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Self-Regulated Learning Strategies as Predictors of PERMA Well-being in MOOC-Based English Language Learning

Danyang Yue
Department of Language and Literacy, Faculty of Education
University of Malaya, Kuala Lumpur, Malaysia
Email: yuedanyang1996@gmail.com

Mohd Rashid Bin Mohd Saad
Department of Language and Literacy, Faculty of Education
University of Malaya, Kuala Lumpur, Malaysia
Corresponding Author: msaadmr@um.edu.my

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Abstract
As English massive open online courses (MOOCs) continue to expand in China, learners benefit from flexible access to language learning but also face risks to their psychological well-being due to limited interaction and high autonomy. This study aims to examine the extent to which self-regulated learning strategies (SRLS) predict five dimensions of well-being: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment, among 566 Chinese university students learning English through MOOCs. Guided by Seligman's PERMA model and social cognitive theory, the study examines how SRLS predict well-being and also explores learners' SRLS and well-being levels, as well as whether these levels differ by gender and academic year. A quantitative design was employed, and data were collected via online surveys and analyzed using structural equation modeling (SEM). Participants reported moderate levels of SRLS use and moderately high levels of well-being, with the highest scores in study environment management and Accomplishment. SEM revealed that SRLS significantly and positively predicted all five PERMA dimensions, especially Accomplishment and Engagement. However, gender and academic year did not show any significant influence on SRLS use or well-being outcomes. The findings show that SRLS contribute to psychological well-being and flourishing, and offer valuable guidance for creating English MOOCs that are both emotionally supportive and autonomy-oriented.

Keywords: English massive open online courses, self-regulated learning strategies, psychological well-being, positive emotion, engagement, relationships, meaning, accomplishment

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Introduction

In recent years, MOOC-based English learning has become increasingly widespread in China due to its flexibility and accessibility (Yang & Li, 2024). However, its highly autonomous and self-paced nature often limits opportunities for real-time interaction and emotional support, which may lead to learner disengagement and emotional fatigue **(**Butler & Kern, 2016; Shkembi et al., 2024**)**. These concerns have brought psychological well-being to the forefront of online language education.

Positive psychology has been increasingly integrated into second language learning, giving rise to the concept of positive education in school settings (Cheng & Chen, 2021; Chen & Tang, 2024). Researchers have increasingly recognized emotional well-being as essential for fostering resilience, reducing anxiety, and sustaining motivation in second language (L2) contexts (Alqarni, 2022; MacIntyre & Gregersen, 2012; MacIntyre et al., 2019). Reflecting the broader positive turn in applied linguistics, recent scholarship has emphasized the value of incorporating positive psychology into foreign language education.

The PERMA model proposed by Seligman (2011) offers a five-dimensional perspective on well-being, encompassing Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. These elements are regarded as key pathways to psychological flourishing and have gained increasing attention in second language education research. Empirical research has consistently supported the model's effectiveness in improving learner outcomes (Oades et al., 2011; Turner & Thielking, 2019).

General education has widely adopted the PERMA model over the years (Hoare et al., 2017). Despite this, researchers in China have seldom addressed how the PERMA model applies to second language instruction. Notably, He (2021) investigated the relationship between emotional well-being and second language development in the context of learning Chinese. In the EFL domain, One of the earliest applications of the PERMA framework in English language instruction is found in Cheng and Chen's (2021) study. Nonetheless, the classroom-based nature of their study limits its applicability to digital learning formats such as MOOCs.

Applications of the PERMA model in online language learning are even more scarce. Although studies like Kiikeri et al. (2024) have integrated PERMA into digital education in Finland, few have focused specifically on language learners. In particular, research targeting Chinese EFL learners in MOOC-based English learning environments remains largely unexplored. These gaps highlight the need to explore how psychological well-being through the lens of PERMA can be supported in online English learning among Chinese university students.

