantly affects SDL ($p = 0.001$, $F = 136.77$). Therefore, it was concluded that the mean of the two groups in the post-test after adjusting the pretest scores

TABLE 2 Data normality test and variance homogeneity.

		One-sample Kolmogorov–Smirnov Test				Test of homogeneity of variances			
		Experimental group		Control group					
Variables	Courses	Test statistic	*p* Values	Test statistic	*p* Values	Levene statistic	df1	df2	*p* Values
Autonomy	Pretest	0.13	0.200	0.09	0.200	0.39	1	258	0.532
	Post-test	0.11	0.200	0.09	0.200	0.02	1	258	0.868
Resilience	Pretest	0.16	0.087	0.11	0.200	1.81	1	258	0.184
	Post-test	0.09	0.200	0.11	0.200	0.09	1	258	0.758
Self-directed	Pretest	0.13	0.200	0.09	0.200	3.59	1	258	0.067
Learning	Post-test	0.10	0.200	0.13	0.200	3.59	1	258	0.066

TABLE 3 Results of analysis of covariance for academic resilience.

Variable		Mean		Analysis covariance					
		Experiment	Control	Type III sum of squares	df	Mean square	F	*p*-Value	Partial eta squared
Resilience	Pretest	158.80	161.03	36908.18	1	36908.18	699.446	0.000	0.73
	Post-test	183.03	160.46						

TABLE 4 Reception of homogeneous regression slope.

	Reception of homogeneous regression slope			Correlation pretest and posttest		
	Variable	*F*	*p* Values	Variable	*F*	*p* Values
Hypothesis 1	Autonomy*group	1.32	0.23	Autonomy	526.50	0.000
Hypothesis 2	Resilience *group	0.57	0.52	Resilience	299.34	0.000
Hypothesis 3	SDL*group	0.72	0.33	Self-directed learning	260.84	0.000

was significantly different from each other. As can be seen in the tables, the mean scores of SDL in the control group in the pretest was 102.07 and in the post-test was 102.46, while the average of this variable in the experimental group in the pretest was 105.38 and in the post-test was equal to 113.38. Due to the significant difference between the scores in the post-test in the control and experimental groups, it was concluded that by eliminating the pretest factor (Covariate) of the flipped teaching approach, the learning scores of the SDL increase and according to the effect of the coefficient of quadratic power 34% of the variability of SDL in the experimental group is due to flipped teaching.

> *Hypothesis 3*: Flipped teaching has a significant effect on the autonomy of female high school students in learning the language course.

Analysis of covariance was used to test the above hypothesis. As observed, the necessary assumptions for the analysis of covariance have been examined, and these assumptions are valid. The results of the study of covariance are recorded in the following table.

As shown in Table 6, flipped teaching significantly affects autonomy ($p = 0.001$, $F = 68.80$). Therefore, it was concluded that the mean of the two groups in the post-test after adjusting the pretest scores was significantly different from each other. As seen in the tables, the mean scores of autonomy in the control group in the pretest was 58.88 and in the post-test was 59.84, while the mean of this variable in the experimental group in the pretest was 61.03 and in the post-test was equal to 65. 42. Due to the significant difference between the scores in the post-test in the control and experimental groups, it was concluded that the flipped education approach increases autonomy scores by removing the pretest factor (Covariate). Due to the magnitude of the effect of the ETA quadratic coefficient,1 to 21% of the autonomy variability in the experimental group is due to flipped teaching.

Discussion

Regarding the first hypothesis

The study results showed that the mean academic resilience of students in the experimental group's post-test compared to the pretest in both groups has significantly increased. Flipped teaching has improved students' resilience because when educational materials are already available, they can listen and view the material repeatedly through audio and video. Once confronted with the teacher, they participate with great confidence with the teacher's questions, and students are not only encouraged by the teacher but also get better grades in the same subject (Shakarami et al., 2017; Nazaripour and Laei, 2020; Aliyev et al., 2021). Flipped teaching greatly influences students' future and problem-oriented orientation because future orientation is associated with positive outcomes that guide the person in the right direction to achieve predetermined goals and prevent deviation (Kavyani et al., 2015; Azimi and Bahmani, 2017; Rich et al., 2022). Problem-based learning, on the other hand, is a student-centered teaching technique in which students learn science by gaining experience and working together on a subject, while traditional teaching methods are school-based and in which learners are not allowed to think as a necessary thing in learning (Bahmani et al., 2017; Sahebyar et al., 2019; Melissa, 2020). If problem-based learning is accompanied by positivity, problem-solving will be achieved better because positive thinking removes fear and despair. With the trust and belief of his heart, he can achieve problem-solving.

Another study finding indicates a positive and significant relationship between the flipped education method and students' academic resilience after implementing flipped teaching in the classroom. The academic resilience of 11th-grade female students in language lessons affects English. These findings are somewhat consistent with the results of Shakarami et al. (2017), Ahanjan (2018), Mirzaei and Hatami (2019) and

TABLE 5 Results of analysis of covariance for self-directed learning.

Variable	Course	Mean		Analysis covariance					
		Experiment	Control	Type III sum of squares	df	Mean square	F	*p*-Value	Partial eta squared
Self-Directed	Pretest	105.38	102.07	4311.41	1	4311.41	136.77	0.000	0.34
Learning	Post-test	113.38	102.46						

TABLE 6 Results of analysis of covariance for autonomy.

Variable		Mean		Analysis covariance					
		Experiment	Control	Type III sum of squares	df	Mean square	F	*p*-Value	Partial eta squared
autonomy	Pretest	61.03	58.88	939.54	1	939.54	68.80	0.000	0.21
	Post-test	65.42	59.84						

Tests of between-subjects effects.

Dogan et al. (2021). They also found that flipped teaching promotes a sense of school belonging and academic engagement. The flipped teaching method provides an active and interactive environment for students to learn, and the teacher acts as a guide and facilitator (Thomas and Philpot, 2012; Kavyani et al., 2015; Bahmani et al., 2017; Zamzami, 2018). As a result, students become actively and creatively involved in the subject matter because of engaging students. At the same time, teaching contributes to their academic achievement and helps manage the teacher's classroom effectively.

Regarding the second hypothesis

Since the variable of self-direction in learning is a general construct, the research findings indicate a positive effect of the flipped class on the levels of self-direction in education. The research results align with Kavyani et al. (2015) and Esmaeilifar et al. (2015).

Kavyani et al. (2015) showed that flipped teaching significantly affects academic achievement-academic self-regulation and students' academic motivation. Ismailifar et al. (2021) also indicate that flipped classes strengthen students' sense of belonging to school (Entezari and Javdan, 2016; Jonathan and Aaron, 2016). Radnitzer's findings also indicate the positive effect of flipped classes on students 'problem-solving ability. The findings of (Fisher et al., 2001; Hendry and Ginns, 2010; Bell, 2015) indicate that flipped classes significantly affect students' attention and progress. In explaining the research findings, it can be said that the goal of all strategies and methods of teaching is students' academic success. Flipped teaching has been considered an effective method in strengthening academic skills, including self-direction, due to the effective components in academic achievement and the emphasis on educational technology and individual skills in the rapidly changing world and information age. In addition to the effect of deep motivational learning on academic motivation, the flipped classroom can also be an atmosphere of cooperation with the previous preparation of students and create an optimal atmosphere in the classroom.

To promote literacy in middle school and high school, Khodaei et al. (2022) point out that one of them is self-motivated motivation and learning and its importance in learning and providing the education needed by the student for independent learning activities after graduation. This skill is especially effective in elusive courses such as English, which require further review and learning activities. This study revealed that the flipped classes could affect SDL skills, so it can be concluded that using the flipped classes, which emphasize the desire and individual differences - deep learning - the use of various educational software. Collaboration can provide the ground for students' academic achievement by influencing, creating, and strengthening SDL skills, motivation, self-control, etc.

Regarding the third hypothesis

This study sought to investigate the effects of the flipped course approach on the autonomy of English as a foreign language in Iran. Based on the results, the flipped lesson class approach significantly affected the autonomy of English language learners as a foreign language. The findings of this study confirm previous relevant studies on the impact of flipped course classes on the autonomy of English language learners as a foreign language. Zainuddin and Halili (2016) analyzed 20 reference articles on FL and concluded that most studies on following and assess the students' autonomous (independent) learning needs. Abeysekera and Dawson (2015)

also hypothesized that the flipped course approach could meet students' need for autonomy, a sense of connection, skill, and efficiency. Davies et al. (2013) and McGivney-Burelle and Xue (2013) also point out that students in flipped classes can learn at their own pace, enhancing their sense of autonomy. A research study in Iran showed that technology affects the autonomy of language learners (Oxford, 2003; Ebrahimi et al., 2013). In addition, the results of this study confirmed the effectiveness of active learning and the active participation of language learners in the learning process, as they were not merely passive recipients of knowledge but took responsibility for their learning. In addition, they were conducting flipped course classes before the course allowed students to research and learn the subject at their own pace. McDonald and Smith (2013) stated that students are more active in implementing the flipped lesson method, facilitating an effective learning process. In addition, providing pre-class content and activities to students made them responsible for learning and reduced wasted time in traditional education (Baepler et al., 2014; Basal, 2015; Abuhassna et al., 2022).

These findings can also be attributed to the fact that students in the flipped teaching model have more freedom and flexibility to choose their preparation methods for class (Ankan and Bacall, 2011; Fulton, 2012; Jarvis, 2013; Little, 2022).

In this way, students can feel more confident and participate in the class, improving their English communication skills by performing various communication exercises and assignments. In addition, flipped course implementation provides students with a time-and place-independent study environment such as distance learning systems. Similarly, Hamdan et al. (2013) emphasized that implementing the flipped lesson course provides a flexible study environment for language learners. Extracurricular learning is flexible and can take place at any time and place according to the choice of language learners and following their level of education and individual needs (Davies et al., 2013). On the other hand, the authors believe that the flipped lesson class does not promote learning, and the results can be even worse than teaching and learning in a traditional educational context. Springen (2013) is one of the authors who has criticized this pattern and style of teaching, believing that the flipped course is over-emphasized and is just a "fleeting fashion" that does not increase students' grades and learning. Atteberry (2013) questioned the effectiveness of the flipped class for second language learners (L2) and argued that this approach should be devoted to teaching and learning procedural knowledge. They stressed that students might be stubborn and come to class unprepared. Lecture videos should also be carefully prepared to prepare students for the course. Making such high-quality videos is difficult and time-consuming. Springen (2013) stated that the training plan templates in this approach are limited. Also, the flipped lesson is the biggest problem for teachers not preparing and publishing lecture videos but organizing in-class activities and including them in the class approach. Contrary to popular belief, this method does not lead to the training of responsible and independent learners but rather reduces their responsibility and increases the duty and responsibility of teachers (LaFee, 2013).

Conclusion

This study aimed to study the effect of using flipped classrooms on EFL students' academic resilience, self-directed learning, and learner autonomy of the eleventh female students in Zanjan city in an English language course. Findings from the analysis of covariance showed that flipped teaching could have a significant effect on the variables of academic resilience, self-directed learning, and learner autonomy – learning with the help of the pretest variable. Also, the mean scores of students in the post-test of the experimental and control groups were significantly different. The mean scores of academic resilience, self-directed learning, and learner autonomy were higher for those trained through flipped education.

Teachers' teaching approaches play an important role in encouraging learners to adopt the best learning method. On the other hand, flipped teaching provides a suitable environment for students to relax without stress and anxiety and confidently enter the classroom and participate in class activities.

Therefore, considering the effectiveness of flipped education on students' academic resilience, self-directed learning, and learner autonomy, it is recommended that teachers use this method of education in their teaching. School principals should make the necessary books on flipped education and these variables academic resilience, self-directed learning, and learner autonomy and strengthen them in libraries and available to teachers. They should hold specialized workshops to provide teachers with the benefits and introduce the flipped method. School principals should encourage teachers who use flipped classroom teaching. Teachers should also create a positive psychological atmosphere, and students can attend the classroom more calmly. Further investigation and experimentation into flipped teaching are strongly recommended.

Some limitations of the study are stated here

First, the number of research questions was limited to three due to a lack of time. Second, the target population only included EFL learners from one city in Iran. Third, the sample size might threaten the generalizability of results. Another limitation of the study was the instrument used. In the present study, questionnaires were administered to collect data. Further studies could apply various data collection methods, such as observation, interview, diaries, etc., to triangulate data and gain more reliable and valid results.

Suggestions for future studies

This study applied the flipped-classroom approach to investigate the impact of flipped teaching on EFL students' academic resilience, self-directed learning, and learners' autonomy. Future studies might work on the issue using different methods. Questionnaires were the only means to investigate the impact of FL on EFL learners' students' academic resilience, self-directed learning, and learners' autonomy. In forthcoming studies, researchers could apply methods like observation, journals, interviews, and triangulation to provide more generalizable data.

In the present study, the impact of FL was investigated on each variable separately. The relationship between FL and other variables, students' academic resilience, self-directed learning, and learners' autonomy could be scrutinized through models.

Also, future studies might examine the problem in terms of other demographic variables, such as gender, age, and language level. This study was conducted in language institutes. It should be replicated in different contexts, such as private schools and universities, where students might present different perceptions of the questionnaires based on their conditions and needs.

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.

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The author confirms being the sole contributor of this work and has approved it for publication.

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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References

Abeysekera, L., and Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: definition, rationale, and a call for research. *High. Educ. Res. Dev.* 34, 1–14. doi: 10.1080/07294360.2014.934336

Abuhassna, H., Busalim, A. H., Mamman, B., Yahaya, N., Zakaria, M. A. Z. M., Al-Maatouk, Q., et al. (2022). From Student's experience: does E-learning course structure influenced by learner's prior experience, background knowledge, autonomy, and dialogue? *Contemp. Educ. Technol.* 14, 338–404.

Ahanjan, H. (2018). "The effect of podcasting education on elementary students' academic achievement, motivation, and self-efficacy," M.Sc. Thesis, Faculty of Educational Sciences, Kharazmi University. Tehran Iran.

Aliyev, R., Akbaş, U., and Özbay, Y. (2021). Mediating role of internal factors in predicting academic resilience. *Int. J. Sch. Educ. Psychol.* 9, 236–251. doi: 10.1080/21683603.2021.1904068

Ankan, A., and Bakla, A. (2011). Learner autonomy online: Stories from a blogging experiences. In G. D (Ed.), *Fostering autonomy in language learning*. Gaziantep: Zirve University, 240–225.

Asgari, A., and Rahimi, S. (2014). Teachers' academic optimism: confirming a new construct. *Int. J. Sci. Manag. Dev.* 2, 105–109.

Atteberry, E. (2013). Flipped classrooms may not have any impact on learning. *USA Today* 1, 1–3.

Azimi, K., and Bahmani, R. (2017). "Comparison of the effect of reverse classroom teaching and conventional teaching methods on the learning of junior high school students in mathematics" in *Proceedings of the 15th Iranian Mathematics Education Conference*.

Baepler, P., Walker, J., and Driessen, M. (2014). It's not about seat time: blending, flipping, and efficiency in active learning classrooms. *Comput. Educ.* 78, 227–236. doi: 10.1016/j.compedu.2014.06.006

Bahmani, M., Safaee, M., and Saeed; Hakimzadeh, R. (2017). Assessing the participation and academic achievement of high school students using the reverse classroom teaching method. *Appl. Psychol. Res.* 8, 35–49. doi: 10.22059/japr.2017.63706

Basal, A. (2015). The implementation of a flipped classroom in foreign language teaching. *Turk. Online J. Dist. Educ.* 16, 28–37. doi: 10.17718/tojde.72185

Bell, M. R. (2015). An investigation of the impact of a flipped classroom instructional approach on high school students' content knowledge and attitudes toward the learning environment (Unpublished master's thesis), UK, Brigham Young University.

Benson, P. (1997). "The philosophy and politics of learner autonomy" in *Autonomy and independence in language learning*. ed. P. V. Phil Benson (New York, USA: Longman), 18–34.

Bolzani, D., Munari, F., Rasmussen, E., and Toschi, L. (2021). Technology transfer offices as providers of science and technology entrepreneurship education. *J. Technol. Transf.* 46, 335–365. doi: 10.1007/s10961-020-09788-4

Davies, R. S., Dean, D. L., and Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. *Educ. Technol. Res. Dev.* 61, 563–580. doi: 10.1007/s11423-013-9305-6

Dehghanzadeh, S., Jafar Aghaei, F., and Khordadi Astaneh, H. (2018). The effect of using the reverse classroom teaching method on the tendency of critical thinking of nursing students. *Iran. J. Med. Sci.* 18, 49–38.

DeLozier, S. J., and Rhodes, M. G. (2016). Flipped classrooms: a review of key ideas and recommendations for practice. *Educ. Psychol. Rev.* 1, 1–11.

Dogan, S., Dogan, N. A., and Celik, I. (2021). Teachers' skills to integrate technology in education: two path models explaining instructional and application software use. *Educ. Inf. Technol.* 26, 1311–1332. doi: 10.1007/s10639-020-10310-4

Du, S. (2021). Application of learner-Centered approach in college English instruction in China: a case study. *Engl. Lang. Teach.* 14, 23–34. doi: 10.5539/elt.v14n10p23

Ebrahimi, N. A., Eskandari, Z., and Rahimi, A. (2013). The effects of using technology and the internet on some Iranian EFL Students' perceptions of their communication classroom environment. *Teach. Eng. Technol.* 13, 3–19.

Entezari, M., and Javdan, M. (2016). Active learning and flipped classroom, hand in hand approach to improve students learning in human anatomy and physiology. *Int. J. High. Educ.* 5, 222–231. doi: 10.5430/ijhe.v5n4p222

Esmaeilifar, M. S., Tabatabaee Yazdi, M., and Azari Kiyomars, N. (2015). The effect of flipped classroom approach and school sealing of elementary students. Paper presented at the National Conference on Arts Studies and Humanities Research, Tehran.

Fariborzi, E., and Abu Bakar, K. (2011). "E-learning in Iran: Looking at effectiveness via a qualitative study." in *International conference on humanities, society and culture, Singapore*. IPEDR, 20, pp. 58–63.

Fisher, M., King, J., and Tague, G. (2001). Development of a SDLreadiness scale for nursing education. *Nurse Educ. Today* 21, 516–525. doi: 10.1054/nedt.2001.0589

Fulton, K. (2012). Upside down and inside out: Flip your classroom to improve student learning. *Lear. Lead.Technol.* 39, 12–17.

Hamdan, N., McKnight, P., McKnight, K., and Arfstrom, K. M. (2013). A review of flipped learning. FL Network (Vol. 23) Pearson Education, and George Mason University. Retrieved on May

Helgeson, J. (2015). Flipping the English classroom. *Kappa Delta Pi Rec.* 51, 64–68. doi: 10.1080/00228958.2015.1023137

Hendry, G. D., and Ginns, P. (2010). Readiness for self-directed learning: validation of a new scale with medical students. *Med. Teach.* 13, 918–920. doi: 10.3109/01421590802520899

Hung, H. T. (2015). Flipping the classroom for English language learners to foster active learning. *Comput. Assist. Lang. Learn.* 28, 81–96. doi: 10.1080/09588221.2014.967701

Hwang, G. J., Chen, M. R. A., Sung, H. Y., and Lin, M. H. (2019). Effects of integrating a concept mapping-based summarization strategy into flipped learning on students' reading performances and perceptions in Chinese courses. *Br. J. Educ. Technol.* 50, 2703–2719. doi: 10.1111/bjet.12708

Ismailifar, A., Ekici, M., and Hosseini, M. (2021). A systematic review of the use of gamification in flipped learning. *Educ. Inf. Technol.* 26, 3327–3346.

Jafari, K., Fateme, I., and Piruz, G. (2020). A Comparison of the effect of flipped classroom teaching with lesson study method on writing creativity of teacher students in creative writing. *Research in Curriculum Planning* 42, 195–214. doi: 10.30486/JSRE.2020.1892741.1570

Jahed Motlagh, A., Younesi, S. J., Azkhosh, M., and Farzi, M. (2015). Effectiveness of resilience teaching on the stress of high school female dormitory students. *J. Sch. Psychol.* 4, 7–21. doi: 10.22098/JSP.2015.322

Jarvis, H. (2013). "Computers and learner autonomy: Trends and issues" in *British Council ELT research papers*. ed. S. Sheehan (London: British Council), 387–409.

Jonathan, B., and Aaron, S. (2016). in *Flip your classroom: Reach every student in every class every day*. eds. F. W. Trans, M. Ataran and M. Farahmand Khangah (Tehran: Meraat original work published).

Kaur, R., and Sidhu, G. (2010). Learner autonomy via asynchronous online interactions: A Malaysian perspective. *International Journal of Education and Development using ICT* 6, 88–100.

Kavyani, E., Mostafai, S. M. R., and Khakreh, F. (2015). The study of the effect of flipped classroom approach on academic achievement, academic self-regulation, group interaction, and students' academic motivation. *Res. Educ.* 1, 52–69.

Khodaei, S., Hasanvand, S., Gholami, M., Mokhayeri, Y., and Amini, M. (2022). The effect of the online flipped classroom on SDLreadiness and metacognitive awareness in nursing students during the COVID-19 pandemic. *BMC Nurs.* 21, 1–10. doi: 10.1186/s12912-022-00804-6

LaFee, S. (2013). Flipped learning. *Educ. Digest* 79, 13–18.

Lin, Y. N., Hsia, L. H., and Hwang, G. J. (2022). Fostering motor skills in physical education: a mobile technology supported ICRA FLmodel. *Comput. Educ.* 177, 104380–104198. doi: 10.1016/j.compedu.2021.104380

Little, D. (2022). Language learner autonomy: rethinking language teaching. *Lang. Teach.* 55, 64–73. doi: 10.1017/S0261444820000488

Maniei, R. (2003). Improving distance education in higher education. *Rahyaft J.* 31, 43–53.