In addition to well-being frameworks, SRLS including goal setting, monitoring, and help-seeking, have been widely acknowledged for promoting both academic achievement and emotional adaptation in digital learning contexts (Ly & Ihme, 2024; Shen & Teng, 2025; Zimmerman, 2000). Importantly, SRLS have been shown to enhance psychological well-being in EFL contexts (Derakhshan & Fathi, 2024). For example, goal setting can enhance learners' sense of accomplishment and support positive emotional experiences. In addition, teachers who integrate self-regulation strategies into EFL classrooms help students engage more meaningfully with feedback and improve their writing performance (Yang & Zhang, 2023). These connections suggest that SRLS may significantly contribute to learners' well-being, as outlined in the PERMA framework. However, how overall SRLS relates to specific well-being dimensions in MOOC-based English learning remains unclear.

Furthermore, demographic variables such as gender and academic level may shape learners' self-regulation and well-being (Bai & Wang, 2020; Dunn et al., 2014), but their effects in online EFL settings have received limited attention.

Thus, this study aims to examine the role of SRLS in predicting the well-being of Chinese university students learning English through MOOCs, drawing on Seligman's PERMA model and social cognitive theory. It also explores students' levels of SRLS and well-being, and whether these vary by gender and academic year.

The study put forward the following research questions to achieve research objectives: (1) What are the levels of SRLS and PERMA well-being among Chinese EFL learners in MOOCs? (2) Do SRLS and PERMA well-being levels differ by gender and academic year? (3) Do SRLS predict the five dimensions of PERMA well-being?

Literature Review

PERMA Well-being and SRLS in Online English Learning

Psychological well-being has become increasingly important in foreign language education, particularly in online settings where learners often face emotional fatigue and reduced motivation (MacIntyre & Gregersen, 2012). The PERMA model (Seligman, 2011) offers a structured approach to understanding well-being. Studies have shown its relevance in language learning: enjoyment and hope aid in overcoming challenges (Fredrickson, 2001), engagement fosters persistence (Kim, Song, & Lee, 2021), and meaning and achievement contribute to motivation (Sun & Wang, 2020). Many recent studies have focused on general or teacher education settings (Leng & Zhang, 2024). In contrast, Cheng and Chen (2021) conducted a study in a university EFL context. Their 14-week PERMA-based intervention significantly improved students' English listening and speaking skills. Li (2024) also found that engagement, meaning, and accomplishment predicted L2 grit dimensions, though neither grit nor PERMA significantly predicted exam scores. Nevertheless, studies exploring PERMA in online English learning remain limited.

Self-regulated learning strategies (SRLS) refer to "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (Pintrich, 2000, p. 453). SRLS are especially important in online education environments such as MOOCs, where learners often lack direct teacher guidance and must rely on their planning and regulation to succeed. These strategies include goal setting, time management, self-monitoring, and help-seeking, and are linked to higher engagement and performance (Wang et al., 2023). In MOOC contexts, further refinements include self-evaluation, strategic planning, elaboration, persistence, and study environment management (Jansen et al., 2022; Kizilcec et al., 2017). However, many learners still struggle to sustain regulation in such settings (Vilkova, 2022). Recent research distinguishes between personal strategies (internal cognitive and motivational processes) and social strategies (peer and teacher interaction) (Wan et al., 2012). Given the typically solitary nature of MOOCs, learners tend to rely more on personal strategies, though discussion forums may offer some opportunities for social regulation.

Gender and Grade Level Differences in SRL Strategies and Psychological Well-being

Gender and grade level are frequently examined variables in studies of self-regulated learning and psychological well-being. Some international research suggests that female students

tend to report higher levels of both enjoyment and anxiety in academic settings (Dewaele & MacIntyre, 2014), but findings from Chinese EFL contexts are mixed. For example, Jiang and Dewaele (2019) and Shen and Teng (2025) reported no significant gender differences in emotional well-being among Chinese learners, including in online environments.

Regarding SRL, prior studies have indicated that female learners may use strategies like time management and help-seeking more frequently (Salahshour, Sharifi, & Salahshour, 2013). However, research from Chinese contexts has yielded inconsistent results. Shen and Bai (2024) found no gender-based differences in SRL in traditional classrooms, and Dinh and Phuong (2024) reported similar findings in MOOCs.

Grade-level differences have received less attention, with some studies suggesting that senior students develop more effective SRL strategies over time (Zhang, Gu, & Hu, 2008). Nevertheless, others have found no significant differences across academic years. For example, Shen and Teng (2025) and Ying, Shao, and Cui (2023) observed that both SRL and well-being levels remained relatively stable across grades in online English courses, possibly due to standardized curricula and limited interaction in MOOC environments.

Linking Self-regulated Learning and PERMA Well-being

Hypothesis Developed

Effective self-regulation is essential for sustaining both learning motivation and psychological well-being in highly autonomous environments like MOOCs (Rodríguez et al., 2022). The following sections explain how SRLS contribute to learner well-being across the five dimensions of the PERMA model.

Positive emotions such as enjoyment and hope often arise from learners' sense of control and achievement. Learners often use strategies like goal setting, time management, and self-monitoring to reduce anxiety and build confidence in self-paced learning (Fredrickson, 2001; Zhang & Fathi, 2024). When learners set their own goals and persist in completing tasks, they are more likely to experience higher emotional well-being and reduced stress (Bryce et al., 2020). Planning, closely tied to goal setting, also contributes to maintaining positive emotions over time.

H1: SRLS significantly and positively predict positive emotion

SRLS assist students to sustain engagement by making learners concentrate on their tasks, organize their schedules efficiently, and keep track of how their learning is progressing. These skills are especially important in autonomous MOOC environments (Teng & Zhang, 2022). Among Chinese EFL learners, SRL has been found to predict behavioral, emotional, and cognitive engagement. Especially help-seeking and time management show more powerful effects (Lan & Hew, 2020; Shen & Teng, 2025). These findings underscore the importance of incorporating planning, metacognitive guidance, and peer interaction into MOOC design to promote deeper and more sustained learner engagement.

H2: SRLS significantly and positively predict engagement.

Although MOOCs limit face-to-face interaction (Farikah et al., 2023), SRLS can foster social connectedness through strategic peer engagement. Help-seeking, collaborative planning, and constructive feedback are key behaviors that encourage active participation in forums and group tasks, leading to stronger feelings of belonging and interpersonal support. According to self-determination theory, such experiences fulfill learners' need for relatedness, which is critical for motivation and well-being (Derakhshan & Fathi, 2024; Ryan & Deci, 2000).

H3: SRLS significantly and positively predict relationships.

A strong sense of meaning often arises when learners perceive their English study as aligned with personal values or long-term goals. SRLS facilitate this alignment through goal setting, self-reflection, and purpose-driven planning. These strategies prompt learners to connect daily efforts with larger aspirations, reinforcing internal motivation and meaning over time (Seligman, 2011; Steger et al., 2006). In MOOC settings, where learning is largely self-regulated, such reflection may be particularly important for sustaining motivation and psychological growth.
H4: SRLS significantly and positively predict meaning.

Finally, the dimension of accomplishment is closely linked to SRL behaviors such as self-evaluation, strategic feedback use, and reflective review. These practices help learners track their development and acknowledge success, which strengthens their sense of efficacy and motivation (Sun & Wang, 2020). Building on these theoretical foundations, this study proposes a conceptual model to be empirically tested through structural equation modeling.
H5: SRLS significantly and positively predict accomplishment.

Self-regulated learning strategies (SRLS) contribute to accomplishment by fostering goal-directed behaviors, sustained effort, and self-monitoring. Zimmerman (2000) emphasized that learners who set clear goals, plan strategically, and monitor their performance tend to achieve better academic outcomes and greater satisfaction. Bai and Wang (2020) also found that EFL learners with high self-efficacy and intrinsic value made more effective use of SRLS, leading to improved language outcomes and stronger confidence. Similarly, Sun and Wang (2020) reported that students using self-regulated writing strategies performed better and felt a stronger sense of achievement. These findings suggest that SRLS not only support academic success but also promote a deeper, more subjective sense of accomplishment, aligning with the PERMA model (Seligman, 2011).