McDonald, K., and Smith, C. M. (2013). The flipped classroom for professional development: part I. benefits and strategies. The. *J. Contin. Educ. Nurs.* 44, 437–438. doi: 10.3928/00220124-20130925-19

McGivney-Burelle, J., and Xue, F. (2013). Flipping calculus. *Primus* 23, 477–486. doi: 10.1080/10511970.2012.757571

Melissa, B. (2020). Facilitating student engagement through the FLapproach in K-12: a systematic review. *Comput. Educ.* 151, 103–131. doi: 10.1016/j.compedu.2020.103819

Meri, S. (2012). "Autonomous Computer-Assisted Language Learning: Turkish Primary School Students' Perceptions of Dyned Software," in *Paper presented at the International Conference "ICT For Language Learning"* (Florence, Italy).

Mirzaei, Z., and Hatami, H. R. (2019). Predicting academic resilience based on the sense of belonging to the school and academic conflict in female students. *Psychol. Develop.* 9, 111–118.

MobserMaleki, S., and Kian, M. (2018). The effect of reverse education method on learning work and technology. *Journal of Teaching and Research* 6, 25–43.

Nadi, M. A., and Sajjadyan, I. (2011). Validity validation scale for SDLin learning for medical and dental students. *Iran. J. Med. Educ.* 11, 467–478. [in Persian]

Nazaripour, A., and Laei, S. (2020). Study of the effect of reverse learning on academic self-efficacy and learning mathematics of students with learning disabilities. *J. Dis. Stud.* 2, 77–102.

Omrani, P., Afkari, F., and Ghaderi, M. (1400). The effectiveness of reverse education on students' academic resilience, research in curriculum. *Planning* 41, 178–189.

Oxford, R. L. (2003). "Toward a more systematic model of L2 learner autonomy" in *Learner autonomy across cultures* (Springer), 75–91.

Piri, M. A., Sahebyar, H., and Sadollahi, A. (2018). The effect of the flipped classroom on SDLin English language classes course. *Technol. Educ. J.* 12, 141–148.

Radnitzer, K. (2010). Emotional Intelligence and SDLreadiness among college students participating in a leadership development Program (Unpublished doctoral dissertations). The University of Illinois at Urbana-Champaign.

Rahman, M. M. (2013). "CALL in promoting EFL learner autonomy at the tertiary level in Bangladesh" in *Paper presented at the International Conference on Tertiary Education (ICTERC 2013)* (Dhaka, Bangladesh: Daffodil International University).

Rich, B. A., Shiffrin, N. S., Senior, C. J., Zarger, M. M., Cummings, C. M., Collado, A., et al. (2022). Improved resilience and academics following a school-based resilience intervention: a randomized controlled trial. *Evid.-Based Prac. Child Adol. Ment. Health* 2, 1–17.

Safari, M. (2020). "*Effective classroom management*," *first edition*, Del Publications, Tehran, Iran.

Safari, P., and Rashidi, N. (2015). A critical look at the EFL education and the challenges faced by Iranian teachers in the educational system. *Int. J. Progress. Educ.* 11, 14–28.

Sahebyar, H., Golmohammadnejad, G. R., and Barghi, E. (2019). Study of the effectiveness of FLon the reflective thinking of high school students in mathematics. *Innov. Creat. Human.* 8, 33–62.

Sakulprasertsri, K. (2017). Flipped Learning Approach: Engaging 21st Century Learners in English Classrooms. *LEARN Journal: Language Education and Acquisition Research Network* 10, 132–143.

Samuels, W. E. (2004). *Development of a non-intellective measure of academic success: Towards the quantification of resilience*. The University of Texas at Arlington. Soltaninejad et al., 2013

Sarani, H., and Aayati, M. (2014). The impact of mobile phone use (SMS) on learning English vocabulary and the students' attitude. *Res. Curri. Plan.* 11, 48–60.

Schultz, D., Duffield, S., Rasmussen, S. C., and Wageman, J. (2014). Effects of the flipped classroom model on student performance for advanced placement high school chemistry students. *J. Chem. Educ.* 91, 1334–1339. doi: 10.1021/ed400868x

Shakarami, M., Sadeghi, M., and Qadmapur, E. (2017). Development of a model of academic engagement based on the factors of psychosocial atmosphere in the classroom and the emotional atmosphere of the family with the mediating role of academic resilience. *Educ. Eval.* 29, 159–182.

Shokar, G. S., Shokar, N. K., Romero, C. M., and Bulik, R. J. (2002). Self-directed learning: looking at outcomes with medical students. *Med. Stud.t Educ. J.* 34, 197–200.

Soleymani, S., Aliabadi, K., Zaraii Zavaraki, I., and Delavar, A. (2021). The effect of FLPattern (FLP) in terms of problem-based teaching approach (PBTA) on applicants' SDL(SDL) towards the English courses. *J. For. Lang. Teach. Trans. Stud.* 6, 87–116.

Soltani, A. S., and Naeemi, L. (2012). A study of self-directed learning skills among medical students. *Razi Med Sci J 2013* 20, 10–29.

Springen, K. (2013). Flipping the classroom: a revolutionary approach to learning presents some pros and cons. *Sch. Libr. J.* 59, 23–27.

Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation, and task orientation. *Learn. Environ. Res.* 15, 171–193. doi: 10.1007/s10984-012-9108-4

Thomas, J. S., and Philpot, T. A. (2012). "An inverted teaching model for a mechanics of materials course" in *Proceedings of the ASEE Annual Conference & Exposition.*

Zainuddin, Z., and Halili, S. H. (2016). Flipped classroom research and trends from different fields of study. *The Int. Rev.Res. Open. Distrib. Learn.* 17, 313–340. doi: 10.19173/.v17i3.2

Zamzami, Z. (2018). Students' learning performance and perceived motivation in gamified flipped-class instruction. *Comput. Educ.* 126, 75–88. doi: 10.1016/j.compedu.2018.07.003

Zhang, L., and Li, X. (2004). A comparative study on learner autonomy between Chinese students and west European students. *For. Lang. World* 4, 15–23.

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EDITED BY
Meihua Liu,
Tsinghua University,
Beijing, China

REVIEWED BY
Hassan Saleh Mahdi,
University of Bisha,
Saudi Arabia
Di Liu,
Temple University,
United States

*CORRESPONDENCE
Qiuhan Lin
qiuhanlin2-c@my.cityu.edu.hk

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Anxiety and self-efficacy in Chinese international students' L3 French learning with L2 English and L3 French

Qiuhan Lin*

Department of Linguistics and Translation, City University of Hong Kong, Kowloon, Hong Kong SAR, China

The present study explored the relationship between international students' Third Language Anxiety (TLA) and self-efficacy. The research data were collected through questionnaires involving 243 Chinese International students' L3 French Learning with L2 English and L3 French at one university in the U.K. Three of them were interviewed about their experience of anxiety and self-efficacy. Major findings include four underlying factors correlated with TLA and two underlying factors correlated with self-efficacy. Also, levels of these students' TLA were negatively correlated with the level of their self-efficacy, as shown in the correlational analysis. Then, two linear regression models were built to contribute to the prediction of their self-efficacy levels. Lastly, participants reported that grammatical and pronunciation similarities between English (L2) and French (L3) positively decreased their anxiety levels. All of these interviewees encountered communication apprehension. These findings can provide educational implications for L3 teaching and learning, inspiring teachers to consider international students' TLA and self-efficacy and thus propose some coping strategies.

KEYWORDS

anxiety, self-efficacy, Chinese international students, foreign language acquistion, statistical analysis

Introduction

Foreign Language Anxiety (FLA) is a common phenomenon among foreign language learners since the early 1970s (Santos et al., 2017). It refers to "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz et al., 1986, p. 128). It varies among different learners and is affected by multiple factors including linguistics abilities and psychological factors (MacIntyre, 2017).

Previous FLA studies have found that many students encounter FLA (e.g., MacIntyre and Gardner, 1991; Liu, 2006; Liu and Ni, 2015). Some anxious students might engage in self-talk negatively to doubt the ability of his/her own, which hindered them from performing better (MacIntyre and Gardner, 1991). Others might be enmeshed in

overstudying: as they were worried about making errors, they attempted to compensate for their errors by studying, but they easily became frustrated once they failed to achieve their expected grades (Horwitz et al., 1986). Hence, these anxious students gain lower self-efficacy (i.e., self-belief that they can master this language) in foreign language learning (Li et al., 2018), and even some of them have a mental block (Tobias, 1979). Therefore, they should be paid attention to. Previous research on anxiety and self-efficacy in language learning has demonstrated a significant correlation, mostly in the context of learning English as an L2. However, scarce studies have measured their relationships in an L3 context. To our knowledge, despite very little literature on the FLA of L3 acquisition, most of it focuses on students' L3 learning in their motherlands (e.g., Cenoz, 2013; Thompson and Khawaja, 2016; Bensalem and Thompson, 2022). Almost no study has explored international students' L3 learning in a foreign country with L2 and L3 as the medium. Since international students cannot speak their L1 in their L3 classroom in a foreign country, they might encounter more anxiety and pressure during the L3 learning process, which, in turn, affect their self-efficacy. Thus, their anxiety and self-efficacy in L3 learning should be considered. To fill this gap, this paper is aimed at exploring Chinese international students' third language anxiety (hereafter: TLA) in a foreign country.

Literature review

Foreign language anxiety

Anxiety, associated with people's nervous system with feelings of tension, worry, nervousness, and apprehension (Spielberger, 1972), has been a common phenomenon among students and a research focus among researchers. Situated in the context of the foreign language learning process, FLA was proposed to explore students' feelings, behaviors, and self-perceptions when they study a foreign language (Horwitz et al., 1986, p. 127). To be more specific, in the classroom setting, Foreign Language Classroom Anxiety (FLCA) mainly focuses on teaching and learning activities that happen in the foreign language classroom (Horwitz et al., 1986).

Horwitz, the pioneer of the FLA area, proposed the FLCA theory and designed the well-known Foreign Language Classroom Anxiety Scale (FLCAS) with his colleagues (Horwitz et al., 1986). In this paper, FLCA extends over three factors: (1) communication apprehension, (2) test anxiety, and (3) fear of negative evaluation. Communication apprehension refers to one's shyness to communicate with others due to fear of anxiety, while test anxiety is defined as performance anxiety due to fear of failure, especially in tests. Fear of negative evaluation has a broader scope than that of test anxiety as it occurs in a social, evaluative situation, including apprehension, avoidance, and/or expectations of others' negative evaluation. After defining these three factors, Horwitz et al. (1986) proposed the FLCAS, which is a 33-item five-point Likert Scale that has been most cited to measure the variable of foreign language anxiety and well-validated by many follow-up studies mainly through factor analysis (e.g., Liu and Huang, 2011; Hasan and Fatimah, 2014; Tsai and Lee, 2018). In addition to the above three-factor solution, follow-up studies using the FLCAS to conduct factor analysis do not have a confirmed classification. They found that there were other classifications of two-factor, four-factor, and five-factor solutions, which were probably due to various experimental and participants' settings. For example, the two-factor solution involves the factors of low confidence in speaking English and worry about foreign language classroom performance (e.g., Cheng et al., 1999; Liu, 2009). Paredes and Muller-Alouf (2000) proposed four factors, namely, "communication apprehension," "anxiety about foreign language learning processes and situations," "comfortableness in using English inside and outside the classroom," and "negative attitudes towards learning English."

To measure FLA, collecting questionnaires with statistical analysis based on the FLCAS is one of the most common methods (e.g., Tóth, 2008; Mak, 2011; Bensalem and Thompson, 2022). Apart from this, other instruments for FLA research include interviews, reflective journals, and observations (e.g., Liu and Jackson, 2011; Park and French, 2013; Öztürk and Gürbüz, 2013). These experimental studies in the FLA area have generally found that students' FLA and their Foreign Language (FL) performance are negatively correlated (e.g., Aida, 1994; Coulombe, 2001; Horwitz, 2001). For example, in 11 French classes, Coulombe (2001) found a weak but significant correlation between students' FLA and their French grades. In Japanese classes, Aida (1994) and Kitano (2001) also found an inverse correlation between FLA and students' Japanese performance. In addition to language performance, other variables in the FL learning process, such as age, gender, self-efficacy, motivation, languages, and learning strategies, have also been proven to be correlated with FLA (e.g., Ewald, 2007; Jiang and Dewaele, 2019; Lou and Noels, 2020). These studies all reveal that FLA serves as an independent variable to interact with a multitude of other variables.

Self-efficacy

Similar to FLA which has been researched since the early 1970s, the concept of self-efficacy was proposed by Bandura (1977). Self-efficacy is defined as "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p. 391). Also, the judgment is situational and task-specific, which means people's self-efficacy might vary with contexts or tasks (Bandura, 1977).

Regarding the sources of self-efficacy, Bandura (1997) originally proposed four dimensions: mastery experience, vicarious experience, social persuasion, and physiological and psychological state. Mastery experience refers to the personal experience of success (Bandura, 1997), which is the strongest and

most authentic evidence for individuals' belief in their capabilities (Bandura, 1995). Physiological and psychological state is also based on individuals' inner belief and states, while vicarious experience and social persuasion are based on the belief of others. For example, vicarious experience is watching peers' success, and social persuasion is about receiving positive evaluations from others (Bandura, 1997). These four dimensions constitute individuals' self-efficacy.

The main research method of measuring self-efficacy is still questionnaires, sometimes along with interviews, diaries, and observations (e.g., Çubukçu, 2008; Barrows et al., 2013; Torres and Turner, 2016). Although many previous studies have demonstrated that self-efficacy is correlated with students' academic performance (e.g., Lent et al., 1984; Zimmerman and Martinez-Pons, 1990; Schunk and Swartz, 1991), it is difficult to design a widespread and authority scale as the FLCAS. Researchers in the self-efficacy area have repeatedly highlighted the importance of measuring self-efficacy accurately (Pajares and Miller, 1995; Bandura, 2006; Bong, 2006). Bong (2006) criticized that many self-efficacy scales at that time were inconsistent with Bandura's (1997) theory, failing to assess self-efficacy.

In light of a few scales of self-efficacy targeted at Chinese students, Da (2006) proposed a self-efficacy scale, a 20-item 5-point Likert Scale, based on Bandura's (1997) theory. After exploratory factor analysis, self-efficacy was divided into two factors: (1) cognitive engagement; (2) behavior engagement. Cognitive engagement refers to whether students think/believe they can achieve their study aims cognitively, while behavior engagement is defined as students' subjective judgments of whether they can achieve their learning goals through their actions/behaviors (Da, 2006). Therefore, the present study adopts Da's (2006) scale to measure self-efficacy. Other researchers also have slightly different interpretations of self-efficacy (e.g., Barrows et al., 2013; Torres and Turner, 2016). For example, Linnenbrink and Pintrich (2003) categorized self-efficacy into behavioral engagement, cognitive engagement, and motivational engagement (referring to interest and utility value). These three factors are all independent, contributing to the self-efficacy field.

The relationship between anxiety and self-efficacy in foreign language learning

In some empirical studies, the correlation between learners' FLA and self-efficacy has been measured (e.g., Çubukçu, 2008; Barrows et al., 2013; Torres and Turner, 2016) and demonstrated to be negative (e.g., Bandura, 1997; Matsuda and Gobel, 2004; Barrows et al., 2013). However, this correlation is not fixed, varying with the context. Among Turkish junior students, for example, no correlation between anxiety and self-efficacy was found in Çubukçu's (2008) study, but Torres and Turner (2016) claimed that Çubukçu's (2008) study did not consider various difficulty levels of the FL. Additionally, Barrows et al. (2013) revealed that foreign language learners' anxiety (especially test anxiety) levels and self-efficacy levels could predict their test grades based on linear regression, in which their self-efficacy levels moderated their anxiety levels. Most studies measuring the relationship between anxiety and self-efficacy in foreign language learning focus more on learners' experience of learning English as an L2 (Bensalem, 2018), whereas few studies have explored the experience of learning an L3 except English as mentioned by Thompson and Lee (2013). Therefore, research on anxiety and self-efficacy in L3 learning should be further investigated.

FLA and self-efficacy in multilingualism

Multilingualism is defined as "any experience with an L3" by Thompson and Khawaja (2016, p. 1). There have been some relevant studies in terms of anxiety and self-efficacy in the context of multilingualism (e.g., Cenoz, 2013; Thompson and Khawaja, 2016; Bensalem and Thompson, 2022).

Among these multilingualism studies, some studies researched on learning L3 through their L1 (Paredes and Muller-Alouf, 2000; Thompson and Khawaja, 2016). For example, Thompson and Khawaja (2016) explored the foreign language anxiety of using L1 Turkish to learn L3 Spanish. Paredes and Muller-Alouf (2000) investigated the context of using L1 English to learn L3 Spanish, which proposed a Spanish version of the foreign language classroom anxiety scale. There are also other studies exploring combining their L1 and L2 to learn L3 (e.g., Schepens et al., 2016; Mulík and Carrasco-Ortiz, 2021). For example, Mulík and Carrasco-Ortiz (2021) found that phonology in L1 Spanish and L2 English has a positive effect on transferring to learn L3 Slovak. However, there is another group of students learning L3 with L2 and L3, but it was almost no previous study to our knowledge. As many of these students are international students who seldom have a chance to speak L1 in their L3 class in a foreign country, which might cause more anxiety than other students who learn L3 with L1 in their motherland. Therefore, to consider the student group comprehensively, merit particular attention should be paid to this special group of international students, that is, international students learn L3 with L2 and L3 in a foreign country. In terms of the population of this special group, nearly 0.9 million people studied languages except for English in a foreign country in 2014 (ICEF Monitor, 2022), which is a huge population that should be considered. Due to the lack of studies about this large group of international students learning L3 abroad, the exploration of their anxiety in this study is crucial for the realization of their full potential of self-efficacy, which could raise future researchers' awareness of considering this group's FLA and self-efficacy.

The present study

The present study is an experimental study that combines quantitative and qualitative research methods. The quantitative

method of questionnaire tends to measure the statistical relationship between Chinese international students' TLA and self-efficacy, while the qualitative method of interview tends to collect more open-ended data in terms of their authentic experiences and feelings. Below are the research questions (RQ) that this study seeks to answer:

RQ1: How is the anxiety of Chinese international students related to their self-efficacy in learning an L3?

RQ2: How does the anxiety of Chinese international students predict their self-efficacy in learning an L3?

RQ3: How do Chinese international students feel anxiety and self-efficacy when using L2 and L3 to learn an L3?

Materials and methods

Participants

The participants of this study were 234 Chinese international postgraduate alumni (120 males and 123 females) who graduated from Newcastle University in the U.K. from 2016 to 2021. These participants were all native speakers of Chinese aged from 24 to 30 ($M = 26.1$, $SD = 0.07$). All of them had the experience of using English (L2) and French (L3) to learn French (L3) when attending the University-Wide Language Program (UWLP) at Newcastle University, (2022). In each semester, they needed to take a final exam to evaluate their language abilities. The grade of the final exam (i.e., distinction-band 1, merit-band 2, or pass-band 3) would be shown on their final transcripts for graduation. When they had French classes, they learned French as their only L3 without learning other L3 languages such as Dutch at the same time, and their teachers were native speakers of French. Besides French, which was employed by these teachers to communicate some simple information (e.g., greetings) with students based on their proficiency levels in French, the teachers' instructed languages included English to explain French vocabulary, grammar, etc. Before the data collection session, these participants were informed of the purpose of this study and the nature of the participants with the contents.

Measures

Background information questionnaire

The participant's personal information was collected from 3 items of background information, which include age, gender, and language. All of the participants confirmed that English was their L2 language, and French was their L3 language. 13 (5.55%) of them had learned other languages such as Dutch, Japanese, and Korean before, but all of them confirmed that they spent much less time in learning other languages than French. Therefore, French was their L3 and other languages would be their L4, L5, etc.

Foreign language classroom anxiety scale

The study adopted the Foreign Language Classroom Anxiety Scale (FLCAS) designed by Horwitz et al. (1986). This scale suits most of the contexts of this study. However, since this study focuses on the group of students using their L2 and L3 to learn an L3, 17 questions were slightly revised from "foreign language" in the FLCAS into "French" to emphasize this context. For example, the first question from the original FLCAS is "I do not worry about making mistakes in my foreign language class." Considering the French class involved in the specific context of this study, this question was revised into "I do not worry about making mistakes in my French class." Also, 5 items that do not fit the context of this study were deleted. The remaining 27 items were placed on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). With an increase in scores, the participants' anxiety levels rose as well. Once the students completed the questionnaires, their total scores were utilized to divide the participants into three groups: participants with high-level anxiety (range 42–79 score), average-level anxiety (range 80–121 score), or low-level anxiety (range 122–150 score). The range of dividing participants' anxiety level is based on Marcos-Llinás and Garau's (2009) paper in 33-item FLCAS, but as the present study deleted 5 items, which were 5 scores, the range in this study is calculated as the range in Marcos-Llinás and Garau's criteria minus 5. In the present study, there are 91 participants with low-level anxiety, 142 participants with average-level anxiety, and 2 participants with high-level anxiety. Then, to ensure the validity of this slightly revised questionnaire, a Confirmatory Factor Analysis (CFA) was conducted to demonstrate its high internal consistency (Cronbach alpha = 0.889).

Self-efficacy scale

This study extracted Da's (2006) English learning ability efficacy to evaluate the participants' self-efficacy in learning an L3. Specifically, the questionnaire contains 7 questions, which were also placed on a 5-point Likert scale. Likewise, the scale ranges from 1 to 5 to represent the answers from "strongly disagree" to "strongly agree." The higher scores they obtained, the higher levels of self-efficacy they had.