Conceptual Framework

Based on the previous research, this study proposes a conceptual framework that integrates SRLS and psychological well-being using the PERMA model, aiming to examine their predictive relationships in the context of English MOOC learning (see Figure 1).

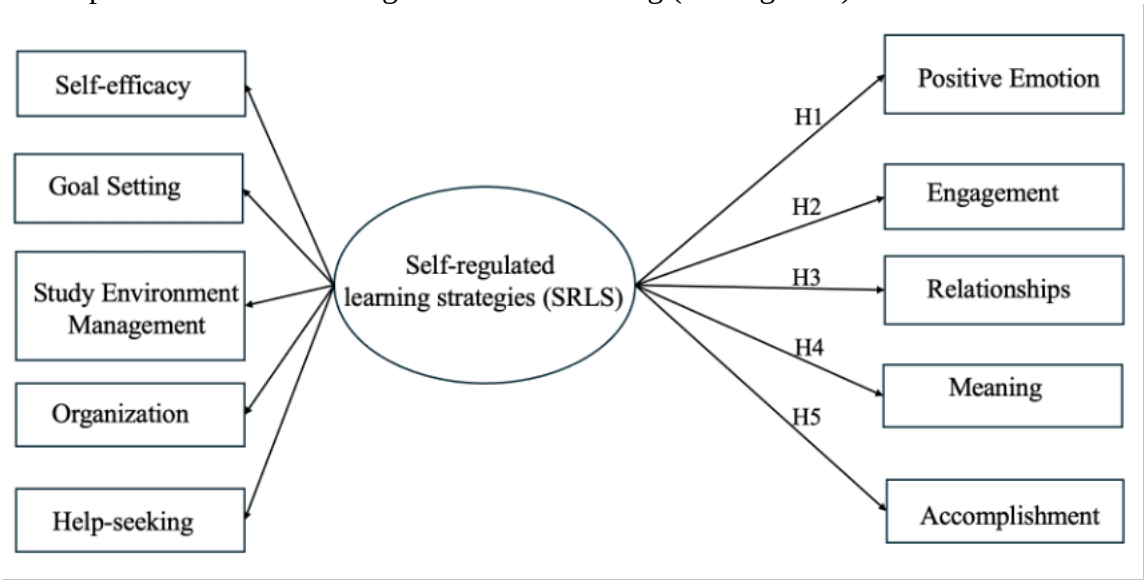


Figure 1. Conceptual framework illustrating the hypothesized relationships between SRLS and the five dimensions of PERMA well-being.

Method

Quantitative research design used to examine the relationship between self-regulated learning strategies (SRLS) and psychological well-being. The data were collected by using a cross-sectional survey from Chinese university students enrolled in a MOOC-based English course.

Participants

This study involved 566 undergraduate students from two public universities located in Northwest China. All participants were non-English majors who had prior experience learning English through MOOC platforms designed to prepare learners for standardized English proficiency tests. Participants were selected through convenience sampling. Among the 566 students, 408 were female (72.1%) and 158 were male (27.9%). In terms of academic year, the sample included 166 freshmen (29.3%), 225 sophomores (39.8%), 117 juniors (20.7%), and 58 seniors (10.2%). Participants were invited to fill an online questionnaire distributed via Wenjuanxing (a widely used online survey tool in China) during scheduled English class sessions.

Instruments

Self-Regulated Learning Questionnaire (MOOC-SRLQ)

To assess learners' use of SRLS in online English language courses, this study employed the Massive Open Online Course Self-Regulated Learning Questionnaire (MOOC-SRLQ) developed by Maldonado-Mahauad et al. (2020). Grounded in Pintrich's (2000) self-regulated learning theory, the instrument categorizes learners' strategic behaviors into five core dimensions: self-efficacy (six items), goal setting (five items), study environment management (three items), organization (four items), and help-seeking (four items). These dimensions reflect the three main categories of SRL strategies commonly used in empirical research: cognitive, metacognitive, and resource management strategies. Although initially designed for general MOOC learners, minor contextual adaptations were made to fit the current study. Specifically, the term "MOOC" was replaced with "English MOOC course" in all items to enhance relevance for Chinese EFL learners, while preserving the original meaning and structure of each item. Each items were assessed on a five-point Likert scale starting from one ("Not at all true for me") to five ("Very true for me"), with higher scores indicating stronger self-regulated learning behavior. The instrument demonstrated high internal consistency across all subscales in the present study.