Semi-structured interview

To understand the participants' TLA and self-efficacy more comprehensively, 3 participants with different anxiety levels who graduated in 2018 were invited to attend a one-to-one semi-structured interview, including Participant A (PA, high-level anxiety, female), Participant B (PB, low-level anxiety, female), and Participant C (PC, average-level anxiety, male). These three participants were all English-related majors. They self-assessed their anxiety levels as being high, average, and low before the interview. PA and PB majored in Teaching English as a Second or Foreign Language (TESOL), while PC majored in Interpretation. In terms of the language level of courses, the UWLP provided elective courses for

students to select the corresponding level by themselves. All of these three participants selected the intermediate-level French course, in which PA achieved the lowest grade (band 3) among the whole class in the final exam, while PC obtained the highest grade (band 1), and PB obtained a medium grade (band 2). Interview questions included their learning experiences, types of anxiety, self-efficacy levels, causes of self-efficacy, and coping strategies. In terms of the language of the interview, all of the interviewees chose to speak Chinese for their convenience. Thus, all of their interview transcripts were translated from Chinese into English and then double-checked by the participants to ensure the translation quality of the transcript.

Procedure

This study was conducted in June 2022, including 282 participants who completed the 27-item questionnaire in 20 mins. The questionnaire was manually translated into Chinese and was delivered online through a Chinese questionnaire platform named Wenjuanxing. After each questionnaire was manually checked, 39 questionnaires were classified as invalid ones because of the inconsistency of the participants' answers.

After collecting the questionnaire data, three participants volunteered to attend the interview. All the interview data was collected online individually through a phone call. Each interview was audio-recorded and lasted for about 15 min.

Data analysis

Results of the questionnaire were computed using SPSS, which tested the reliability and validity of the statistical analysis. In the process of statistical analysis, the present study conducted: (1) Factor analysis to decompose the scale of "TLA" into four factors and the scale of "self-efficacy" into two factors; (2) Descriptive analysis to describe the general profile of TLA and self-efficacy with their Means and Standard Deviations individually; (3) Correlational analysis to explore the main correlation between TLA and self-efficacy, along with the correlations between TLA's four independent underlying factors and self-efficacy's two underlying factors; (4) Linear regression to demonstrate TLA's applicability to the prediction of the participants' self-efficacy. In order to analyze the interview data, a thematic analysis was conducted to sort out the main themes according to the information that the interviewees provided. As Braun and Clarke (2006) indicated, thematic analysis is a way of identifying, analyzing, and reporting themes based on qualitative data by using coding. Aiming to categorize similar patterns into the same themes and divide different categories, it includes the following steps: transcribe interview data into transcripts – read transcripts and familiarize with transcript data – generate initial codes – search for themes – review themes (Marks and Yardley, 2012). Hence, it is effective for sorting chaotic data and discovering useful themes for research.

Results

The general profile of anxiety and self-efficacy levels among Chinese international students using L2 and L3 to learn an L3

Factor analysis of the FLCAS in this questionnaire

Before conducting the statistical analysis, a multivariate normal distribution test was performed. As the sample size is smaller than 5,000, a Shapiro–Wilk test was conducted ($W = 0.993$, $p = 0.31 > 0.05$). Both the skewness and kurtosis values (skewness = 0.156, kurtosis = 0.311) indicated that the data showed a normal distribution. The results of the Kaiser-Meyer-Olkin (KMO) test for the FLCAS and the self-efficacy scale were 0.936 and 0.85, respectively, suggesting that both scales have a high level of validity. A rotated factor analysis (varimax) on the FLCAS generated four factors: Fear of negative evaluation (FLCAS1, 20.55% variance), Communication Apprehension (FLCAS2, 15.28% variance), Fear of Inadequate Performance in the Foreign Language Classroom (FLCAS3, 13.67% variance), and Negative Attitudes towards the English Class (FLCAS4, 12.04% variance), explaining a total of about 61.54% variance. Table 1 below shows the results of the factor analysis of the FLCAS questionnaire in this context.

TABLE 1 Factor analysis of the FLCAS in this study.

Question	FLCAS1	FLCAS2	FLCAS3	FLCAS4
Q18	0.757[a]			
Q14	0.738			
Q16	0.727			
Q15	0.615			
Q12	0.564			
Q20	0.554			
Q13	0.515			
Q6	0.445			
Q1		0.808		
Q2		0.669		
Q3		0.566		
Q8		0.546		
Q9			0.722	
Q19			0.703	
Q7			0.654	
Q11			0.487	
Q5				0.793
Q10				0.693
Q17				0.597
Q4				0.442
% of variable	20.55%	15.28%	13.67%	12.04%
% of total variance	61.54%			

As illustrated in Table 1, the first factor FLCAS1 includes Questions 18, 14, 16, 15, 12, 20, 13, and 6 in the questionnaire. It was named based on the situational context, and the factor name "Fear of negative evaluation" was cited by Horwitz et al. (1986) and Mak (2011). The name of the second factor "Communication Apprehension" was cited from Horwitz et al. (1986) and Park (2014), which includes Questions 1, 2, 3, and 8. The third factor "Fear of Inadequate Performance in the Foreign Language Classroom" (Questions 9, 19, 7, 11) and the fourth factor "Negative Attitudes towards the English Class" (Questions 5, 10, 17, and 4) were cited from Tóth (2008) and Mak (2011), respectively. After conducting the factor analysis of the FLCAS, the factor analysis of the other variable of the self-efficacy scale should also be conducted. In terms of the self-efficacy scale, the results of the rotated component matrix are shown in Table 2 below:

According to Table 2, the first factor of the self-efficacy scale named "cognitive engagement" includes Questions 24, 22, 23, 25, and 27. The second self-efficacy factor named "behavior engagement" includes Questions 26 and 21. These two variables explain a total of about 68.17% variance. Their names were cited from the self-efficacy framework proposed by Linnenbrink and Pintrich (2003).

Descriptive analysis of the FLCAS and the self-efficacy scale in this questionnaire

In this questionnaire, items 1–20 were aimed at measuring the variable "anxiety" (M = 2.83, SD = 0.78), while items 21–27 were aimed at measuring the variable "self-efficacy" (M = 2.87, SD = 0.74). As shown, both of the participants' anxiety and self-efficacy levels ranged from a medium one to a high one over the average point of 2.5 on the 5-point Likert scale, in which the participants' anxiety level (2.83) was slightly lower than their self-efficacy level (2.87). In terms of Standard Deviation (SD), the TLA level had a higher SD than the self-efficacy level, indicating that the participants' TLA is less clustered around the mean.

TABLE 2 Factor analysis of the self-efficacy scale in this study.

Question	Cognitive engagement	Behavior engagement
Q24	0.897	
Q22	0.894	
Q23	0.889	
Q25	0.732	
Q27	0.730	
Q26	0.793	
Q21		0.784
% of variable	49.76%	18.4%
%of total variance 68.17%		

The correlational relationship between the participants' L3 classroom anxiety and self-efficacy

Table 3 indicates that the participants' L3 learning anxiety level was negatively correlated with their self-efficacy level ($p < 0.01$). The correlation coefficient was −0.658, suggesting that these two variables were strongly correlated. Also, all of the four factors of the anxiety scale were negatively correlated with the self-efficacy factor with a significant difference, suggesting that these four factors were all correlated with the participants' self-efficacy and its underlying factor named "cognitive engagement" respectively. As mentioned above, the four underlying factors in anxiety (FLCAS1, FLCAS2, FLCAS3, and FLCAS4) represent "Fear of negative evaluation," "Communication Apprehension," "Fear of Inadequate Performance in the Foreign Language Classroom," and "Negative Attitudes towards the English Class," respectively.

When selecting the representative values in Table 3, the strongest correlation was between "the participants' Anxiety and cognitive engagement (Correlational Coefficient = −0.721), while the weakest correlation was between "FLCAS4-Negative Attitudes toward the English class" and "Self-efficacy" (Correlational Coefficient = −0.558). Among these significant correlational relationships, 60% (6 out of 10) of them were strongly correlated (Anxiety with Self-efficacy, Anxiety with cognitive engagement, FLCAS1/2/3/4 with cognitive engagement) as their absolute values of Correlational Coefficient were all larger than 0.6. The other 40% of relationships were moderately correlated due to their absolute values of Correlational Coefficient being larger than 0.5, but smaller than 0.6. All of these correlational relationships in Table 3 were negatively correlated. However, anxiety and its underlying four factors were not correlated with "behavior engagement" ($p > 0.05$), suggesting that the correlations of the factors in anxiety mainly affected the participants' cognitive engagement instead of behavior engagement among these participants. Due to the limited sample size, this should be further explored in future studies.

TABLE 3 The correlational relationship between participants' anxiety and self-efficacy.

Item	Anxiety	FLCAS1	FLCAS 2	FLCAS 3	FLCAS 4
Self-efficacy	−0.658**	−0.569**	−0.583**	−0.567**	−0.558**
Cognitive engagement	−0.721**	−0.634**	−0.615**	−0.619**	−0.616**
Behavior engagement	−0.016	0.009	−0.066	−0.019	−0.003

**$p < 0.01$.

Predictive effects of L3 classroom anxiety on self-efficacy

After completing the correlational analysis, a stepwise regression analysis was conducted to demonstrate whether the predictive effects of the participants' TLA and its underlying factors can be utilized to build a predicted self-efficacy model. The average of FLCAS1, FLCAS2, FLCAS3, and FLCAS4 was utilized as the predictor variable, while the average of the self-efficacy scale was used as the dependent variable. Table 4 illustrates two models of stepwise linear regression.

Model 1 showed that the participants' anxiety level significantly predicted their self-efficacy as it passed the F test ($F = 183.83$, $p < 0.01$). In this table, the Independent Variable is Anxiety, while the Dependent Variable is Self-efficacy. Therefore, a predicted model of self-efficacy was trained ($p < 0.001$, $\alpha = 0.05$, Adjusted $R^2 = 0.43$), accounting for around 43% of the total variance of the self-efficacy scale. The Standardized Beta was $-0.658 < 0$, indicating that with an increase in the participants' anxiety level, their self-efficacy level decreases. Also, its absolute value of 0.658 suggests that the participants' anxiety level can predict their self-efficacy level to a large extent. As the VIF was 1, no significant collinearity among variables was detected. Thus, among these participants, their anxiety levels can be used to predict their self-efficacy levels.

Model 2 only includes Anxiety and FLCAS1 ($p < 0.01$). The other constructs within anxiety (i.e., FLCAS 2,3,4) were excluded as their p values were larger than 0.05. This modal also passed the F test ($F = 98.946$, $p < 0.01$). This model with "Anxiety" and "FLCAS1-Fear of negative evaluation" as predictor variables (Adjusted $R^2 = 0.45$) accounted for a higher percentage of the total variance of self-efficacy than Model 1. According to the Standardized Beta, it was interesting to find that the Beta of anxiety was still smaller than 0 (Beta = −1.033), which showed that anxiety is negatively correlated with self-efficacy as in Model 1. However, the Beta of FLCAS1 was larger than 0 (Beta = 0.4), which suggests that students' fear of negative evaluation is positively correlated with their self-efficacy. Both of these two variables contribute to Model 2, which provides a better model to explain the variable of self-efficacy than Model 1 with a larger Adjusted R^2.

Interview analysis

After analyzing quantitative data, qualitative data was also collected to illustrate the participants' experience of anxiety and self-efficacy. In this interview, three interviewees self-evaluated their anxiety and self-efficacy levels. This study utilized thematic analysis to sort out four major themes, which include: (1) differences in teaching different languages; (2) interviewees' anxiety causes and solutions; (3) interviewees' self-rated efficacy and underlying factors; (4) interviewees' suggestions for future learners.

Differences between teaching L1 and teaching L2 and L3

After thematic analysis, all three participants reported that the similarity between their instructed languages and target languages in grammatical rules and pronunciation rules influenced their TLA. For example, PC (average-level anxiety, male, band 1) showed a positive attitude towards the similarities between English and French, believing that he would understand French better with English than with Chinese, whereas PA (high-level anxiety, female, band 3) held a negative opinion, indicating that it would be easier for her to confuse English with French.

Anxiety types and corresponding solutions

In terms of anxiety types, all three participants mentioned communication apprehension when talking to native speakers. They feared being ridiculed by natives because of their accents. Liu (2006) also found this communication anxiety in her interview when Chinese students spoke English to others at different English proficiency levels. Similarly, in this study, PC (average-level anxiety, male, band 1) even worried that his French could not be as fluent as his English. Especially when he was traveling in France, he could not use French for daily communication. Only PA (high-level anxiety, female, band 3) had test anxiety, worrying that she would fail the exam and could not graduate successfully. To overcome anxiety, PC (average-level anxiety, male, band 1) had an active mind that learning French was just for his interest. PA (high-level anxiety, female, band 3) tried to transform pressure into motivation. When considering the possible negative consequences of failing the exam, she forced herself to go to the

TABLE 4 A stepwise regression analysis between anxiety and Self-Efficacy.

	Dependent variable: self-efficacy						
	Item	**Beta[a]**	***t*-value**	***p*-value**	**Adjusted R^2**	**VIF**	***F***
Model 1	(Constant)		34.246	0.000	0.43	1	183.83**
	Anxiety	−0.658	−13.558	0.000**			
Model 2	(Constant)		34.503	0.000	0.45	1	98.946**
	Anxiety	−1.033	−7.490	0.000**			
	FLCAS1	0.4	2.9	0.004**			

[a]Beta here refers to the regression coefficients, which indicates the line scope between the Independent variable and the Dependent variable.
**$p < 0.01$.

class, even if it was very painful for her. "Every time when the French class was over, I felt a big relief. But our teacher was very nice, so the French class was not as terrifying as I imagined," PA reported. She also confirmed the teacher's quality of "being nice" had helped her relieve a lot. It is in line with the findings of previous research that Teaching English as a Foreign Language (EFL) teachers are advised to create a relaxing and supportive classroom atmosphere (Zou, 2004; Liu and Jackson, 2009).

Participants' self-efficacy of the L3 ability and its corresponding factors

When the three participants were invited to self-evaluate their L3 ability from 1 to 10 (1 is the worst; 10 is the best), PC (average-level anxiety, male, band 1) gave himself a score of 6, PA (high-level anxiety, female, band 3) gave herself only a score of 2, and PB (low-level anxiety, female, band 2) gave herself a lower or middle score of around 4 to 5. Regarding the factors influencing their self-efficacy, all of them considered their French performance in real-life communication. PA considered another factor in test grades.

Suggestions for future students

The last interview question is whether they have any suggestions for other future students to use L2 and L3 for L3 learning if they also register for this course. PC (average-level anxiety, male, band 1) focused more on the attitude of learning French: "I would say if you want to improve your French, you have to learn it very consistently because I do not think there is any shortcut in language learning. My suggestion is that do not lose heart when you feel frustrated. If you do not give up, if you keep learning and learning, your French will be improved." PA (high-level anxiety, female, band1) emphasized that future students need to compare the differences between the L2 and the L3, considering this very carefully. For example, it is easy to confuse English with French.

Discussion

In the present study, both the participants' TLA and self-efficacy were at a medium to a high level over a 5-point Likert scale, in which their TLA levels were slightly lower than their self-efficacy levels. Their TLA levels were negatively correlated with their self-efficacy levels in L3 learning. This is in line with the research findings by Haley et al. (2014) and Bensalem (2018). They have found that the FLA levels of non-native speakers are negatively correlated with their self-efficacy levels, but they are learners who learn English as their L2 instead of L3. The reason for this correlation could be that FLA would distract L2 learners' attention and consume their energy to focus on a task (Gardner et al., 1993). Then FLA would become a cause of some students' low grades in language learning with low achievement (Horwitz, 2001, 2010; Awan et al., 2010), thereby affecting students' self-efficacy (Barrows et al., 2013; Dull et al., 2015). For example, in Barrows et al.'s (2013) study, a significant negative correlation was found between students' FLA and test scores. Meanwhile, a significant positive correlation was found between students' self-efficacy and test scores. Lastly, in this study, FLA and self-efficacy can be utilized to predict their academic performance (i.e., test scores) by linear regression.

A factor analysis was conducted to examine the underlying factors of TLA and self-efficacy. Results showed that four factors were devised, including "fear of negative evaluation," "communication apprehension," "fear of inadequate performance in foreign language classes," and "negative attitudes towards the English class." The factors "fear of negative evaluation" and "communication apprehension" are similar to Horwitz et al.'s (1986) theory. In addition, the factor "fear of inadequate performance in foreign language classes" was cited by Tóth (2008). The other factor "negative attitudes toward the English class," was mentioned by both Tóth (2008) and Mak (2011). Also, other scholars have put forward other classifications of factors. For example, Bensalem and Thompson (2022) proposed two factors "anxiety" and "self-confidence." Therefore, the four-factor solutions in the present study are consistent with some of the previous research (e.g., Horwitz et al., 1986; Tóth, 2008; Mak, 2011), but there are various types of division for the underlying factors that affect FLA (e.g., Bensalem and Thompson, 2022). Thus, there is no fixed answer to the division of factors in FLA, which varies from context to context.

To answer RQ1, in terms of correlations, this study was in line with previous studies (e.g., Haley et al., 2014; Li et al., 2018), as participants' learning anxiety was negatively correlated with their self-efficacy, although these studies targeted at students who learned English as an L2. This can be explained by the broaden-and-build theory (Fredrickson and Joiner, 2018), in which negative emotions, including anxiety, tend to cause negative effects (Dewaele and Li, 2021; Dong et al., 2022). Therefore, students are advised to reduce their anxiety to gain higher self-efficacy. To answer RQ3, the stepwise linear regression built two models to predict self-efficacy, which Model 2 is better. A similar study is by Li et al.'s (2018), which built a regression model for FLA to predict participants' self-efficacy with the R square of 0.33. This R square was similar to the present study's R square of 0.43 in Model 1, which could suggest that these participants' anxiety can predict around 30 to 45% of their self-efficacy variance. This can be interpreted as: in Bandura's (1997) theory, psychological states are one of the four sources that contribute to self-efficacy. Anxiety, one of the psychological states, plays an important role in affecting students' self-efficacy, which accounts for almost 1/3 to 1/2 of its variance. The other three sources might affect self-efficacy, as mentioned in the literature review session of Bandura's (1997) theory. However, the impact of anxiety that affects self-efficacy cannot be ignored.

Then, qualitative analysis of interview data answered RQ3. As non-native speakers, they were anxious when communicating with native speakers, with the fear of being ridiculed by their native teachers and/or native classmates. This could be explained

by language shock, which was defined by Stengel (1939) that it referred to an individual's lack of language competence to express his/her idea correctly in a nonnative language. After that, Miranda and Umhoefer (1998) explained that language shock would create stress for L2 learners in their verbalization process and cause them to undermine their self-efficacy due to their fear of making mistakes, thereby impeding their cognitive process. Other scholars, such as Haley et al. (2014), might show another explanation for their identity as non-native speakers. Based on their experiments' findings, non-native English speakers have significantly higher levels of FLA than native English speakers. Therefore, the nonnative identity of students in the present study might also affect their anxiety level.

Besides, "communication apprehension" was common among these three participants. Furthermore, two of them preferred the current learning mode of combining English and French. Both of them mentioned the positive role of this mode in helping them better understand French due to the similarity between English and French in their grammatical structures. This echoes the findings of some previous studies that, theoretically, the positive language interaction between foreign languages studied (PPLI) can help students be aware of the language interactions among their multiple languages and interpret their dynamic nature (Thompson, 2013). Similar results have been found from Thompson and Khawaja's (2016) two interviewees, indicating that their experience of learning English as L2 can help them understand an L3.

Conclusion

To conclude, the present study has explored the relationship between FLA and self-efficacy levels in international students' use of L2 English and L3 French to learn L3 French abroad. The findings of this study showed that in L3 learning, many participants experienced a medium to a high level of anxiety. Their anxiety levels were negatively correlated with their self-efficacy levels. This tendency is similar to what L2 learning research has generally found. Besides, two regression models to predict the level of self-efficacy were built, in which the combination of anxiety and FLCAS1 can help to predict the level of self-efficacy better. Also, some solutions to lowering the level of FLA have been suggested in this paper, which provides educational implications for teachers to pay more attention to international students' anxiety and self-efficacy.

Nevertheless, this paper still has some limitations. The first limitation is the selection of the participants. Since it is difficult to find a group of international students who use both L2 and L3, alumni were invited to participate in this study. Some of them even graduated 4 years ago, which might affect their choices in the questionnaire. Secondly, the participants were sampled from only one university, which might affect the homogeneity in the region. Therefore, this paper calls for more attention to international students learning L3 with FL, which should be further studied.

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

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

The author confirms being the sole contributor of this work and has approved it for publication.

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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Supplementary material

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References

Aida, Y. (1994). Examination of Horwitz, Horwitz, and Cope's construct of foreign language anxiety: the case of students of Japanese. *Mod. Lang. J.* 78, 155–168. doi: 10.1111/j.1540-4781.1994.tb02026.x

Awan, R. N., Azher, M., and Anwar, C. M. N., and Naz, A. (2010). An investigation of foreign language classroom anxiety and its relationship with students achievement. *Journal of College Teaching & Learning (TLC)* 7. doi: 10.19030/tlc.v7i11.249

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychol. Rev.* 84, 191–215. doi: 10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Sage, *1986* (23–28).

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. *Self-Eff. Chang. Soc.* 15:334. doi: 10.1017/CBO9780511527692.003

Bandura, A. (1997). *Self-efficacy*. New York: W.H. Freeman.

Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-Eff. Belief. Adoles.* 5, 307–337. doi: 10.1111/j.1745-6916.2006.00011.x

Barrows, J., Dunn, S., and Lloyd, C. A. (2013). Anxiety, self-efficacy, and college exam grades. *Univ. J. Educ. Res.* 1, 204–208. doi: 10.13189/ujer.2013.010310

Bensalem, E. (2018). Foreign language anxiety of EFL students: examining the effect of self-efficacy, self- perceived proficiency and Sociobiographical variables. *Arab World Eng. J.* 9, 38–55. doi: 10.24093/awej/vol9no2.3

Bensalem, E., and Thompson, A. (2022). Multilingual effects on EFL learning: a comparison of. Foreign language anxiety and self-confidence experienced by bilingual and multilingual tertiary students. *Int. J. Biling. Educ. Biling.* 39, 1–15.