PERMA Well-being Questionnaire

This study used the PERMA Well-being Questionnaire (Kiikeri, Uusiautti, & Purtilo-Nieminen, 2024) to measure learners' psychological well-being in CET-focused English MOOCs. The questionnaire is based on Seligman's (2011) PERMA theory. The instrument evaluates five core dimensions of well-being: Positive Emotion (five items), Engagement (five items), Positive Relationships (five items), Meaning (five items), and Accomplishment (six items). These dimensions reflect the holistic nature of well-being and represent a learner's emotional, motivational, and relational experiences in learning contexts. Although initially designed for general well-being assessment, minor contextual adaptations were made to fit the current study. Specifically, the wording of certain items was adapted to reflect the context of "English MOOC" to enhance contextual relevance for Chinese EFL learners, while retaining the original meaning and structure of each item. Each item was evaluated by participants on a four-point Likert scale ranging from one ("Describes me very poorly") to four ("Describes me very well"), with higher

scores indicating stronger well-being outcomes. The scale showed satisfactory to excellent internal reliability across all subscales.

Both questionnaires were translated into Chinese using the blind back-translation method (Brislin, 1970) to ensure semantic equivalence between the English and Chinese versions.

Table 1. *Descriptive statistics and correlations (N = 566).*

	1	2	3	4	5	6	7	8	9	10	11	12
SE	1											
GS	.625**	1										
SEM	.544**	.552**	1									
O	.463**	.481**	.410**	1								
HS	.584**	.562**	.524**	.488**	1							
SRLS total	.850**	.831**	.737**	.705**	.800**	1						
P	.211**	.142**	.232**	.154**	.232**	.243**	1					
E	.268**	.208**	.265**	.233**	.334**	.329**	.536**	1				
R	.179**	.163**	.171**	.188**	.221**	.232**	.426**	.552**	1			
M	.232**	.170**	.205**	.145**	.237**	.252**	.414**	.458**	.482**	1		
A	.288**	.268**	.245**	.219**	.378**	.356**	.476**	.526**	.468**	.525**	1	
PERMA total	.307**	.248**	.292**	.245**	.366**	.368**	.753**	.799**	.763**	.736**	.785**	1
Mean	3.189	3.297	3.663	3.106	3.381	3.298	2.736	2.94	2.684	2.85	2.905	2.826
SD	0.762	0.77	0.853	0.773	0.851	0.63	0.733	0.665	0.696	0.615	0.598	0.506
Cronbach's α	0.891	0.893	0.852	0.879	0.894	0.941	0.904	0.906	0.926	0.892	0.911	0.946

Notes**:** SE = Self-Efficacy; GS = Goal Setting; SEM = Study Environment Management; O = Organization; HS = Help-Seeking; P = Positive Emotion; E = Engagement; R = Relationships; M = Meaning; A = Accomplishment; SRLS = Self-Regulated Learning Strategies; PERMA = PERMA well-being.
($p < .01$.)

Research Procedure

To fulfill the aims of this study, an online questionnaire was distributed via Wenjuanxing with support from English instructors at two universities. Before participation, students were informed of the study's purpose, assured of confidentiality, and provided electronic informed consent. Ethical approval was obtained from the Universiti Malaya Research Ethics Committee. The survey took approximately 10–15 minutes to complete and included validated measures of SRLS and PERMA well-being. All responses were collected anonymously and exported into SPSS for data cleaning and analysis.

Data Analysis

Refer to data analysis, first, internal consistency (Cronbach's alpha) and confirmatory factor analyses (CFA) were conducted using AMOS 26.0 (Arbuckle, 2019) to assess the reliability and validity of the SRLS and PERMA scales. Second, descriptive statistics and MANOVA were used to examine gender and grade-level differences in SRLS and PERMA dimensions. Third, Pearson correlations were computed to explore relationships between SRLS and PERMA variables. Finally, SEM was used to test the hypothesized model, in which SRLS predicted PERMA well-being, which in turn mediated its effect on English MOOC learning outcomes.