Bong, M. (2006). "Asking the right question: how confident are you that you could successfully perform these tasks," in *Self-efficacy Beliefs of Adolescents*, eds. F. Pajares and T.C. Urdan (Greenwich: Information Age Pub), 287–305.

Braun, V., and Clarke, V. (2006). Using thematic analysis in psychology. *Qual. Res. Psychol.* 3, 77–101. doi: 10.1191/1478088706qp063oa

Cenoz, J. (2013). The influence of bilingualism on third language acquisition: focus on. Multilingualism. *Lang. Teach.* 46, 71–86. doi: 10.1017/S0261444811000218

Cheng, Y. S., Horwitz, E. K., and Schallert, D. L. (1999). Language anxiety: differentiating writing and. Speaking components. *Lang. Learn.* 49, 417–446. doi: 10.1111/0023-8333.00095

Coulombe, D. (2001). *Anxiety and beliefs of French-as-a-second-language learners at the university level*, Ottawa, Canada: Université Laval.

Çubukçu, F. (2008). A study on the correlation between self-efficacy and foreign language learning. Anxiety. *J. Theory Prac. Edu.* 4, 148–158.

Da, H. (2006). Establishment of English self-efficacy questionnaire and analysis of its reliability and validity. *Chin. J. Clin. Psychol.* 6, 569–572. doi: 10.3969/j.issn.1005-3611.2006.06.006

Dewaele, J. M., and Li, C. (2021). "Teacher enthusiasm and students' social-behavioral learning. Engagement: the mediating role of student enjoyment and boredom in Chinese EFL classes," in *Learner psychology and instructed second language acquisition (special issue), language teaching research*. eds. M. Sato and K. Csizér Wein, vol. *25* (Thousand Oaks, CA: SAGE Publications), 922–945.

Dong, L., Liu, M., and Yang, F. (2022). The relationship between foreign language classroom. Anxiety, enjoyment, and expectancy-value motivation and their predictive effects on Chinese high school students' self-rated foreign language proficiency. *Front. Psychol.* 13:860603. doi: 10.3389/fpsyg.2022.860603

Dull, R. B., Schleifer, L. L., and McMillan, J. J. (2015). Achievement goal theory: the relationship of. Accounting. Students' goal orientations with self-efficacy, anxiety, and achievement. *Acc. Educ.* 24, 152–174. doi: 10.1080/09639284.2015.1036892

Ewald, J. D. (2007). Foreign language learning anxiety in upper-level classes: involving students as researchers. *Foreign Lang. Ann.* 40, 122–142. doi: 10.1111/j.1944-9720.2007.tb02857.x

Fredrickson, B. L., and Joiner, T. (2018). Reflections on positive emotions and upward. Spirals. *Perspect. Psychol. Sci.* 13, 194–199. doi: 10.1177/1745691617692106

Gardner, R., Day, J., and Maclntyre, P. (1993). Integrative motivation, induced anxiety, and language. Learning in a controlled environment. *Stud. Second. Lang. Acquis.* 14, 197–214.

Haley, M., Marin, M., and Gelgand, J. (2014). Language anxiety and Counseling self-efficacy. *J. Multicult. Couns. Dev.* 43, 162–172. doi: 10.1002/jmcd.12012

Hasan, D. C., and Fatimah, S. (2014). "Foreign language anxiety in relation to gender equity in foreign language learning," in *Equality in education: Fairness and inclusion*. eds. H. Zhang, P. W. K. Chan, and C. Boyle (Boston/Taipei: Sense Publishers), 183–193.

Horwitz, E. K. (2001). Language anxiety and achievement. *Annu. Rev. Appl. Linguist.* 21, 112–126. doi: 10.1017/S0267190501000071

Horwitz, E. K. (2010). Foreign and second language anxiety. *Lang. Teach.* 43, 154–167. doi: 10.1017/S026144480999036X

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x

ICEF Monitor (2022). 2.28 million abroad for language study in 2014. [online] ICEF Monitor - Market. intelligence for international student recruitment. Available at: https://monitor.icef.com/2016/04/2-28-million-abroad-for-language-study-in-2014/ [Accessed July 13, 2022].

Jiang, Y., and Dewaele, J. M. (2019). Language anxiety in Chinese dialects and Putonghua among. College students. In mainland China: the effects of sociobiographical and linguistic variables. *J. Multiling. Multicult. Dev.* 40, 289–303. doi: 10.1080/01434632.2018.1515213

Kitano, K. (2001). Anxiety in the college Japanese language classroom. *Mod. Lang. J.* 85, 549–566. doi: 10.1111/0026-7902.00125

Lent, R. W., Brown, S. D., and Larkin, K. C. (1984). Relation of self-efficacy expectations to academic. Achievement and persistence. *J. Couns. Psychol.* 31, 356–362. doi: 10.1037/0022-0167.31.3.356

Li, C., Lu, J., Bernstein, B., and Bang, N. M. (2018). Counseling self-efficacy of international counseling. Students. In the US: the impact of foreign language anxiety and acculturation. *Int. J. Adv. Couns.* 40, 267–278. doi: 10.1007/s10447-018-9325-3

Linnenbrink, E., and Pintrich, P. (2003). The role of self-efficacy beliefs of in student engagement and. Learning in the classroom. *Read. Writ. Q.* 19, 119–137. doi: 10.1080/10573560308223

Liu, M. (2006). Anxiety in Chinese EFL students at different proficiency levels. *System* 34, 301–316. doi: 10.1016/j.system.2006.04.004

Liu, M. (2009). *Reticence and anxiety in oral English lessons*. Bern: Peter Lang.

Liu, M., and Huang, W. (2011). An exploration of foreign language anxiety and English learning. Motivation. *Educ. Res. Int.* 2011, 1–8. doi: 10.1155/2011/493167

Liu, M., and Jackson, J. (2009). Reticence in Chinese EFL students at varied proficiency levels. *TESL Can. J.* 26:65. doi: 10.18806/tesl.v26i2.415

Liu, M., and Jackson, J. (2011). Reticence and anxiety in oral English lessons: a case study in China. *Res. Chin. Learn.* eds. L. X. Jin (London: Palgrave Macmillan) 119–137. doi: 10.1057/9780230299481_6

Liu, M., and Ni, H. (2015). Chinese university EFL Learners' foreign language writing anxiety: pattern, effect and causes. *Eng. Lang. Teach.* 8, 46–58. doi: 10.5539/elt.v8n3p46

Lou, N. M., and Noels, K. A. (2020). Breaking the vicious cycle of language anxiety: growth language mindsets. Improve lower-competence ESL students' intercultural interactions. *Contemp. Educ. Psychol.* 61:101847. doi: 10.1016/j.cedpsych.2020.101847

MacIntyre, P. D. (2017). "An overview of language anxiety research and trends in its development," in *New insights into language anxiety: Theory research and educational implications*. eds. C. Gkonou, M. Daubney and J.-M. Dewaele (Bristol: Multilingual Matters), 11–30.

MacIntyre, P. D., and Gardner, R. C. (1991). Language anxiety: Its relationship to other anxieties and to processing in native and second languages*. *Language Learning* 41, 513–534. doi: 10.1111/j.1467-1770.1991.tb00691.x

Mak, B. (2011). An exploration of speaking-in-class anxiety with Chinese ESL learners. *System* 39, 202–214. doi: 10.1016/j.system.2011.04.002

Marks, D. F., and Yardley, L. (2012). *Research methods for clinical and Health Psychology*. Los Angeles: Sage.

Marcos-Llinás, M., and Garau, M. J. (2009). Effects of language anxiety on three proficiency-level courses of Spanish as a foreign language. *Foreign Lang. Ann.* 42, 94–111. doi: 10.1111/j.1944-9720.2009.01010.x

Matsuda, S., and Gobel, P. (2004). Anxiety and predictors of performance in the foreign language. Classroom. *System* 32, 21–36. doi: 10.1016/j.system.2003.08.002

Miranda, A. O., and Umhoefer, D. L. (1998). Acculturation, language use, and demographic variables as predictors of the career self-efficacy of Latino career counseling clients. *J. Multicult. Couns. Dev.* 26, 39–51. doi: 10.1002/j.2161-1912.1998.tb00182.x

Mulík, S., and Carrasco-Ortiz, H. (2021). Different effects of L1 and L2 phonology on L3 lexical learning: an ERP study. *Second. Lang. Res.*:026765832110544. doi: 10.1177/02676583211054448

Newcastle University. (2022). University-Wide Language Programme (UWLP) - Newcastle University. - School of Modern Languages - Newcastle University. [online] Available at: https://www.ncl.ac.uk/sml/study-with-us/university-wide-language-programme/ [Accessed July 13, 2022].

Öztürk, G., and Gürbüz, N. (2013). The impact of gender on foreign language speaking anxiety and motivation. *Procedia Soc. Behav. Sci.* 70, 654–665. doi: 10.1016/j.sbspro.2013.01.106

Pajares, E., and Miller, M. D. (1995). Mathematics self-efficacy and mathematics performances: The need for specificity of assessment. *Journal of Counseling Psychology* 42, 190–198. doi: 10.1037/0022-0167.42.2.190

Paredes, P., and Muller-Alouf, H. (2000). A Spanish version of the foreign language classroom anxiety. Scale: revisiting Aida's factor analysis. *Rev. Española de Ling. Aplic.* 14, 337–352.

Park, G. (2014). Factor analysis of the foreign language classroom anxiety scale in Korean learners. Of English as a foreign language. *Psychol. Rep.* 115, 261–275. doi: 10.2466/28.11.PR0.115c10z2

Park, G.-P., and French, B. F. (2013). Gender differences in the Foreign Language Classroom Anxiety Scale. *System* 41, 462–471. doi: 10.1016/j.system.2013.04.001

Santos, A., Gorter, D., and Cenoz, J. (2017). Communicative anxiety in the second and third. Language. *Int. J. Multiling.* 14, 23–37. doi: 10.1080/14790718.2017.1258980

Schepens, J. J., Van der Slik, F., and Van Hout, R. (2016). L1 and L2 distance effects in learning L3 Dutch. *Lang. Learn.* 66, 224–256. doi: 10.1111/lang.12150

Schunk, D. H., and Swartz, C. W. (1991). *Process goals and Progress feedback: Effects on Children's self-efficacy and skills*. Chicago, U.S.: ERIC.

Spielberger, C. D. (1972). Anxiety as an emotional state. In *Anxiety: Current trends in theory and research*, eds. C. D. Spielberger (New York: Academic).1, 3–20. doi: 10.1016/B978-0-12-657401-2.50009-5

Stengel, E. (1939). On learning a new language. *Int. J. Psychoanal.* 20, 471–479.

Thompson, A. (2013). The interface of language aptitude and multilingualism: reconsidering the. Bilingual/multilingual dichotomy. *Mod. Lang. J.* 97, 685–701. doi: 10.1111/j.1540-4781.2013.12034.x

Thompson, A. S., and Lee, J. (2013). Anxiety and EFL: Does multilingualism matter? *International Journal of Bilingual Education and Bilingualism* 16, 730–749. doi: 10.1080/13670050.2012.713322

Thompson, A. S., and Khawaja, A. J. (2016). Foreign language anxiety in Turkey: the role of. Multilingualism. *J. Multiling. Multicult. Dev.* 37, 115–130. doi: 10.1080/01434632.2015.1031136

Tobias, S. (1979). Anxiety research in educational psychology. *J. Educ. Psychol.* 71, 573–582. doi: 10.1037/0022-0663.71.5.573

Torres, K., and Turner, J. (2016). Students' foreign language anxiety and self-efficacy beliefs across. Different levels of university foreign language coursework. *J. Span. Lang. Teach.* 3, 57–73.

Tóth, Z. (2008). A Foreign Language Anxiety Scale for Hungarian Learners of English. WoPaLP, 2. doi: 10.1080/23247797.2016.1163101

Tsai, Y. R., and Lee, C. Y. (2018). An exploration into factors associated with reading anxiety among Taiwanese EFL learners. *Teflin J.* 29, 129–148. doi: 10.15639/teflinjournal.v29i1/129-148

Zimmerman, B. J., and Martinez-Pons, M. (1990). Student differences in self-regulated learning: relating grade, sex, and giftedness to self-efficacy and strategy use. *J. Educ. Psychol.* 82, 51–59. doi: 10.1037/0022-0663.82.1.51

Zou, M. (2004). "EFL learners' perceptions of in-class relationships and their voluntary responses" in *The social psychology of English learning by Chinese college students*. ed. Y. Gao (Beijing: Foreign Language Teaching and Research Press). 149–167.

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EDITED BY
Yining Zhang,
Tsinghua University, China

REVIEWED BY
Ramiza Haji Darmi,
Putra Malaysia University, Malaysia
Xiangming Li,
Tsinghua University, China

*CORRESPONDENCE
Jiancheng Qian
✉ qjc2000@sina.com

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An investigation of foreign language writing anxiety and its reasons among pre-service EFL teachers in Pakistan

Ushba Rasool [1], Jiancheng Qian [1]* and Muhammad Zammad Aslam [2]

[1]School of Foreign Languages, Zhengzhou University, Zhengzhou, Henan, China, [2]School of Multimedia Technology and Communication, Universiti Utara Malaysia, Sintok, Malaysia

Psychologically complicated by nature, anxiety refers to feelings of worry, fear, or apprehension. Several research studies have been devoted to exploring anxiety's effects on language skills, including writing. Since foreign language anxiety directly influences a learner's motivation and determination to learn that language, it is imperative to study the findings and reasons behind these anxious feelings. One-third of foreign language learners have been experiencing at least a moderate level of anxiety. Researchers have attempted to investigate the causes of anxiety among foreign language pre-service teachers. The present study objectifies two goals to determine the extent of writing anxiety, followed by reasons and references to the role of gender. Seventy-two pre-service teachers of the English language training department from the University of Education, Multan, Pakistan, were selected for the study using convenience sampling. Second language writing anxiety inventory (SLWAI) and second language writing anxiety reasons inventory (SLWARI) were used to collect data, and semi-structured interviews were taken with students. The findings presented no difference in anxiety levels between genders, whereas cognitive anxiety type was distinctive in results. Most of the participants experienced high and medium levels of anxiety.

KEYWORDS

foreign language anxiety, EFL, pre-service, writing anxiety, EFL teachers

Introduction

Whether in native language (L1) or a foreign language (L2), writing is always considered a cognitively complex and demanding task as a skill, since, in Myles (2002) words, being proficient in the skill area requires conscious effort and a great deal of practice in composing, developing, and analyzing ideas. Bloom (1985) describes writing anxiety as "a term for one or a combination of feelings, attitudes, or behaviors that interfere with a person's capacity to begin, work on, or complete a particular writing job that he or she is cognitively capable of completing". As underlined by Pajares and Johnson (1995), these unpleasant emotions and anxiety have a crippling effect on the ability of learners to write, resulting in avoidance of writing and writing classes, which subsequently leads to poor performance. Learners face difficulty in writing skills in

English as a foreign language; resultantly, they experience writing anxiety (Aydin and Ciğerci, 2020). To date, language anxiety research has aimed to uncover the reasons for writing anxiety in many aspects of writing skills. The issue at hand has been far from satisfactory from a foreign language learning perspective, particularly in the setting of English as foreign/second language (EFL/ESL) teachers (as learners/students), whose future classroom practices may influence their students' writing skills (Atay and Kurt, 2006) which ultimately lead them to write anxiety. Thus, the present study aims to determine the extent of writing anxiety experienced by ESL teachers (who attended the writing classes during their pre-service training), taking into consideration participant-related factors like gender and anxiety types and also aims to determine the possible factors that cause writing anxiety among pre-service teachers. Moreover, the research gap would be the study on the EFL teachers that have not been conducted on the said geographical and academic population. For instance, the teachers' writing skills may not be convincing as the research findings reported high and medium anxiety levels. Therefore, not only the students experience writing anxiety but also the teachers.

Language anxiety is defined as "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz et al., 1986, p. 128). Earlier to Sarason (1980) and Horwitz et al. (1986) agree that anxiety refers to a threat that is not delineated. That may further become a vague fear (see Hilgard et al., 1971). Similarly, MacIntyre (1999) defines language anxiety as nervousness, stress, worry, and emotional reaction related to language learning as a foreign/second language (L2). Therefore, language anxiety can be destructive or helpful (Alpert and Haber, 1960). Thus, writing anxiety can be caused by various factors, including a lack of knowledge of the subject matter and spelling rules and a fear of not being appreciated. Furthermore, writing ability encompasses multiple areas, such as vocabulary, grammar, phonetics, and semantics, which can cause learners to experience writing anxiety. When students write anxiously, they are more likely to make mistakes, adhering to the minutiae at the expense of the overall integrity of the text, causing a loss of authenticity in the narrative (Tayşi and Taşkin, 2018). Anxiety above the ideal level harms academic achievement (Guy and Gardner, 1985; Ehrman and Oxford, 1995; Oxford and Ehrman, 1995; MacIntyre et al., 1997). In other words, expecting learners to be concerned about various issues is acceptable. Anxiety has frequently been identified as an emotional reaction while learning any foreign language (Dewaele and MacIntyre, 2014; Boudreau et al., 2018; Oteir and Al-Otaibi, 2019; Dewaele et al., 2022). The study aimed to determine the writing anxiety level experienced by teachers and search for the difference in the levels concerning gender and the possible reasons for teachers' anxiety toward writing skills.

Literature review

Learning a foreign language brings tremendous challenges in diverse linguistic areas and strategic, rhetorical, and cultural obstacles (Namaziandost et al., 2019). It leads a learner to experience uncomfortable or sometimes stressed feelings about the whole learning process (Jugo, 2020). Anxiety is "a feeling of wanting to do something that may happen or may have happened so that you think about it all the time or is a feeling of wanting to do something very much, but being very worried that you will not succeed" (Summers, 2007, p. 58). Foreign or second language (L2) learning always brings some mixed behavioral and linguistic concerns, which cause hindrance in performing writing tasks well (Al-Sawalha and Chow, 2012).

Gender as a variable affecting writing anxiety

The results of an inquiry on the effect of gender on the anxiety levels of participants revealed no significant correlation between the two variables. In other words, the anxiety levels of male and female students are not related. Male students were more anxious than their female counterparts, although the difference was not statistically significant. However, an entire literature assessment on gender differences does not allow us to draw definitive conclusions. Several research appeared that unequivocally demonstrated the presence of gender differences, in contrast to others that found no correlation and concluded that gender plays no role. For example, while Shawish and Atea (2010) and Shang (2013) found no gender effect on students' writing apprehension level in favor of any group, Rodriguez et al. (2009) study found significant gender effects indicating significantly higher levels of general foreign language anxiety and writing anxiety among females. Cheng (2002) explored gender differences in skilled-specific foreign language anxiety between male and female participants. The present study added to inconclusive findings about the gender issue.

Dimensions of writing anxiety

Many aspects of L2 learning can cause writing anxiety, such as cognitive factors and linguistic features, such as limited vocabulary, content, and structure (Daud et al., 2016). Cheng (2004) separated writing anxiety into three-dimension as Cognitive, Somatic anxiety, and avoidance behavior. Cognitive anxiety refers to pessimistic perceptions about writing and feeling of negative evaluation. In contrast, somatic anxiety refers to physical actions such as trembling, sweating and uncomfortable breathing. Avoidance behavior displays activities related to avoiding situations when someone has to write. Xu

et al. (2020) discovered cognitive anxiety to be the most severe, in contrast to Atay and Kurt (2006) in Turkey and Arindra and Ardi (2020) in Indonesia, whose participant's experienced somatic anxiety-associated with physiological arousal as their dominating form. It indicates that when completing a writing assignment, participants frequently worried excessively about what other people might think and had low standards for their writing (Cheng, 2004). Similar results were obtained in Korea (An et al., 2022) with a sample of university students with a variety of competence levels and in Jordan with first-year medical students who had intermediate English proficiency (Rabadi and Rabadi, 2020). Cognitive anxiety was discovered to be the predominant type in both situations.

In contrast to the other two dimensions, Jeon's trial with learner-centered EFL writing instruction was unable to reduce participants' Somatic anxiety significantly. He attributed the predominance of cognitive anxiety among his participants to the Korean Confucian culture, which held that it was always important to be aware of other people's viewpoints to avoid facing awkward situations. This justification might also be used to explain our Chinese participation because Hong Kong is a society with a strong Confucian background. Poor writing performance was discovered to be caused by cognitive anxiety (Cheng, 2004); this anxiety was frequently triggered by writing for assessments or tests (Arindra and Ardi, 2020).

The negative associations between anxiety and writing performance have already been shown (Cheng et al., 1999; Hassan, 2001), and it has been asserted that anxiety leads to "writer's block" (Leki, 1999, p. 65) and avoidance behavior. As a result, the work of nervous students does not reflect the effort expended. According to Daly (1975), their results are lower on standardized writing tests, and their compositions are of lesser quality and less competent in the grammatical organization. Similarly, Daly and Miller (1975) emphasized that individuals with high anxiety and fear of unfavorable evaluation do not attend classes where writing is necessary and display negative attitudes toward writing. Thus, elucidating the underlying causes may provide a deeper understanding of potential remedies to boost the self-confidence and competence of students.

Factors causing writing anxiety

Many researchers found that one of the primary reasons causing writing anxiety is a lack of writing practice throughout an academic career (Rabadi and Rabadi, 2020). Effective aspects such as aversion to writing, fear of criticism, and anxiety of being judged were also reported among anxious writers (Cheng et al., 1999; Vanhille et al., 2017; Rabadi and Rabadi, 2020). Meanwhile, individual differences such as age, gender, and socioeconomic background have been linked to various writing anxiety levels (Huwari and Abd Aziz, 2011). Contextual variables related to teachers, instructional practices, and classmates, such as discouraging or strict teaching styles, disinterested writing themes and unfamiliar formats, and blatantly negative or inadequate teacher feedback may also contribute to writing anxiety (Liu and Ni, 2015). Finally, individual factors are likely to interact with contextual factors and the learning environment (e.g., family and school). Writing anxiety can lead to a discouraging attitude toward writing and low expectations and confidence in one's work. Hassan (2001) looked at EFL Egyptian learners. He discovered that those with high writing anxiety regarded writing as unrewarding and distressing. Writing anxiety has been shown to harm EFL learners' writing processes, including behavioral symptoms such as avoidance, reluctance, and procrastination, according to MacIntyre and Gardner (1994) and Ada et al. (2004). Onwuegbuzie et al. (1999), Kitano (2001), Erkan and Saban (2011), Liu and Ni (2015), and Sabti et al. (2019) have discovered a negative link in studying the relationship between writing anxiety and performance. The work of anxious authors is of worse quality and contains more errors; it is less developed, shorter, and syntactically unfinished. The result of writers with low anxiety is of higher quality, have fewer faults, and contain more paragraphs and words. Apprehension of grammar was discovered as a sub-construct of writing anxiety by Sanders-Reio et al. (2014). It was also linked to inferior writing performance. Researchers such as Erdogan (2017), Abdullah et al. (2018), Arindra and Ardi (2020), An et al. (2022) have experimented with different teaching and learning methods to reduce writing anxiety among EFL learners. They developed an evaluation rubric for writing feedback *via* a computer-aided learning system and a more learner-centered collaborative writing lesson design. Compared to the extensive study of learners' writing anxiety above, there are few studies of L2/FL teachers' writing anxiety and how it affects their writing teaching methodology.

Studies conducted on teachers' writing anxiety

Several studies have indicated that students' writing anxiety that connected with instructors' feedback practice (e.g., Kurt and Atay, 2007; Di Loreto and McDonough, 2013; Tsao et al., 2017), highlighting the need for future studies exploring teachers' writing anxiety and its influence on their written feedback. Atay and Kurt (2006) surveyed Turkish-English teachers and found that most suffered from moderate to high writing anxiety levels, and the somatic type of anxiety was found to be the most profound. The participants who seemed anxious reported that the anxiety happened due to product-oriented writing lessons having bad previous writing experiences. Similarly, Zerey (2013) studied Turkish native pre-service EFL teachers and found that most ELT students generally experience high or average

writing anxiety toward writing tasks. Moreover, participant-related variables such as gender and high school type have no significant effect on students' total writing anxiety scores. Factors other than teachers' pedagogical practices and feedback preferences play a role in students' anxiety when asked to write in L2. Erdogan (2017) experimented with co-writing activities to assess the effectiveness of elementary school teachers in reducing writing anxiety and found that interventions were effective. Kurt and Atay (2007) investigated the relationship between the writing anxiety of future Turkish teachers and the type of feedback they received. Participants who received peer feedback were much less anxious than participants who received feedback from their teachers. Although S/FL teachers are usually advanced learners highly proficient in the language they teach, therefore, are less likely to suffer from writing anxiety, existing studies (e.g., Daly et al., 1988; Zerey, 2013) found writing apprehension among pre- and in-service teachers in both L1 and S/FL settings. However, most research on the relationship between instructors' writing anxiety and writing instruction was undertaken in L1 environments throughout the 1980s. Bizzaro and Toler (1986) observed that nervous writing instructors tended to avoid conferences with students about their composition and prevent their students from making discoveries in their writings, which was detrimental to students' writing ability and desire to write. Daly et al. (1988) discovered that instructors with high anxiety levels tended to emphasize mechanical structures, whereas teachers with low anxiety levels emphasized students' creativity. The present research might influence teacher education so that prompt preventive actions and assistance could be accessible. Such an inquiry might also be helpful theoretically for enhancing knowledge of the process of writing anxiety and its far-reaching effects on students through S/FL instructors.

Research questions

The present study aims to answer the following questions.

1. To what degree do pre-service teachers experience writing anxiety?
2. Does gender difference influence the writing anxiety scores of pre-service teachers?
3. What reasons instigate pre-service teachers' writing anxiety?

Methodology

The study used a mixed-method approach to collect and analyze quantitative and qualitative data in a sequence. The quantitative data was collected through two writing anxiety questionnaires, and qualitative data were collected through semi-structured interviews with participants. Creswell and Clark (2018) stated that quantitative data provides a comprehensive explanation and general detail of a research problem. At the same time, qualitative data describes the rationale and reasons for observational differences in results.

Instruments

The current study has employed two writing anxiety questionnaires. The first tool is Cheng's Second Language Writing Anxiety Inventory (SLWAI) (2004). The current study's objectives are to find the levels of anxiety and its categories in pre-service ESL teachers. Moreover, Cheng (2004) based scale items on L2 anxiety reports and suitable anxiety scales, selecting cognitive, somatic/physiological, and behavioral anxiety components. SLWAI possesses reliability with.91 Cronbach Alpha reported (Cheng, 2004). This questionnaire assesses to what extent learners experience writing anxiety in L2 writing. It is comprised of 21 questions with five Likert-scale options ranging from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). The questionnaire was divided into three categories,

- Cognitive anxiety was assessed by eight items (1, 3, 6, 8, 13, 16, 19, 20).
- Somatic anxiety refers to seven items (2, 5, 7, 10, 12, 14, 18).
- Avoidance behavior consisted of six items (4, 9, 11, 15, 17, 21).

The second instrument is the Second Language Writing Anxiety Reasons Inventory (SLWARI) by Kara (2013) with Cronbach Alpha coefficient 0.91 with 0.66 construct validity. The scale describes students' attitudes and feelings about writing anxiety. It explains different reasons that cause writing anxiety among students while L2 writing. The third research tool was a semi-structured interview, as interviews in individual differences studies like anxiety play a significant role while bringing forth deeper details of the research problems (Price, 1991).

Participants

The study was conducted on 72 students (37 male and 35 female) of prep-classes in the English language teachers training department at Education University (Multan Campus). The most significant reason for choosing the participants from the said university is that it is the only university that offers this course in the whole South Punjab region of Pakistan's province Punjab. Moreover, the first researcher had already completed a pre-service course offered by a regional public sector institution, which later discontinued this program. All participants were

aged 20–24 years except four male participants ranging from 25 to 29 and had been learning English for 15–18 years. Using convenience sampling, as Cohen et al. (2007) suggested, the present research selected participants who attended the same training level at the university.

Procedure

The study was administered in the last week of the fall semester and conducted in May-August 2021. The course is offered to be completed in three semesters (4 months each). The time and second semester were selected because participants have already experienced different writing tasks, such as comparing/contrasting and describing cause and effects and explaining merits and demerits in their first semester, January-April 2021. The last semester, September-October 2021, consisted of particle and fieldwork. After that, the first step was to get the primary information section filled in as a first language, age, gender, and years of studying English. After the basic information, participants were directed to fill out SLWAI to determine the writing anxiety they felt while doing their writing tasks. The next step was to conduct a second inventory of SLWARI to reach out to students' subjective perceptions about possible reasons causing negative feelings of anxiety. Factor analysis was conducted to determine the scale's construct validity, which resulted in good extractions. The Cronbach's Alpha internal consistency coefficient was used to calculate the scale's reliability, which was finalized after factor analysis. In addition, the scale analysis was made using SPSS 20.0 with Cronbach Alpha.90 for SLWAI and with Cronbach Alpha.95 for SLWARI. A third research tool, interviews, was conducted a week later than the first two inventories. The researcher approached more than 45 participants in total number. However, only 20 participants (13 males and seven females) volunteered to share their views in the interview about writing anxiety and the reasons those cause anxious feelings. The interviews lasted from 8 to 10 min for each participant.

Process of quantitative data analysis

The current research study employed mixed methods to obtain more reliable results through qualitative and quantitative data. The data collected through SLWAI were processed, and the participant's total questionnaire score was summed up. The score was divided into three levels: high, average, and low anxiety. Participants had high, average, and low anxiety. The data was also processed to compare male and female participants' anxiety scores to determine if gender affects anxiety levels. According to question types as cognitive, somatic, and avoidance behavior, three anxiety categories were assessed to explore which category learners feel more than others. All participants' responses were statistically processed by statistical package for social sciences (SPSS) version 23. The second inventory SLWARI scores were also computerized through SPSS descriptive analysis to display frequencies and percentages. The mean score of all questions showed the tendency behind writing anxiety. Twenty participants and qualitative data were conducted; the third research tool, interviews, were analyzed using the content analysis technique. According to Patton (2002), this technique has been used to transform data into findings. This way, primary patterns and cues in the data are labeled, categorized, and classified.

Method for qualitative analysis

A directed qualitative content analysis (DQCA) approach was used for the qualitative paradigm adapted from Rasool et al. (2022). In this case, the unit of analysis was interview transcriptions (Graneheim et al., 2017). Based on prior research and theory (Mayring, 2000, 2014), categories were constructed relating supervisees' academic performance to technological, behavioral, and pedagogical concerns (Elo et al., 2014). Each researcher interdependently encoded the data and reviewed the difficulties of minimizing discrepancies to promote inter-coder reliability (Vaismoradi et al., 2013; Assarroudi et al., 2018). After inter-author talks, anchored samples were categorized. Final data analysis involved extracting meaning units and a categorization matrix from examined content (Mayring, 2014).

Qualitative content analysis (QCA)

The present study used qualitative content analysis (QCA), derived from the third author's Ph.D. study, to code interview data and the first author's previous study to code interview data (Rasool et al., 2022). It assessed data from a communication standpoint (Mayring, 2000; Kibiswa, 2019). It refined and tested data analysis categories and patterns (Hsieh and Shannon, 2005; Elo and Kyngäs, 2008; Zhang and Wildemuth, 2009; Assarroudi et al., 2018) utilizing QCA (Elo and Kyngäs, 2008). Supervisors and supervisees used Directed QCA on interview text to evaluate communication and feedback processes (Holsti, 1968). The study changed Assarroudi et al. (2018)'s directed QCA as follows:

Sample design for qualitative analysis

Researchers acquired general research skills by selecting "important informants" (Elo et al., 2014). It advised using purposive sampling to interview willing people (Coyne, 1997),

focusing on transcribed interview data (Elo and Kyngäs, 2008; Assarroudi et al., 2018).

Data collection process

The researchers created an interview guide with open-ended questions based on the study's aims and the prior research's primary categories (Hsieh and Shannon, 2005) involving interviews and transcribing each session's data (Poland, 1995; Seidman, 2013). For this purpose, 45 students/participants were approached by the same participants already involved in the quantitative study. However, 20 students agreed to interview.

Specifying analysis unit

The organization, individual, programmer, classroom, interview, coded text, or transcript can be analyzed (Graneheim and Lundman, 2004; Assarroudi et al., 2018). The interview (transcriptions) was specified as the unit of analysis.

Processing of qualitative data

Interview data were examined as often as suggested; participants' educational identity, place of communication, type of communication, why it happened, and when it happened (Elo and Kyngäs, 2008; Assarroudi et al., 2018). The research-related meaning was derived from immersing data (Elo and Kyngäs, 2008; Elo et al., 2014; Assarroudi et al., 2018; Kyngäs, 2020). Key analytical categories were created (Elo and Kyngäs, 2008), identifying subcategories based on the current theoretical framework's linkages to past research (Mayring, 2000, 2014). Technical, behavioral, and classroom/meeting room problems were developed objectively. Coding standards for the primary and subcategories were described (Mayring, 2014). Coding rules clearly distinguish the main categories from the subcategories' matrix, enhancing the study's credibility. Theoretical coding rules are derived from definitions, and samples were anchored to main and subcategories based on meaning units (Mayring, 2014). Finally, the data were evaluated according to the objectives and categorization matrix by examining the content, summarizing meaning units, and applying preliminary coding (Mayring, 2000, 2014). The data were organized and categorized using inductive derivation, similarity/difference, and constant comparison (Zhang and Wildemuth, 2009).

TABLE 1 Participants' percentages and numbers according to anxiety level.

Categories of anxiety	f	%
High-level anxiety	34	47.2
Average level anxiety	32	44.4
Low-level anxiety	6	8.3
Sum	72	100.00

Findings

The study's findings bring forth levels to which learners feel anxiety categorized as high, average, and low anxiety levels. The study also compares gender influence on learners' anxiety levels and mainly faces anxiety types out of three (cognitive, somatic, and avoidance behavior).

RQ1: To what degree do pre-service teachers experience writing anxiety?

Anxiety levels

Responding to research question 1, participants were divided into three anxiety level groups based on their summed-up scores collected by SLWAI. The three anxiety levels were determined by a score of above 75 points, showing an as high level of anxiety. A score of <57 displayed a low anxiety level, whereas 57–75 indicates an average anxiety level (adapted from Zerey, 2013). The participants' responses were processed to get total scores, leading them to a group level of anxiety. Table 1 displays three groups of anxiety levels and participants' distribution accordingly.

The data collected by SLWAI responses indicated that out of 72, only six participants, with 8.3%, experienced low anxiety levels, whereas 32 subjects faced average anxiety levels. The High-level anxiety was recorded as higher than average-and-low level anxiety, as mentioned by 34 respondents with 47.2%. It shows that most students experience high anxiety levels while writing in English. Only six participants felt a low level of anxiety while writing tasks. The findings support pre-service teachers' interview responses, as most were concerned about their writing anxiety for many reasons.

One-way ANOVA analysis (see Table 2) was adopted to see whether there is any role of gender to affect anxiety levels of the participants. Three anxiety levels as high, average and low among in review male and female participant showed no significant difference ($p = 0.944$, $p = 0.500$, $p = 0.478$) respectively which means pre-service teachers writing

TABLE 2 One-way ANOVA results based anxiety levels in comparison to gender.

		SS	df	MS	F	Sig.
High-level anxiety	Between groups	0.000	1	0.000	0.005	0.944
	Within groups	5.500	70	0.079		
	Total	5.500	71			
Average level anxiety	Between groups	0.464	1	0.464	0.460	0.500
	Within groups	70.647	70	1.009		
	Total	71.111	71			
Low-level anxiety	Between groups	1.168	1	1.168	0.510	0.478
	Within groups	160.332	70	2.290		
	Total	161.500	71			

TABLE 3 According to gender-independent *t*-test scores.

Gender	N	Mean	SD	t	df	*P*
Female	37	54.64	16.549	−0.418	70	0.860
Male	35	56.34	17.83			

TABLE 4 One-way ANOVA results based on three anxiety types.

	SS	DF	MS	F	Sig.
Between groups	806.92	2	403.46	9.75	0.000
Within groups	8,813.05	213	41.37		
Total	9,619.98	215			

anxiety levels has no relation to gender as variable affecting anxiety levels.

QR2: Does gender difference influence the writing anxiety scores of pre-service teachers?

Gender as an anxiety variable

To answer research question no. 2, the participants were divided into two groups (male and female) to determine if there is any gender effect on the anxiety levels of the learners. The data collected from the Second language writing anxiety inventory (SLWAI) displayed no significant difference with a 0.860 *p*-value in anxiety scores because of gender, so it can be said that gender is not a multiple variables for anxiety. Table 3 displays the independent *t*-test results applied to gender-wise data of the Second language writing anxiety inventory (SLWAI). It can be seen that there is no noticeable difference between male and female mean scores for males (M = 54.6) and females (M = 56.3).

Anxiety types

According to Second Language Writing Anxiety Inventory (SLWAI) questions (see Table 4), the questionnaire was divided into three parts according to anxiety types (cognitive, somatic, avoidance, and behavior). Cognitive anxiety means a learner's anxious behavior because of fear of negative assessment or being tested, whereas somatic anxiety refers to fearful and worrying feelings which cause physical symptoms or trembling. Avoidance behavior is when students avoid writing asks and activities involving writing.

The One-way ANOVA test (see Table 5) was run on the scores collected by anxiety types of scores. The in-review results showed that participants are more likely to face cognitive anxiety than somatic and avoidance behavior. Cognitive anxiety was calculated with a mean score (of M = 21.08) and somatic and avoidance behavior with a mean (of M = 17.94) and (M = 16.44), respectively.

RQ3: What reasons instigate pre-service teachers' writing anxiety?

To answer research question 3, the data collected by the second inventory, second language writing anxiety reasons inventory (SLWARI), was analyzed to see whether there is difference of opinion among male and female participants about reasons of writing anxiety. SLWARI inventory was divided into three sections (Zerey, 2013) related to the leading causes of anxiety: learners' feelings about writing tasks and writing skills, teachers, and writing courses and books. Further interview data was analyzed in qualitative analysis to find out what difficulties and anxious feelings teachers usually face while writing.

Analysis of second language writing anxiety reasons inventory (SLWARI)

The responses of SLWARI inventory showed no significance differences in reasons of writing anxiety among male and female teachers (Table 6). The responses of questions related to writing course for male participants (M = 15.22, SD = 5.4) and female participants (M = 15.46, SD = 6.49) seems not different. Similarly male and female participant's perceptions about teachers and their role in their writing anxiety has no relevance with gender as a variable (M = 22.03, SD = 7.52) and (M = 22.20.06, SD = 9.18) respectively.

One-way ONOVA analysis of category wise responses (see Table 7) from SLWARI with no significant difference among three major aspects involved in affecting writing anxiety showed that in present study gender as variable has no discrimination. Questions about writing course (p = 0.864), questions about teachers (p = 0.322) and about writing ability (p = 0.649) showed no significant difference.

TABLE 5 Descriptive results through one way ANOVA analysis.

Types	N	Mean	STD	SE	95%CI	
					LB	UB
Cognitive	72	21.08	7.15	0.84	19.40	22.76
Somatic	72	17.94	6.88	0.81	16.32	19.56
Avoidance	72	16.44	5.04	0.59	15.25	17.63
Total	216	18.49	6.68	0.45	17.59	19.38

TABLE 6 Descriptive analysis based on three anxiety categories.

	SLWARI items	N	Mean	SD	SE	95%CI	
						LB	UB
Writing course (items 1, 6, 8, 13, 30, 31)	Male	37	15.22	5.42	0.89	13.41	17.02
	Female	35	15.46	6.49	1.09	13.23	17.69
	Total	72	15.33	5.92	0.69	13.94	16.73
Teachers (items 2, 5, 7, 9, 18, 20, 25, 26)	Male	37	22.03	7.52	1.23	19.52	24.54
	Female	35	20.06	9.18	1.55	16.90	23.21
	Total	72	21.07	8.36	0.98	19.10	23.04
Writing ability (items 3, 4, 10, 11, 12, 14–17, 19, 21–24, 27–29)	Male	37	38.73	13.20	2.17	34.33	43.13
	Female	35	40.31	16.13	2.72	34.77	45.86
	Total	72	39.50	14.61	1.72	36.06	42.94

Descriptive analysis of (SLWARI) items

The questions related to students' feelings about writing class teachers and instructors (items 2, 5, 7, 9, 18, 20, 25, 26) displayed the positive role of teachers during writing classes. Most of participants think teachers teach and understand the subject well with (M = 2.57, SD = 1.38) whereas participants also stated that teachers answered their questions about any difficulty during writing class (M = 2.47, SD = 1.36). Less participants felt their questions were not being addressed. The teacher's writing feedback question displayed some concerns, participants stated that teachers do not provide critical feedback on their writing. Moreover, less than half of the participants were satisfied with the amount and method of feedback (M = 2.88, SD = 1.37). Another concern about teachers' methodology is the speed of classroom lessons. Some participants think teachers

TABLE 7 One-way ANOVA results based on three anxiety categories.

		SS	df	MS	F	Sig.
Writing course	Between groups	1.044	1	1.044	0.029	0.864
	Within groups	2,490.956	70	35.585		
	Total	2,492.000	71			
Teachers	Between groups	69.794	1	69.794	0.996	0.322
	Within groups	4,902.859	70	70.041		
	Total	4,972.653	71			
Writing ability	Between groups	45.160	1	45.160	0.209	0.649
	Within groups	15,128.840	70	216.126		
	Total	15,174.000	71			

switch to new topics faster, making it difficult to grasp the topic (M = 2.79, SD = 1.33). More than half of students find teachers interactive and exciting while teaching. Most participants liked how teachers gave examples to make them understand the topic and guide students to write better every time. The inventory questions related to learners' feelings about teachers clearly show that most learners are happy with the way teachers do their jobs and put their maximum effort into teaching in writing classes.

When students were asked about writing classes and courses (items 1, 6, 8, 13, 30, 31), they came up with some ideas. Many of the participants think their writing difficulties are because they do not have any writing course background (M = 2.29, SD = 1.36). However, participants agreed with the number of helpful examples mentioned in the course books. When asked about course books, less students feel course books are not as interesting; on the other hand, 38 students opine course books are not boring (M = 2.75,SD = 1.44). Few participants consider course book exercises less than required, so they get fewer chances to practice what they have learned (M = 2.67, SD = 1.46). Most students like to practice writing after class to perform better in the future. After that, 66.4% of participants disagreed that "irregularity in class attendance" could be a reason for failure (M = 2.57, SD = 1.43). Overall, the course book's content seems satisfactory in the writing class process.

When participants' responses about writing ability and writing skills items (3, 4, 10, 11, 12, 14, 15, 16, 17, 19, 21, 22, 23, 24, 27, 28, 29) were analyzed, Some of participants thought they could not write about any topic because of a limited range of grammatical knowledge. Still, they get ideas but do not know how to put them together and compose them into sentences (M = 2.78, SD = 1.44). Most of participants find it easy to find a topic to write about when they want to manage any writing task. Therefore, only 25% of participants dislike writing classes (M

= 2.31, SD = 1.39) and 63.9% like to attend writing courses. 65.3% of participants struggle with writing tasks because of a lack of practice and regular writing habits (M = 2.40, SD = 1.33). 54.2% of subjects cannot get an idea to start writing tasks if they have to write any composition. 47.2% of participants think writing is a delicate skill, and skills writers do practical writing tasks with (M = 3.08, SD = 1.39). 50% of participants have trouble with organizing ideas. For instance, they fail to organize what they want to write linguistically correctly, combining ideas and connecting them cohesively. 61.1% of participants could not organize the concepts with each other while writing (M = 2.54, SD = 1.36). Expression is another issue raised by participants. Putting ideas from the mind into words is hard for many of the participants M = 2.67, SD = 1.36). Many students doubt their creativity because they cannot write what they want.

Qualitative analysis

Semi-structured interview questions

Semi-structured interviews are a practical approach to data collecting to collect qualitative, open-ended data; probe participants' thoughts, feelings, and beliefs about a topic; and delve deeply into personal, often critical subjects (Whiting, 2008).

Five essential questions were included in the interview, and some additional questions were asked during the interview accordingly. What do you think about your writing ability?

1. Do you feel anxious when you write in English?
2. How do you feel about the teacher's methodology for teaching writing class?
3. What do you think about course books?
4. What is the most challenging obstacle you feel when you write in English?

Interview responses analysis concerning SLWARI

The findings attained from the interview related to the conclusions of the second inventory SLWARI. The participants' primary reasons for writing anxiety in the interview support the responses about learners' linguistic abilities and writing skills. The participants cited a lack of vocabulary, grammatical knowledge, and problems while organizing composition. The participants struggle to write in English when they think and gather ideas in their language. Many participants did not have experience practicing writing tasks in high school and had no regular habit of writing.

The following extracts demonstrate the relevance of questionnaire responses from the participants' interview responses.

Student participant = *SP*.

Learner's writing ability and writing anxiety

Participants shared different opinions when asked about their writing ability and anxious feelings. Most student teachers expressed that their writing ability is of intermediate level, but they still fear making technical mistakes while writing. Many participants feel anxious when writing in English because they did not have much writing practice in high school, which caused hesitation while writing. One student teacher said, *"I think my writing ability is intermediate level, but I do feel I do still make technical mistakes when I write" (SP1).* One of the critical points raised was that learners got fewer chances to write, and mostly they used to cram the content if they had to write. The primary concern of students was a lack of writing practice during their high school studies and fewer chances of writing. Another point related to lack of writing practice was students' cramming habits. *"I always feel some hesitation because I get fewer chances to write and mostly cram the content if I have to write" (SP3).* Some students shared that they used to cram the content for exams and assessments for writing tasks. These reasons were significant obstacles to improving their writing ability throughout their academic period.

Learner's feelings about writing instructors and teaching methodology

When learners were asked about teachers and their methodology, they expressed positive remarks. They opine that their teachers tried their best to explain the writing rules and gave many examples, but since English was different from their first language, sometimes it was hard to understand effortlessly. Sometimes teachers (as learners) felt bored by many grammatical rules, although the teacher tried to make the lesson interesting and include many examples while teaching. When learners were asked about teachers and their methodology, they expressed positive remarks about it as, *"Our teacher tries her level best to explain the writing rules and give many examples, but since the English language is different from my first language so, sometimes it is hard to understand easily" (SP11).* Moreover, a participant argued, *"sometimes I feel bored by so many grammatical rules, but our teacher tries to make the lesson interesting and includes many examples while teaching" (SP19).* Learning speed was mainly highlighted as the reason for feeling anxious because participants stated that *"all teachers (as learners) are not equally capable of keeping pace with lessons taught" (SP11).* However, they expressed that most teachers tried to maintain balance while teaching and jumping to another lesson. They ensured all learners were on the same page and understood what was being taught. Participants generally favored their teacher's attitude and teaching methodology. They thought the number of examples and exercises teachers provided while teaching was enough and always made learning easier for them.

Learner's opinion about writing courses and books

The participants reported their perception of writing books and courses precisely. They think course books contain exercises and examples which are very helpful. Some shared their concern about complicated grammar rules, which are hard to understand and not functional in oral speaking. Some of the teachers (as learners) suggested that course books can be more enjoyable. Regarding course book practice exercises, they seemed optimistic about the content; however, sometimes, grammatical rules are challenging to comprehend. Participants shared their concerns about books as, *"Some of the difficult grammar rules are hard to understand and examples are equally difficult to understand in the books" (SP8) and "I think course books can be more interesting" (SP11)*. Participants also showed their concern for course books to be less boring and need to include exciting exercises.

General obstacles while writing in English

During the interview, participants brought forth many reasons that cause them to feel anxious whenever they have to write in English, such as,

Organizing ideas

Some learners shared that when the teacher gives them any topic to write about. They come up with many ideas and points, but when they have to organize them together, they struggle. They are unable to write cohesively, which troubles them.

Limited vocabulary

Additionally, some always feel anxiety if they have to write in English because they cannot find the right words because of their limited vocabulary. The range of vocabulary sometimes creates writer's block. They want to write but cannot execute their ideas on paper.

Accurate grammar

Sometimes learners keep thinking about their written production even after submissions because they are not confident that whatever they have written is grammatically correct. Moreover, they mostly think grammatical accuracy is their weakness. Many teachers (as learners) can gather ideas but cannot fully express them in writing because they know little about grammatical complexities.

Examination fear

Assessment of examination fear is another brought forth reason for anxiety. Participants stated that usually, during classwork, they do not feel as much anxiety as during examinations. They think that during examinations, they get anxious about being unable to perform according to their abilities, and they will not be able to put ideas together on paper.

Peer pressure

A compelling reason shared by teachers (as learners) was peer pressure and being judged. Some participants also shared that they feel worried and anxious because of negative teacher feedback or evaluation. They fear the embarrassment of being unable to write up to the mark and face failure in front of their peers. They are afraid of being judged if they fail to perform well.

Discussion

The present study aimed to explore the levels and reasons of writing anxiety learners experience and gender influence on anxiety levels. The study also brought forth the participants' mostly experienced anxiety types (cognitive, somatic, and avoidance behavior). The first research questions revealed the three levels of anxiety experienced by participants: high anxiety, average anxiety, and low anxiety. The study's findings showed that most teachers (as learners) participants experienced high and average anxiety levels. However, research shows that the anxiety level among the participants decreased with time and training. As the subjects in the current study have only trained for one semester, there are positive chances for participants to experience less anxiety until the end of the course. Many researchers conducted studies to explore writing anxiety among university EFL participants and found them to feel high and average levels of anxiety (Hassan, 2001; Latif, 2007; Huwari and Abd Aziz, 2011; Al-Sawalha and Chow, 2012). The second research question about the role of gender in determining learners' anxiety levels displayed no significant effect, meaning learners' anxiety levels has no connection to whether learners are male or female. However, it can be seen that male participants were relatively more anxious than females, with no significant value. Rodriguez et al. (2009) research study has displayed female participants experiencing more anxious feelings about writing than male participants. Whereas Rodriguez et al. (2009) study has reported significant effects for gender, pointing to the females' significantly higher levels of general foreign language anxiety and writing anxiety.

Similarly, Cheng (2002) claimed that gender creates differences in skill-specific foreign language anxiety. In this sense, the present study added to the inconclusive nature of gender issues. There is much research evidence where researchers found no significant difference gender-wise (Shawish and Atea, 2010; Shang, 2013).

After analyzing the inventory SLWAI according to anxiety levels and gender influence, another area to analyze was the type of anxiety. The inventory was divided into three anxiety types: cognitive, somatic, and avoidance. It was found that participants experienced cognitive anxiety more than somatic and avoidance. The third research question is the essential part of the research to determine why learners feel anxious about writing skills. Generally, anxiety is a feeling meant to be

experienced by foreign language learners initially, but there are specific reasons those may enhance anxiety while writing classes and writing-related activities. To the data collected through interview questions, unlike in previous research work, most learners did not agree with the statements that showed the negative role of teachers in writing classes. Many research studies (Cheng, 2004; Atay and Kurt, 2006) displayed the negative influence of writing instructors on learners' approach to L2 writing. The statements regarding writing course books also displayed mixed ideas but no significant evidence of learners' dissatisfaction. The reasons for learners experiencing writing anxiety seemed to connect more to their writing ability and writing knowledge. The majority of learners shared a lack of vocabulary and appropriate linguistic expressions. One of the frequently felt writing anxiety reasons is grammatical accuracy, which most learners feel lacking. Command over lexical resources and grammatical range proved essential factors that make learners anxious while writing in a foreign language. The other causes determined that lead to anxiety in teachers (as learners) toward L2 writing offer an additional contribution to the previous research, including linguistic difficulties such as inadequate vocabulary and grammar knowledge (Gkonou, 2011), insufficient past writing practices (Atay and Kurt, 2006), fear of negative evaluation from the peers (Chang, 2004; Maria, 2006), lack of generating and organizing ideas (Alnufaie and Grenfell, 2013), lack of self-confidence (Latif, 2007; Aljafen, 2013), lack of topical knowledge or uninterested topic (Lee et al., 2001), and time constraints (Chang, 2004). Additionally, the inventory findings indicated that the course book might negatively influence anxiety if the content does not contain suitable explanations and examples to teach writing.

Conclusion

According to statistical and qualitative research, most pre-service teachers (as learners) exhibit high or average anxiety. Learners' writing anxiety was found to be unrelated to their gender. Moreover, different factors arose, ranging from linguistic challenges and fear of negative judgment to a lack of self-confidence and bad prior experiences. Unlike many other studies, participants in this one did not blame their nervous feelings on their teachers' instructional strategies or feedback preferences. Given the widespread perception that L2 writing anxiety is an under-researched topic, this study could help increase our awareness of the numerous dimensions of second language writing anxiety and encourage much scholarly work to look into the matter from other angles. Nonetheless, the study may fail to produce generalizability of results by keeping various constraints, having a small number of participants, and involving non-native pre-service English teachers as participants. A suggested idea for future research is to undertake such anxiety studies with a more significant number of participants to obtain more reliable results.

Future implications

The findings of this study could have significant ramifications for language and teacher education programs. Instructors should know that worry harms learners' writing in their second language, even if they are experienced EFL teachers (learners in the present case). Instructors should also be aware of this detrimental effect before attributing learners' inability to write to a lack of enthusiasm, skills, or boredom with the lesson. Some anxiety-relieving activities may aid learners in overcoming the unpleasant emotions that they bring to the foreign language lesson. Therefore, some teacher training programs or seminars on how to motivate their learners to write and how to react to their written products in terms of choosing the proper error correction strategy and organizing the class so that other learners do not comment or laugh at someone's mistake can be arranged. Furthermore, teachers may provide some intriguing and current themes to the class to encourage learners to write, or they may use topics with which the learners are already familiar (Rankin-Brown and Fitzpatrick, 2007). Peer feedback (Grabe and Kaplan, 1996), ungraded writing tasks such as journal writing on a topic (Clark, 2005), and teaching vocabulary-expansion tools may also aid in resolving the issue. Discussions before writing tasks on learners' compositions may be linked to worry, but they also facilitate writing by providing a more secure ground to focus. Most crucially, the findings call for rethinking how much time, and information language learners are exposed to when writing. Suppose the goal is to educate and enhance writing skills. Training should begin early in the language learning process, even in elementary or secondary schools, using a process-based approach, as many studies have highlighted the anxiety-inducing influence of those who use product-based pedagogies. More research into techniques to decrease writing anxiety appears to be of the utmost importance.

Author contributions

UR: idea development, theoretical framework, and analysis. JQ: project supervisor. MA: theoretical framework and method. 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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References

Abdullah, M. Y., Hussin, S., and Shakir, M. (2018). The effect of peers' and teacher's e-feedback on writing anxiety l evel through CMC applications. *Int. J. Emerg. Technol. Learn.* 13, 196–207. doi: 10.3991/ijet.v13i11.8448

Ada, A. F., Campoy, F. I., and Zubizarreta, R. (2004). *Authors in the Classroom: A Transformative Education Process.* Prentice Hall.

Aljafen, B. S. (2013). *Writing Anxiety Among EFL Saudi Students in Science Colleges and Departments at a Saudi University.* Indiana University of Pennsylvania.

Alnufaie, M., and Grenfell, M. (2013). EFL writing apprehension: the macro or the micro? *J. Arts Humanit.* 2, 79–89.

Alpert, R., and Haber, R. N. (1960). Anxiety in academic achievement situations. *J. Abnorm. Psychol.* 61, 207–215. doi: 10.1037/h0045464

Al-Sawalha, A. M. S., and Chow, T. V. V. (2012). The effects of writing apprehension in English on the writing process of Jordanian EFL students at Yarmouk University. *Int. Interdiscip. J. Educ.* 1, 6–14. Available online at: http://iijoe.org/v1/IIJE_02_v1_i1_2012.pdf

An, J. H., Jeon, H. J., Cho, S. J., Chang, S. M., Kim, B. S., Hahm, B. J., et al. (2022). Subthreshold lifetime depression and anxiety are associated with increased lifetime suicide attempts: A Korean nationwide study. *J. Affect. Disord.* 302, 170–176. doi: 10.1016/j.jad.2022.01.046

Arindra, M. Y., and Ardi, P. (2020). The correlation between students' writing anxiety and the use of writing assessment rubrics. *LEARN J.* 13, 76–93.

Assarroudi, A., Heshmati Nabavi, F., Armat, M. R., Ebadi, A., and Vaismoradi, M. (2018). Directed qualitative content analysis: the description and elaboration of its underpinning methods and data analysis process. *J. Res. Nurs.* 23, 42-55. doi: 10.1177/1744987117741667

Atay, D., and Kurt, G. (2006). Prospective teachers and L2 writing anxiety. *Asian EFL J, Q.* 8, 100–118.

Aydin, E., and Ciğerci, F. M. (2020). Yabancılara Türkçe Öğretiminde Dijital Hikâye Anlatımının Yaratıcı Yazma Becerisine ve Yazma Öz Yeterliğine Etkisi. *Turkish Stud. Educ. Sci.* 15, 2425–2442. doi: 10.7827/TurkishStudies.41552

Bizzaro, P., and Toler, H. (1986). The effects of writing apprehension on the teaching behaviors of writing center tutors. *Writ. Center J.* 7, 37–43. Available online at: https://www.jstor.org/stable/43441829

Bloom, L. Z. (1985). "Anxious writers in context: Graduate school and beyond," in *When a writer can't write,* ed M. Rose (New York, NY: Guilford Press), 119–133.

Boudreau, C., MacIntyre, P., and Dewaele, J. M. (2018). Enjoyment and anxiety in second language communication: An idiodynamic approach. *Stud. Second Lang. Learn. Teach.* 8, 149–170. Available online at: https://eric.ed.gov/?id=EJ1175387

Chang, C. S. (2004). "An investigation of listening support on test-takers' performance in EFL listening tests," in *Selected Papers from the Thirteenth International Symposium on English Teaching* (Crane Taipei), 239–249.

Cheng, Y. S. (2002). Factors associated with foreign language writing anxiety. *Foreign Lang. Ann.* 35, 647–656. doi: 10.1111/j.1944-9720.2002.tb01903.x

Cheng, Y. S. (2004). A measure of second language writing anxiety: scale development and preliminary validation. *J. Second Lang. Writ.* 13, 313–335. doi: 10.1016/j.jslw.2004.07.001

Cheng, Y. S., Horwitz, E. K., and Schallert, D. L. (1999). Language anxiety: differentiating writing and speaking components. *Lang. Lear.* 49, 417–446. doi: 10.1111/0023-8333.00095

Clark, D. M. (2005). *Three Questionnaires for Measuring Central Constructs in the Cognitive Model of Social Phobia.* London: King's College London.

Cohen, L., Manion, L., and Morrison, K. (2007). *Research Methods in Education.* New York: Routledge. doi: 10.4324/9780203029053

Coyne, I. T. (1997). Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries? *J. Adv. Nurs.* 26, 623–630. doi: 10.1046/j.1365-2648.1997.t01-25-00999.x

Creswell, J. W., and Clark, V. L. P. (2018). *Designing and Conducting Mixed Methods Research.* Thousand Oaks, CA: Sage Publications.

Daly, J. A., and Miller, M. D. (1975). The empirical development of an instrument to measure writing apprehension. *Res. Teach. English.* 9, 242–249.

Daly, J. A., Vangelisti, A., and Witte, S. P. (1988). "Writing apprehension in the classroom context," in *The Social Construction of Written Communication*, eds B. A. Rafoth and D. L. Rubin (Norwood, NJ: Ablex Publishing), 147–171.

Daud, N. S. M., Daud, N. M., and Kassim, N. L. A. (2016). Second language writing anxiety: Cause or effect? *Malaysian J. ELT Res.* 1, 1–19. Available online at: https://myjurnal.mohe.gov.my/public/article-view.php?id=14696

Dewaele, J. M., and MacIntyre, P. D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Stud. Second Lang. Learn. Teach.* 4, 237–274. Available online at: https://eric.ed.gov/?id=EJ1134776

Dewaele, J. M., Özdemir, C., Karci, D., Uysal, S., Özdemir, E. D., and Balta, N. (2022). How distinctive is the foreign language enjoyment and foreign language classroom anxiety of Kazakh learners of Turkish?. *Appl. Linguist. Rev.* 13, 243–265. doi: 10.1515/applirev-2019-0021

Di Loreto, S., and McDonough, K. (2013). The relationship between instructor feedback and ESL student anxiety. *TESL Canada J.* 31, 20–41. Available online at: https://eric.ed.gov/?id=EJ1033756

Ehrman, M. E., and Oxford, R. L. (1995). Cognition plus: Correlates of language learning success. *Mod. Lang. J.* 79, 67–89. doi: 10.1111/j.1540-4781.1995.tb05417.x

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., and Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open.* 4, 2158244014522633. doi: 10.1177/2158244014522633

Elo, S., and Kyngäs, H. (2008). The qualitative content analysis process. *J. Adv. Nurs.* 62, 107–115. doi: 10.1111/j.1365-2648.2007.04569.x

Erdogan, O. (2017). The effect of cooperative writing activities on writing anxieties of prospective primary school teachers. *Int. J. Res. Educ. Sci.* 3, 560–570. Available online at: https://eric.ed.gov/?id=EJ1148417

Erkan, D. Y., and Saban, A. I. (2011). Writing performance relative to writing apprehension, self-efficacy in writing, and attitudes towards writing: a correlational study in Turkish tertiary-level EFL. *Asian EFL J. Q.* 13, 164–192.

Gkonou, C. (2011). Anxiety over NFL speaking and writing: a view from language classrooms. *Stud. Second. Lang. Learn. Teach.* 1, 267–281.

Grabe, W., and Kaplan, R. B. (1996). *Theory and Practice of Writing.* The USA: Longman.

Graneheim, U. H., Lindgren, B. M., and Lundman, B. (2017). Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Educ. Today.* 56, 29–34. doi: 10.1016/j.nedt.2017.06.002

Graneheim, U. H., and Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ. Today.* 24, 105–112. doi: 10.1016/j.nedt.2003.10.001

Guy, A. P., and Gardner, C. R. (1985). Pharmacological characterisation of a modified social interaction model of anxiety in the rat. *Neuropsychobiology.* 13, 194–200. doi: 10.1159/000118187

Hassan, B. A. (2001). *The Relationship of Writing Apprehension and Self-Esteem to the Writing Quality and Quantity of EFL University Students, (ED45167).* Available online at: https://eric.ed.gov/?id=ED459671 (accessed April 10, 2022).

Hilgard, E. R., Atkinson, R. C., and Atkinson, R. L. (1971). *Introduction to Psychology.* Harcourt.

Holsti, O. R. (1968). Content analysis. *Handbook Soc. Psychol.* 2, 596–692.

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. *Mod. Lang. J.* 70, 125–132. doi: 10.1111/j.1540-4781.1986.tb05256.x

Hsieh, H. F., and Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qual. Health. Res.* 15, 1277–1288. doi: 10.1177/1049732305276687

Huwari, I. F., and Abd Aziz, N. H. (2011). Writing apprehension in English among Jordanian postgraduate students at Universiti Utara Malaysia (UUM). *Acad. Res. Int.* 1, 190–198.

Jugo, R. R. (2020). Language anxiety in focus: the case of Filipino undergraduate teacher education learners. *Educ. Res. Int*. 7049837. doi: 10.1155/2020/7049837

Kara, S. (2013). Writing anxiety: a case study on students' reasons for anxiety in writing Classes. *Anatol. Stud*. 3, 103–11.

Kibiswa, N. K. (2019). Directed qualitative content analysis (DQlCA): A tool for conflict analysis. *Qual. Rep.* 24, 2059–2079. doi: 10.46743/2160-3715/2019.3778

Kitano, K. (2001). Anxiety in the college Japanese language classroom. *Mod. Lang. J.* 85, 549–566. doi: 10.1111/0026-7902.00125

Kurt, G., and Atay, D. (2007). The effects of peer feedback on the writing anxiety of prospective turkish teachers of english. *J. Theory Pract. Educ.* 3, 12–23. Available online at: https://eric.ed.gov/?id=ED502015

Kyngäs, H. (2020). "Inductive content analysis," in *The Application of Content Analysis in Nursing Science Research* (Cham: Springer), 13–21. doi: 10.1007/978-3-030-30199-62

Latif, M. A. (2007). The factors accounting for the Egyptian EFL university students' negative writing affect. *J. Linguist*. 9, 57–82. Google Scholar

Lee, M. S., Oh, E. Y., Cho, S. M., Hong, M. J., and Moon, J. S. (2001). An assessment of adolescent Internet addiction problems related to depression, social anxiety and peer relationship. *J. Korean Neuropsychiatr. Assoc.* 40, 616–628.

Leki, I. (1999). "Techniques for reducing second language writing anxiety," in *Affect in Foreign Language and Second Language Learning: A Practical Guide to Creating a Low-Anxiety Classroom Atmosphere*, ed D. J. Young (Boston, MA: McGraw-Hill), 64–88.

Liu, M., and Ni, H. (2015). Chinese university EFL learners' foreign language writing anxiety: Pattern, effect and causes. *English Lang. Teach.* 8, 46–58. Available online at: https://eric.ed.gov/?id=EJ1075210

MacIntyre, P. D. (1999). "Language anxiety: a review of the research for language teachers," in *Affect in foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere,* Young, D. J., (Ed.). Boston: McGraw-Hill. p. 24–45.

MacIntyre, P. D., and Gardner, R. C. (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Lang. Learn.* 44, 283–305. doi: 10.1017/S0272263100012560

MacIntyre, P. D., Noels, K. A., and Clément, R. (1997). Biases in self-ratings of second language proficiency: The role of language anxiety. *Lang. Learn.* 47, 265–287. doi: 10.1111/0023-8333.81997008

Maria, L. J. (2006). Explicitness of criteria in peer assessment processes for first-year engineering students. *Euro. J. Eng. Educ.* 31, 683–691. doi: 10.1080/03043790600911779

Mayring, P. (2000). Qualitative content analysis. *Qual. Soc. Res.* 1, 1–10. doi: 10.17169/fqs-1.2.1089

Mayring, P. (2014). *Qualitative Content Analysis: Theoretical Foundation, Basic Procedures and Software Solution*. Monograph. Available online at: https://nbn-resolving.org/urn:nbn:de:0168-ssoar-395173

Myles, J. (2002). Second language writing and research: the writing process and error analysis in student texts. *Tesl-Ej.* 6, 1–20. doi: 10.12691/education-7-6-4

Namaziandost, E., Neisi, L., Mahdavirad, F., and Nasri, M. (2019). The relationship between listening comprehension problems and strategy usage among advance EFL learners. *Cogent Psychology.* 6, 1691338. doi: 10.1080/23311908.2019.1691338

Onwuegbuzie, A. J., Bailey, P., and Daley, C. E. (1999). Factors associated with foreign language anxiety. *Appl. Psycholinguist.* 20, 217–239. doi: 10.1017/S0142716499002039

Oteir, I. N., and Al-Otaibi, A. N. (2019). Foreign language anxiety: a systematic review. *Arab World English Journal (AWEJ).* 10, 309–317. doi: 10.24093/awej/vol10no3.21

Oxford, R. L., and Ehrman, M. E. (1995). Adults' language learning strategies in an intensive foreign language program in the United States. *System.* 23, 359–386. doi: 10.1016/0346-251X(95)00023-D

Pajares, F., and Johnson, M. J. (1995). "The role of self-efficacy beliefs in the writing performance of entering high school students: A path analysis," in *Poster Presented at the Meeting of the American Educational Research Association* (San Francisco, CA).

Patton, M. (2002). *Qualitative Research and Evaluation Methods*. New York: Sage Publications.

Poland, B. D. (1995). Transcription quality as an aspect of rigor in qualitative research. *Qual. Inq.* 1, 290–310. doi: 10.1177/107780049500100302

Price, M. L. (1991). The subjective experience of foreign language anxiety: Interviews with highly anxious students. *Lang. Anxiety*. 101–108.

Rabadi, R. I., and Rabadi, A. D. (2020). Do medical students experience writing anxiety while learning english as a foreign language? *Psychol. Res. Behav. Manag.* 13, 883–893. doi: 10.2147/PRBM.S276448

Rankin-Brown, M., and Fitzpatrick, C. (2007). "A confluence of voices negotiating identity: an east coast-west coast exchange of ideas on writing, culture, and self," in *Conference on College Composition and Communication* (New York, NY).

Rasool, U., Aslam, M. Z., Qian, J. and Barzani, S. (2022). The effects of online supervisory feedback on student-supervisor communications during the COVID-19. *Eur. J. Educ. Res.* 11, 1569-1579. doi: 10.12973/eu-jer.11.3.1569

Rodriguez, Y., Delgado, V., and Colon, J.M. (2009). Foreign language writing anxiety among pre-service EFL teachers. *Lenguas Modernas*. 33, 21–31.

Sabti, A. A., Md Rashid, S., Nimehchisalem, V., and Darmi, R. (2019). The Impact of writing anxiety, writing achievement motivation, and writing self-efficacy on writing performance: A correlational study of Iraqi tertiary EFL Learners. *SAGE Open.* 9, 2158244019894289. doi: 10.1177/2158244019894289

Sanders-Reio, J., Alexander, P. A., Reio Jr, T. G., and Newman, I. (2014). Do students' beliefs about writing relate to their writing self-efficacy, apprehension, and performance?. *Learn. Instruct.* 33, 1–11. doi: 10.1016/j.learninstruc.2014.02.001

Sarason, I. G. (1980). "Self-control approaches to the treatment of test anxiety," in *Test Anxiety: Theory, Assessment, and Treatment*, eds C. D. Spielberger and P. R. Vagg (Taylor and Francis).

Seidman, I. (2013). *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences*, 3rd Edn. New York, NY: Teachers College Press.

Shang, H. F. (2013). Factors associated with English as a foreign language university students writing anxiety. *Int. J. English Lang. Teach.* 1, 1–12. Available online at: https://www.eajournals.org/wp-content/uploads/FACTORS-ASSOCIATED-WITH-ENGLISH-AS-A-FOREIGN-LANGUAGE-UNIVERSITY-STUDENTS%E2%80%99-WRITING-ANXIETY.pdf

Shawish, J. I., and Atea, A. M. (2010). *An Investigation of Palestinian EFL Majors' Writing Apprehension: Causes and Remedies*. Available online at: https://eric.ed.gov/?id=ED512894

Summers, D. (2007). *Longman Advanced American Dictionary*. Pearson Education.

Tayşi, E. K., and Taşkin, Y. (2018). Ortaokul öğrencileri için yazma kaygisi ölçeğinin geliştirilmesi: geçerlik ve güvenirlik çalişmasi. *Uluslararası Türkçe Edebiyat Kültür Eğitim (TEKE) Dergisi.* 7, 1172–1189. Available online at: https://dergipark.org.tr/en/pub/teke/issue/38234/442078

Tsao, J. J., Tseng, W. T., and Wang, C. (2017). The effects of writing anxiety and motivation on EFL college students' self-evaluative judgments of corrective feedback. *Psychol. Rep.* 120, 219–241. doi: 10.1177/0033294116687123

Vaismoradi, M., Turunen, H., and Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nurs. Health Sci.* 15, 398–405. doi: 10.1111/nhs.12048

Vanhille, J., Gregory, B., and Corser, G. (2017). The effects of mood on writing apprehension, writing self-efficacy, and writing performance. *Psi Chi J. Psychol. Res.* 22, 220–230.

Whiting, L. S. (2008). Semi-structured interviews: guidance for novice researchers. *Nursing Standard (through 2013).* 22, 35. doi: 10.7748/ns2008.02.22.23.35.c6420

Xu, D., Zhang, Y., Xie, B., Yao, H., Yuan, Y., Yuan, S., et al. (2020). The spleen mediates chronic sleep restriction-mediated enhancement of LPS-induced neuroinflammation, cognitive deficits, and anxiety-like behavior. *Aging (Albany NY).* 12, 15446–15461. doi: 10.18632/aging.103659

Zerey, Ö. G. (2013). Pre-service EFL teachers' foreign language writing anxiety: some associated factors. *Dil Dergisi*. 160, 42–65. doi: 10.1501/Dilder_0000000190

Zhang, Y., and Wildemuth, B. M. (2009). "Qualitative analysis of content," in *Applications of Social Research Methods to Questions in Information and Library Science*, ed B. Wildemuth (Westport, CT: Libraries Unlimited), 308–319.

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Chin-Hsi Lin,
The University of Hong Kong,
Hong Kong SAR, China

REVIEWED BY
Abdullah Alamer,
King Faisal University,
Saudi Arabia
Reza Pishghadam,
Ferdowsi University of Mashhad, Iran
Xinxin Wu,
Jiangnan University,
China

*CORRESPONDENCE
Jennifer Henderlong Corpus
✉ henderlj@reed.edu

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Comparing intrinsic and extrinsic motivation in bilingual children and their monolingual peers

Declan G. Greenwald, Liantao Shan, Tori A. Boldt, Brandon B. Truong, Guido S. Gonzalez, Carolyn H. Chen and Jennifer Henderlong Corpus*

Department of Psychology, Reed College, Portland, OR, United States

Building from previous research showing a bilingual advantage in school, the present study investigated the link between bilingualism and academic motivation. We asked whether bilingual students would exhibit higher levels of intrinsic or extrinsic motivation than their monolingual peers, how intrinsic and extrinsic motivation would change over time, and the extent to which those forms of motivation would be in tension with one another. Relative to their monolingual peers, we expected bilingual students to (1) report higher levels of both intrinsic and extrinsic forms of motivation, and (2) show a weaker negative correlation between intrinsic and extrinsic forms of motivation. Bilingual status, intrinsic motivation, and extrinsic motivation were measured at two time points in a diverse sample of 1047 3rd-grade through 8th-grade students (851 monolingual, 196 bilingual). Bilingual students reported significantly higher levels of both intrinsic and extrinsic motivation than monolingual students. They also showed a sharper decline in intrinsic motivation from fall to spring. Intrinsic and extrinsic forms of motivation were negatively correlated for monolinguals, but unrelated for bilinguals, suggesting that the two motive types may be less antagonistic among students who speak a language other than English at home. These differences may be driven by both cognitive (e.g., executive functioning skills) and cultural (e.g., family cohesion, interdependent orientation) factors, and may inform educators who wish to support learning for students from diverse groups.

KEYWORDS

academic motivation, intrinsic motivation, extrinsic motivation, Schoolchildren, bilingual

1. Introduction

Students in the United States who speak a language other than English at home have unique experiences that distinguish them from their monolingual or monocultural classmates. Their bilingual status in particular may confer certain advantages in school. Indeed, children of immigrants who retain their parents' country-of-origin language have higher GPAs (Portes and Hao, 1998), do better on standardized tests in both math and

reading, and have higher educational aspirations than children of immigrants who only speak English (Portes and Schauffler, 1994). Although these advantages may be largely motivational in nature, the specific motivational patterns of bilingual students remain largely unexplored.

Motivation in school is essential because it drives learning and achievement (Stipek, 2002). Although motivation can be conceptualized as a unidimensional construct varying in quantity or amount, motivation also differs based on quality or type (Ryan and Deci, 2020). Psychologists have classically distinguished motivation that is *intrinsic* (i.e., inherent to the self or task, volitional) from that which is *extrinsic* (i.e., originating from others, controlled) in nature (Lepper et al., 1973; Ryan and Deci, 2020). Intrinsic and extrinsic forms of motivation are distinct not only in their origins but also in their consequences for learning and well-being, with more intrinsic forms generally showing more adaptive value (Taylor et al., 2014; Howard et al., 2021). The present study sought to discover whether the bilingual advantage in school extends to academic motivation and – if so – whether a motivational advantage is intrinsic or extrinsic in nature. As described below, we considered both cognitive and cultural factors that may drive a bilingual advantage.

2. Bilingualism and cognitive flexibility

A large body of research has shown that executive functioning is more efficient in bilingual children and adolescents than in their monolingual peers (Bialystok, 2001, 2006; Colzato et al., 2008; Wiseheart et al., 2016). As such, bilingual children typically outperform monolingual children on tasks of cognitive control (Barac et al., 2014). Although the nuances of this advantage are hotly debated (e.g., Chen et al., 2014; Moreno-Stokoe and Damian, 2020), it appears to be rooted in bilingualism itself, not dependent on cultural or economic factors (Bialystok and Viswanathan, 2009; Calvo and Bialystok, 2014).

Advantages in cognitive flexibility and self-regulation have implications for children's achievement and motivation in school (Zimmerman and Kitsantas, 2014; Spiegel et al., 2021). The ability to control one's attention and flexibly navigate classroom demands may support bilingual students' *extrinsic* motivation in that they can skillfully track the demands of each teacher and respond accordingly. There could also be positive feedback loops that build bilingual students' *intrinsic* motivation. Better cognitive control may enhance perceived competence, which is a well-documented source of intrinsic motivation (Ryan and Deci, 2016; Miyamoto et al., 2018; Ahn et al., 2021). Moreover, high achievement itself tends to be positively and reciprocally related to motivation that is intrinsic in nature (Garon-Carrier et al., 2016; Hebbecker et al., 2019). A bilingual advantage in cognitive flexibility, therefore, may suggest a bilingual advantage in *both* intrinsic and extrinsic forms of motivation – a hypothesis tested in the current study.

3. Cultural factors and the bilingual advantage

In addition to cognitive factors, there are a number of cultural factors that may drive a bilingual advantage. Adolescents from first and second generation immigrant households – the majority of whom are bilingual (The Urban Institute, 2020) – tend to receive higher grades than students in non-immigrant households (Fuligni, 1997). Children of immigrants also have higher educational aspirations and report higher interest in school than their native-born peers (Feliciano and Lanuza, 2016). These educational benefits may be especially pronounced for children who retain the country-of-origin language alongside English – i.e., those who are fully bilingual (Portes and Schauffler, 1994; Portes and Hao, 1998). Students who share a language with their parents experience greater family communication and cohesion, which increases the salience of parents' expectations regarding work habits and academic achievement (Fuligni, 1998; Tseng and Fuligni, 2000; Portes and Hao, 2002). Daily diary research has shown that this sense of connection and family obligation predicts academic motivation in the form of time spent studying on a daily basis (Hardway and Fuligni, 2006). Bilingual students appear to express their sense of family connection by working hard in school.

Retaining parents' country-of-origin language alongside English also provides access to a form of cultural capital unavailable to children who speak only English. Among Mexican-origin high schoolers in the Bay Area, for example, there was a meaningful difference in social capital between students who were fully bilingual versus dominant in either Spanish or English. The bilingual students sought help from a wider range of people, and, in turn, were more likely than their peers to receive genuine support from institutional agents such as school personnel (Stanton-Salazar and Dornbusch, 1995). This suggests a unique role of language that can ultimately enhance motivation and achievement for bilingual students.

It is unclear, however, whether a motivational advantage would be intrinsic or extrinsic in nature. With evidence for stronger interest in school, this might suggest higher levels of intrinsic motivation. At the same time, the higher educational aspirations of bilingual immigrant populations appear strongly grounded in family obligation, which might suggest higher levels of extrinsic motivation. A recent dissertation found evidence for both: bilingual elementary school students reported higher intrinsic motivation for writing than their native English monolingual peers. Those who had graduated from English Language Development programs also showed higher levels of extrinsic motivation for writing (Camping, 2021). These findings raise the possibility that bilingual students may experience higher levels of both intrinsic and extrinsic forms of motivation in school compared to their monolingual peers.

4. The relationship between intrinsic and extrinsic forms of motivation

Beyond absolute levels of motivation, it is also important to consider how bilinguals may experience the relationship between different types of motivation. Intrinsic and extrinsic forms of motivation are often portrayed as mutually exclusive. Indeed, small but consistent negative correlations have been found between intrinsic and extrinsic motivation in research with students in the United States (Lepper et al., 2005; Corpus et al., 2009). However, evidence suggests that this dichotomy may be culturally specific. Lepper et al. (2005) found that intrinsic and extrinsic forms of motivation were less negatively correlated among Asian-American students than their Euro-American peers. Among the Asian-American students, there was a *positive* correlation between intrinsic motivation and the extrinsic desire to please teachers (Lepper et al., 2005). Such findings might be attributable to the way that external pressure is interpreted in more interdependent cultures. Fulfilling external expectations may be viewed as valuable to the harmony of and belongingness to the in-group, rather than as a threat to one's sense of autonomy (Iyengar and Lepper, 1999).

Similar to the influence of culture, there is growing evidence that students from minority groups also exhibit a distinct relationship concerning intrinsic and extrinsic motivation (Yates and Patall, 2021). As the long history of discrimination in the United States threatens the survival of Black individuals, the importance of utilizing resources that are controlled by external factors is especially salient (Baldwin, 1981). Black students also experience tension between home- and school-based values (Tyler et al., 2006), which may require particular attention to external pressure, perhaps even leveraging it to their advantage. In support of this argument, Yates and Patall (2021) found that intrinsic and extrinsic forms of motivation were *positively* correlated among Black American high school students, and the presence of extrinsic motivation actually predicted *higher* levels of intrinsic motivation over time (Yates and Patall, 2021).

Given the cultural and societal factors shaping the relationship between intrinsic and extrinsic forms of motivation, it is plausible that bilingual students may show a distinct pattern compared to their monolingual peers. Bilingual students likely have more interdependent cultural backgrounds, which may lead them to perceive extrinsic forms of motivation differently than their peers with individualistic values. Bilingual students may also show patterns similar to Black Americans as they are more likely to come from language minority families (Portes and Zhou, 1993), and may similarly seek to leverage social resources for upward mobility. Therefore, we expected the relationship between intrinsic and extrinsic forms of motivation to be less antagonistic (i.e., less negative) among bilingual students compared to monolingual students.

5. The present study

In summary, the present study addressed three research questions using a large longitudinal dataset of third-through eighth-grade students (Corpus et al., 2009):

(1) Are there differences between bilingual and monolingual students in their levels of intrinsic and extrinsic motivation? Because bilingual students have several advantages that may contribute to academic motivation (e.g., cognitive flexibility, high educational aspirations, family obligation to perform well), we hypothesized that they would report higher levels of both intrinsic and extrinsic forms of motivation than their monolingual peers.

(2) What is the relationship between intrinsic and extrinsic forms of motivation for bilingual versus monolingual students? As suggested above, the cultural and societal differences between language minority students and their English monolingual peers raise the possibility that intrinsic and extrinsic forms of motivation are not necessarily mutually exclusive among bilinguals. Therefore, we hypothesized that bilingual students would show a weaker negative correlation between intrinsic and extrinsic forms of motivation than their monolingual peers.

(3) To what extent do intrinsic and extrinsic motivation change over the course of an academic year for bilingual versus monolingual students? Previous research using the same dataset showed a significant fall-to-spring decline in levels of both intrinsic and extrinsic motivation for the full sample (Corpus et al., 2009). We asked whether this same pattern would hold for both bilingual and monolingual students. We posed this as an exploratory question given the lack of previous research on which to base a formal hypothesis.

6. Materials and methods

6.1. Participants and procedure

Data were drawn from a longitudinal study of motivational change among third- through eighth-grade children from Portland, Oregon, which was approved by the Institutional Review Board at Reed College (see Corpus et al., 2009). Students from seven schools were invited to complete surveys at school in both the fall and the spring of a single academic year (for additional details on recruitment and study procedures, see Corpus et al., 2009). The present analysis included 1,047 students, 851 of whom were English monolinguals and 196 of whom were bilingual. The English monolingual students (55% female, 45% male) largely identified as Caucasian (88.4%) with smaller groups of Black (7.6%), Asian (6.8%), Native American (6.2%), and Hispanic (4.7%) students. The bilingual students (57% female, 43% male), by

contrast, identified primarily as Hispanic (38.3%), Causasian (35.2%), and Asian (32.1%), with smaller groups of Black (4.6%) and Native American (2.0%) students. Race/ethnicity groups were not mutually exclusive.

6.2. Measures

6.2.1. Language status

As part of the fall survey administration, students reported demographic information (gender, race), including what language they spoke at home. Students who listed only English were considered English monolinguals. Students who listed any language other than English (regardless of whether they also listed English) were considered bilinguals. The data made available to us included only this binary classification, without information about the specific language that students spoke. Based on information provided by the participating schools, the most common languages spoken in their student populations were Spanish, Mandarin, Russian, and Vietnamese.

6.2.2. Intrinsic and extrinsic motivation

Both intrinsic and extrinsic motivation were measured with reliable and valid scales from Lepper et al. (2005) and Corpus et al. (2009). In addition to strong internal consistency and test–retest reliability, the predictive validity of the scales has been documented *via* unique links to both academic achievement and teacher ratings of motivation (see Lepper et al., 2005; Corpus et al., 2009). Intrinsic motivation was assessed in the both the fall and the spring with 17 items tapping students' challenge-seeking ("I like to go on to new work that's at a more difficult level"), curiosity based engagement ("I read things because I am interested in the subject"), and desire for independent mastery ("I like to try to figure out how to do school assignments on my own"; see Corpus et al., 2009). Students responded using a 5-point Likert scale, with 1 = *not like me at all* and 5 = *exactly like me*. Scores for each item were averaged together to form a composite variable, a procedure that was validated by Corpus et al. (2009) through hierarchical confirmatory factor analysis. In the present study, the scale was internally consistent for both monolingual ($\alpha = 0.91$ fall, 0.91 spring) and bilingual ($\alpha = 0.91$ fall, 0.92 spring) students.

Extrinsic motivation was assessed in both the fall and the spring with 16 items tapping students' desire for easy work ("I do not like difficult schoolwork because I have to work too hard"), orientation toward pleasing authority figures ("I do my schoolwork because it makes my parents happy"), and a dependance on the teacher for guidance ("I like the teacher to help me plan what to do next; see Corpus et al., 2009). Students responded using a 5-point Likert scale, with 1 = *not like me at all* and 5 = *exactly like me*. Scores for each item were averaged together to form a composite variable, a procedure that was validated by Corpus et al. (2009) through hierarchical confirmatory factor analysis. In the present study, the scale was internally consistent for both monolingual ($\alpha = 0.83$ fall, 0.86 spring) and bilingual ($\alpha = 0.85$ fall, 0.83 spring) students.

7. Results

Descriptive statistics for each time point by language status are presented in Table 1. The distributions for both intrinsic and extrinsic motivation were within the range of normality, with skewness ranging from −0.01 to −0.26, and kurtosis ranging from −0.25 to −0.37.

The first hypothesis was that bilingual students would report higher levels of both intrinsic and extrinsic forms of motivation than their monolingual peers. This was tested through a series of independent sample *t*-tests. As predicted, in the fall survey administration, bilingual students reported significantly higher levels of intrinsic motivation ($M = 3.56$) than their monolingual peers ($M = 3.41$), $t(1045) = 2.54$, $p < 0.05$. They also reported higher levels of extrinsic motivation ($M = 3.37$) than monolingual students ($M = 3.13$), $t(1045) = 4.65$, $p < 0.001$. In the spring survey administration, there was no difference between groups in intrinsic motivation, but bilingual students had significantly higher levels of extrinsic motivation ($M = 3.28$) than their monolingual peers ($M = 3.04$), $t(1045) = 4.40$, $p < 0.001$, providing partial support for the hypothesis. These significant effects were small to medium in size. See Table 1.

The second hypothesis was tested by comparing the Pearson correlation coefficients between intrinsic and extrinsic motivation for monolingual versus bilingual students (Table 2). Consistent with the previous findings on Euro-American students, small to moderate negative correlations between intrinsic and extrinsic motivation were found among monolingual students in the fall ($r = -0.23$, $p < 0.001$) and the spring ($r = -0.32$, $p < 0.001$). As predicted, intrinsic and extrinsic motivation were not significantly correlated among bilingual students (fall $r = 0.05$, $p = 0.50$; spring

TABLE 1 Intrinsic and extrinsic motivation of monolingual and bilingual students.

	Monolinguals		Bilinguals		*t* (1045)	Cohen's *d*
	M	*SD*	*M*	*SD*		
IM Fall	3.41	0.73	3.56	0.77	−2.54*	−0.20
EM Fall	3.13	0.67	3.37	0.69	−4.65***	−0.37
IM Spring	3.32	0.73	3.36	0.78	−0.73	−0.06
EM Spring	3.04	0.70	3.28	0.66	−4.40***	−0.35

Monolinguals $n = 851$, Bilinguals $n = 196$. IM, intrinsic motivation; EM, extrinsic motivation. ***$p < 0.001$. *$p < 0.05$.

TABLE 2 Correlations between intrinsic and extrinsic motivation for monolingual and bilingual students.

	Monolinguals	Bilinguals	Monolingual vs. Bilingual	
	$r_{IM,\ EM}$	$r_{IM,\ EM}$	z	p
Fall	−0.23***	0.05	3.52	<0.001
Spring	−0.32***	0.03	3.95	<0.001

Monolinguals $n = 851$, Bilinguals $n = 196$. IM, intrinsic motivation; EM, extrinsic motivation. ***$p < 0.001$.

$r = -0.01$, $p = 0.84$). Fisher's r to z transformations revealed that the correlations between intrinsic and extrinsic forms of motivation were significantly more negative among monolingual students than the bilingual students in both the fall ($z = 3.52$, $p < 0.001$) and the spring ($z = 3.95$, $p < 0.001$).

The third research question regarding changes over time in levels of intrinsic and extrinsic motivation was tested with a set of 2 (time: fall, spring) x 2 (language status: monolingual, bilingual) mixed ANOVAs, with repeated measures on the first factor. For intrinsic motivation, there was a significant interaction between time and language status, $F(1,1,045) = 4.79$, $p < 0.05$. Intrinsic motivation declined in both groups from fall to spring, but the decline was more pronounced for bilingual (M change = 0.20) than for monolingual students (M change = 0.09); see Table 1. For extrinsic motivation, the interaction was not significant, such that motivation showed a pattern of modest decline that was equivalent for both bilingual and monolingual students, $F(1,1,045) = 0.02$, $p = 0.88$; see Table 1.

8. Discussion and conclusion

The present study examined motivational patterns among bilingual students at the elementary and middle school level. In comparison to their monolingual peers, bilingual students reported higher levels of intrinsic motivation in the fall and a sharper decline over time, higher levels of extrinsic motivation at both timepoints, and a less antagonistic relationship between intrinsic and extrinsic forms of motivation. Given cultural differences in obedience, obligation, and the emphasis on education as a means of social mobility (Fuligni and Flook, 2005; Feliciano and Lanuza, 2016, 2017), it is not surprising that bilingual students reported higher levels of extrinsic motivation. Perhaps more interesting is their simultaneous endorsement of intrinsic motivation, at least at the fall timepoint. Bilingual students appear not only to be externally driven to engage in their schoolwork (extrinsically motivated), but also to embrace challenges and see the value of learning for learning's sake (intrinsically motivated).

A key theoretical contribution of the present study is that intrinsic and extrinsic forms of motivation were found to be unrelated among bilingual students – a pattern that differed substantially from that of their monolingual peers. A more compatible relationship between intrinsic and extrinsic motivation for bilingual students is consistent with an emerging body of research indicating cultural specificity in the meaning of extrinsic motivation (e.g., Lepper et al., 2005; Yates and Patall, 2021). For bilingual students who may be strongly affiliated with a more interdependent parent culture, perhaps doing schoolwork to meet parents' expectations and please teachers is fully consistent with doing schoolwork in order to satisfy curiosity or grow as a learner. It will be important for future research to test the correlates of extrinsic motivation among bilingual students. Although maladaptive behaviors and coping mechanisms have often been associated with extrinsic motivation (Howard et al., 2021), this classic model may not fit bilingual students. The present investigation joins the call to consider the cultural relevance of our dominant motivational models for diverse groups of learners (Zusho and Kumar, 2018; Urdan and Kaplan, 2020; Wigfield and Koenka, 2020).

Of course, it is unclear whether the bilingual advantage in the present study was driven by cognitive or cultural factors. It is possible that the experience of speaking two languages affords students cognitive skills that monolingual students cannot access, such as the ability to flexibly adapt to the evolving demands of a classroom setting. At the same time, a majority of the bilingual children in the present sample were likely children of immigrants who retained their parents' country-of-origin language. Speaking the same language as their parents often embeds children in an immigrant culture (Feliciano and Lanuza, 2016) and can help them to discuss school, personal problems, and hopes for the future (Tseng and Fuligni, 2000) – all of which may shape their academic motivation.

Additional survey measures gauging student identification with parent culture and family cohesion could facilitate a more nuanced investigation of the interactions between culture, bilingualism, and motivation. This might reveal, for example, that the motivational patterns observed in the present study do not apply equally to bilingual students with low versus high family cohesion, thus supporting the cultural explanation. It would also be informative to employ the strategy used by Moreno-Stokoe and Damian (2020), who selected a relatively isolated community of children on Gibraltar who had nearly identical cultural upbringings but varied greatly regarding their degree of bilingualism. A future study could choose a similar monocultural population coupled with additional assessments of language fluency to examine the impact on intrinsic and extrinsic forms of motivation.

There were several limitations of the present study. Perhaps most notably, we did not have information about the precise languages spoken by our bilingual participants, their level of proficiency in those languages, or their fluency in English. Because

the impact of bilingualism on schooling experiences in the United States appears to depend heavily on students' degree of fluency in English (Rumbaut, 1994; Fuligni, 1997; Han, 2012; Chen et al., 2014), it would have been informative to compare motivational reports among bilingual students who were still learning English versus fully fluent in the instructional language of their schools. One might imagine that students with lower English proficiency may not show the same motivational advantage relative to monolingual peers – perhaps especially regarding intrinsic motivation.

Another important limitation relates to the non-experimental nature of the present investigation, which cannot establish a causal relationship between bilingual status and academic motivation. Future research should also consider a more extensive longitudinal time frame, perhaps assessing motivation through the high school years. Given that intrinsic motivation declined more sharply over time for bilingual versus monolingual students, it is possible that the motivational advantage of bilinguals would dissipate over time. In addition, it has been established that external factors can negativize emotions, dampening overall motivation (Pishghadam et al., 2019). Therefore, it will be important for future research to consider bilingual students' motivational patterns in light of the emotionally negativizing COVID-19 pandemic. Recent research has documented specific declines in undergraduates' intrinsic motivation as a result of the pandemic (Corpus et al., 2022), and it is possible that the motivation of bilingual students might be different if collected in the era of COVID-19.

Finally, although the present study focused on academic motivation more broadly, insights may be gained by considering the specific motives students have for learning a second language. Research on second language acquisition suggests that supporting students' needs for competence, relatedness, and autonomy promotes both autonomous motivation and vocabulary knowledge (Oga-Baldwin et al., 2017; Alamer, 2022). The specific need for competence, moreover, has been shown to predict lower levels of anxiety among English language learners in Saudi Arabia (Alamer and Almulhim, 2021), which may impact subsequent motivation. The role of basic psychological needs (for competence, relatedness, and autonomy) should be incorporated into future research on academic motivation among bilingual students. Support for these needs would presumably enhance the intrinsic motivation of bilingual students, but it is less clear how extrinsic motivation would be impacted. Although extrinsic motivation is typically associated with need frustration (Vansteenkiste et al., 2020), bilinguals' less antagonistic relationship between intrinsic and extrinsic forms of motivation may suggest a different pattern. This is an exciting avenue for future research.

In conclusion, the present study identified a difference in the motivational realities of bilingual students versus monolingual students. Understanding what motivates bilingual students and how they conceptualize motivation itself is one tool for educators who wish to better support students' learning.

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

The studies involving human participants were reviewed and approved by Reed College Institutional Review Board. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

Author contributions

DG and LS contributed equally to the project and share first authorship. JC provided the data and supervised the project. LS and JC performed the data analysis. DG, LS, and JC took the lead on writing the manuscript with substantial input from TB and BT. All authors developed the study concept, contributed to the literature review and 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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References

Ahn, I., Chiu, M. M., and Patrick, H. (2021). Connecting teacher and student motivation: student-perceived teacher need-supportive practices and student need satisfaction. *Contemp. Educ. Psychol.* 64:101950. doi: 10.1016/j.cedpsych.2021.101950

Alamer, A. (2022). Basic psychological needs, motivational orientations, effort, and vocabulary knowledge: a comprehensive model. *Stud. Second. Lang. Acquis.* 44, 164–184. doi: 10.1017/S027226312100005X

Alamer, A., and Almulhim, F. (2021). The interrelation between language anxiety and self-determined motivation; a mixed methods approach. *Front. Educ.* 6:618655. doi: 10.3389/feduc.2021.618655

Baldwin, J. A. (1981). Notes on an Africentric theory of black personality. *West. J. Black Stud.* 5, 172–179.

Barac, R., Bialystok, E., Castro, D. C., and Sanchez, M. (2014). The cognitive development of young dual language learners: a critical review. *Early Child. Res. Q.* 29, 699–714. doi: 10.1016/j.ecresq.2014.02.003

Bialystok, E. (2001). *Bilingualism in Development: Language, Literacy, and Cognition* xii, 288. Cambridge: Cambridge University Press.

Bialystok, E. (2006). Effect of bilingualism and computer video game experience on the Simon task. *Can. J. Exp. Psychol.* 60, 68–79. doi: 10.1037/cjep2006008

Bialystok, E., and Viswanathan, M. (2009). Components of executive control with advantages for bilingual children in two cultures. *Cognition* 112, 494–500. doi: 10.1016/j.cognition.2009.06.014

Calvo, A., and Bialystok, E. (2014). Independent effects of bilingualism and socioeconomic status on language ability and executive functioning. *Cognition* 130, 278–288. doi: 10.1016/j.cognition.2013.11.01

Camping, A. B. (2021). Writing motivation and writing performance of culturally and linguistically diverse elementary school students. (Publication No. 28491937). doctoral dissertation, Arizona State University, ProQuest dissertations and theses database.

Chen, S. H., Zhou, Q., Uchikoshi, Y., and Bunge, S. A. (2014). Variations on the bilingual advantage? Links of Chinese and English proficiency to Chinese American children's self-regulation. *Front. Psychol.* 5:1069. doi: 10.3389/fpsyg.2014.01069

Colzato, L. S., Bajo, M. T., van den Wildenberg, W., Paolieri, D., Nieuwenhuis, S., La Heij, W., et al. (2008). How does bilingualism improve executive control? A comparison of active and reactive inhibition mechanisms. *J. Exp. Psychol. Learn. Mem. Cogn.* 34, 302–312. doi: 10.1037/0278-7393.34.2.302

Corpus, J., McClintic-Gilbert, M., and Hayenga, A. (2009). Within-year changes in children's intrinsic and extrinsic motivational orientations: contextual predictors and academic outcomes. *Contemp. Educ. Psychol.* 34, 154–166. doi: 10.1016/j.cedpsych.2009.01.001

Corpus, J. H., Robinson, K. A., and Liu, Z. (2022). Comparing college students' motivation trajectories before and during COVID-19: a self-determination theory approach. *Front. Educ.* 7:848643.

Feliciano, C., and Lanuza, Y. R. (2016). The immigrant advantage in adolescent educational expectations. *Int. Migr. Rev.* 50, 758–792. doi: 10.1111/imre.12183

Feliciano, C., and Lanuza, Y. R. (2017). An immigrant paradox? Contextual attainment and intergenerational educational mobility. *Am. Sociol. Rev.* 82, 211–241. doi: 10.1177/0003122416684777

Fuligni, A. J. (1997). The academic achievement of adolescents from immigrant families: the role of family background, attitudes, and behavior. *Child Dev.* 68, 351–363. doi: 10.1111/j.1467-8624.1997.tb01944.x

Fuligni, A. J. (1998). Authority, autonomy, and parent–adolescent conflict and cohesion: a study of adolescents from Mexican, Chinese, Filipino, and European backgrounds. *Dev. Psychol.* 34, 782–792. doi: 10.1037/0012-1649.34.4.782

Fuligni, A. J., and Flook, L. (2005). "A social identity approach to ethnic differences in family relationships during adolescence" in *Advances in Child Development and Behavior*. ed. R. V. Kail, vol. *33* (Cambridge, MA: Elsevier Academic Press), 125–152.

Garon-Carrier, G., Boivin, M., Guay, F., Kovas, Y., Dionne, G., Lemelin, J.-P., et al. (2016). Intrinsic motivation and achievement in mathematics in elementary school: a longitudinal investigation of their association. *Child Dev.* 87, 165–175. doi: 10.1111/cdev.12458

Han, W.-J. (2012). Bilingualism and academic achievement. *Child Dev.* 83, 300–321. doi: 10.1111/j.1467-8624.2011.01686.x

Hardway, C., and Fuligni, A. J. (2006). Dimensions of family connectedness among adolescents with Mexican, Chinese, and European backgrounds. *Dev. Psychol.* 42, 1246–1258. doi: 10.1037/0012-1649.42.6.1246

Hebbecker, K., Förster, N., and Souvignier, E. (2019). Reciprocal effects between reading achievement and intrinsic and extrinsic reading motivation. *Sci. Stud. Read.* 23, 419–436. doi: 10.1080/10888438.2019.1598413

Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., and Ryan, R. M. (2021). Student motivation and associated outcomes: a meta-analysis from self-determination theory. *Perspect. Psychol. Sci.* 16, 1300–1323. doi: 10.1177/1745691620966789

Iyengar, S. S., and Lepper, M. R. (1999). Rethinking the value of choice: a cultural perspective on intrinsic motivation. *J. Pers. Soc. Psychol.* 76, 349–366. doi: 10.1037/0022-3514.76.3.349

Lepper, M. R., Corpus, J. H., and Iyengar, S. S. (2005). Intrinsic and extrinsic motivational orientations in the classroom: age differences and academic correlates. *J. Educ. Psychol.* 97, 184–196. doi: 10.1037/0022-0663.97.2.184

Lepper, M. R., Greene, D., and Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic rewards: a test of the "overjustification" hypothesis. *J. Pers. Soc. Psychol.* 28, 129–137. doi: 10.1037/h0035519

Miyamoto, A., Pfost, M., and Artelt, C. (2018). Reciprocal relations between intrinsic reading motivation and reading competence. A comparison between native and immigrant students in Germany. *J. Res. Read.* 41, 176–196. doi: 10.1111/1467-9817.12113

Moreno-Stokoe, C. M., and Damian, M. F. (2020). Employing natural control for confounding factors in the hunt for the bilingual advantage in attention: evidence from school children in Gibraltar. *J. Cogn.* 3:5. doi: 10.5334/joc.94

Oga-Baldwin, W., Nakata, Y., Parker, P., and Ryan, R. (2017). Motivating young language learners: a longitudinal model of self-determined motivation in elementary school foreign language classes. *Contemp. Educ. Psychol.* 49, 140–150. doi: 10.1016/j.cedpsych.2017.01.010

Pishghadam, R., Makiabadi, H., Shayesteh, S., and Zeynali, S. (2019). Unveiling the passive aspect of motivation: insights from English language teachers' habitus. *Int. J. Soc. Cult. Lang.* 7, 15–26.

Portes, A., and Hao, L. (1998). E Pluribus Unum: bilingualism and loss of language in the second generation. *Sociol. Educ.* 71, 269–294. doi: 10.2307/2673171

Portes, A., and Hao, L. (2002). The price of uniformity: Language, family and personality adjustment in the immigrant second generation. *Ethn. Racial Stud.* 25, 889–912.

Portes, A., and Schauffler, R. (1994). Language and the second generation: bilingualism yesterday and today. *Int. Migr. Rev* 28, 640–661. doi: 10.1177/019791839402800402

Portes, A., and Zhou, M. (1993). The new second generation: segmented assimilation and its variants. *Ann. Am. Acad. Pol. Soc. Sci.* 530, 74–96. doi: 10.1177/0002716293530001006

Rumbaut, R. G. (1994). The crucible within: ethnic identity, self-esteem, and segmented assimilation among children of immigrants. *Int. Migr. Rev* 28, 748–794. doi: 10.2307/2547157

Ryan, R. M., and Deci, E. L. (2016). "Facilitating and hindering motivation, learning, and well-being in schools: research and observations from self-determination theory" in *Handbook of Motivation at School*. eds. K. R. Wentzel and D. B. Miele. *2nd* ed (New York, NY: Routledge), 96–119.

Ryan, R. M., and Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: definitions, theory, practices, and future directions. *Contemp. Educ. Psychol.* 61:101860. doi: 10.1016/j.cedpsych.2020.101860

Spiegel, J. A., Goodrich, J. M., Morris, B. M., Osborne, C. M., and Lonigan, C. J. (2021). Relations between executive functions and academic outcomes in elementary school children: a meta-analysis. *Psychol. Bull.* 147, 329–351. doi: 10.1037/bul0000322

Stanton-Salazar, R. D., and Dornbusch, S. M. (1995). Social capital and the reproduction of inequality: information networks among Mexican-origin high school students. *Sociol. Educ.* 68, 116–135. doi: 10.2307/2112778

Stipek, D. (2002). *Motivation to Learn: From Theory to Practice (4th Edn)*. Boston, MA: Allyn & Bacon.

Taylor, G., Jungert, T., Mageau, G. A., Schattke, K., Dedic, H., Rosenfield, S., et al. (2014). A self-determination theory approach to predicting school achievement over time: the unique role of intrinsic motivation. *Contemp. Educ. Psychol.* 39, 342–358. doi: 10.1016/j.cedpsych.2014.08.002

The Urban Institute (2020). *Children of Immigrants Data Tool*. Available at: https://children-of-immigrants-explorer.urban.org/pages.cfm (Accessed August 7, 2022).

Tseng, V., and Fuligni, A. J. (2000). Parent-adolescent language use and relationships among immigrant families with east Asian, Filipino, and Latin American backgrounds. *J. Marriage Fam.* 62, 465–476. doi: 10.1111/j.1741-3737.2000.00465.x

Tyler, K. M., Boykin, A. W., Miller, O., and Hurley, E. (2006). Cultural values in the home and school experiences of low-income African-American students. *Soc. Psychol. Educ.* 9, 363–380. doi: 10.1007/s11218-006-9003-x

Urdan, T., and Kaplan, A. (2020). The origins, evolution, and future directions of achievement goal theory. *Contemp. Educ. Psychol.* 61:101862. doi: 10.1016/j.cedpsych.2020.101862

Vansteenkiste, M., Ryan, R., and Soenens, B. (2020). Basic psychological need theory: advancements, critical themes, and future directions. *Motiv. Emot.* 44, 1–31. doi: 10.1007/s11031-019-09818-1

Wigfield, A., and Koenka, A. C. (2020). Where do we go from here in academic motivation theory and research? Some reflections and recommendations for future work. *Contemp. Educ. Psychol.* 61:101872. doi: 10.1016/j.cedpsych.2020.101872

Wiseheart, M., Viswanathan, M., and Bialystok, E. (2016). Flexibility in task switching by monolinguals and bilinguals. *Bilingualism* 19, 141–146. doi: 10.1017/S1366728914000273

Yates, N., and Patall, E. A. (2021). Exploring the relationship between Black high school students' external regulation and intrinsic motivation. *Motiv. Emot.* 45, 146–158. doi: 10.1007/s11031-020-09863-1

Zimmerman, B. J., and Kitsantas, A. (2014). Comparing students' self-discipline and self-regulation measures and their prediction of academic achievement. *Contemp. Educ. Psychol.* 39, 145–155. doi: 10.1016/j.cedpsych.2014.03.004

Zusho, A., and Kumar, R. (2018). Introduction to the special issue: critical reflections and future directions in the study of race, ethnicity, and motivation. *Educ. Psychol.* 53, 61–63. doi: 10.1080/00461520.2018.1432362

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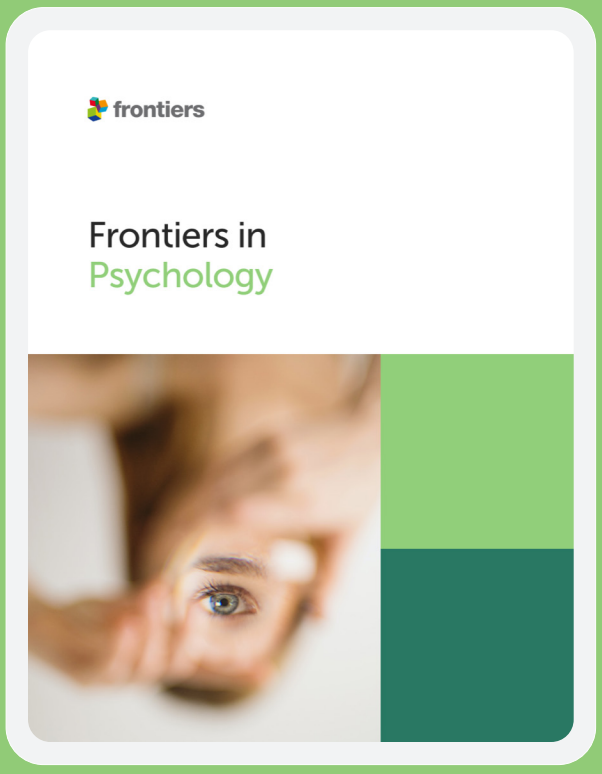

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