Results

Reliability of The Measures

This study used the PERMA well-being scale and the SRLS questionnaire, both of which demonstrated satisfactory to high internal reliability. The Cronbach's alpha values for the five PERMA subscales ranged from .892 to .946, indicating excellent internal consistency. Similarly, the five SRLS subscales showed good reliability, with alpha values between .852 and .894 (see Table 1). The overall Cronbach's alpha of the total SRLS scale reached .941, further supporting the consistency of the instrument. These results suggest that all items within each subscale measured the intended constructs with adequate internal consistency.

Confirmatory Factor Aanalysis (CFA)

CFA were conducted to evaluate the factorial validity of the measurement models. The first-order model of SRLS, comprising five latent factors—Self-Efficacy, Goal Setting, Study Environment Management, Organization, and Help-Seeking—showed acceptable fit: $\chi^2/df = 2.73$, RMSEA = .055, 90% CI [.053–.058], CFI = .902, TLI = .897, SRMR = .065, GFI = .800. All factor loadings exceeded .50 and were statistically significant. A second-order CFA was then performed as shown in Figure 2, specifying SRLS as a higher-order construct reflected by the five dimensions. The model demonstrated good fit: $\chi^2(204) = 509.50$, $\chi^2/df = 2.50$, RMSEA = .051, 90% CI [.046–.057], CFI = .961, TLI = .956, GFI = .925, AGFI = .907. Inter-factor correlations ranged from .48 to .69, supporting the second-order structure.

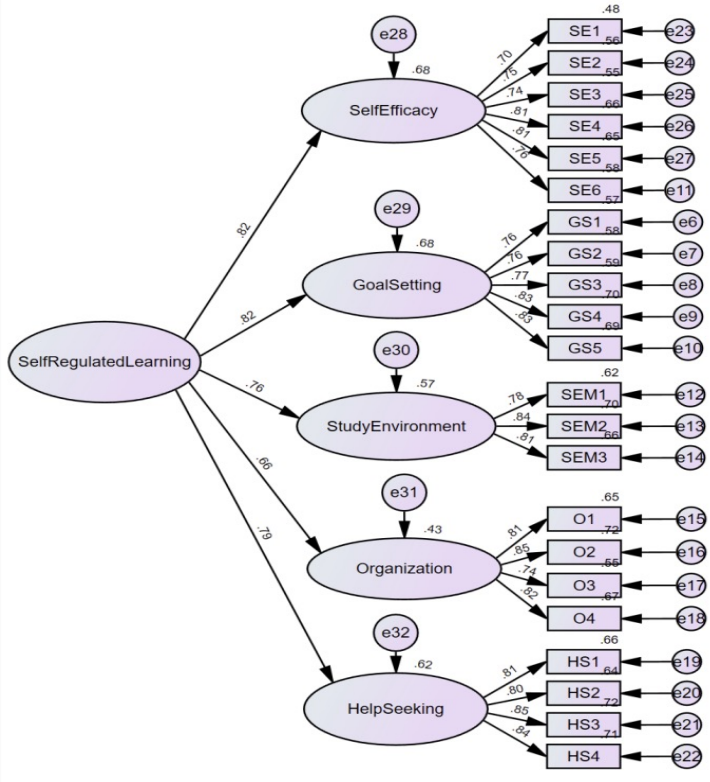


Figure 2. Confirmatory Factor Analysis Model of SRLS
Note: SE = self-efficacy; GS = goal setting; SEM = study environment management; O = organization; HS = help-seeking.

The CFA for the PERMA well-being construct in Figure 3, modeled with five first-order factors—Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment—also demonstrated acceptable fit: $\chi^2/df = 2.97$, RMSEA = .059, 90% CI [.055–.064], CFI = .946, TLI = .939, GFI = .886, SRMR = .053. These findings indicate that both the SRLS and PERMA measurement models are valid and reliable for use in subsequent structural equation modeling.

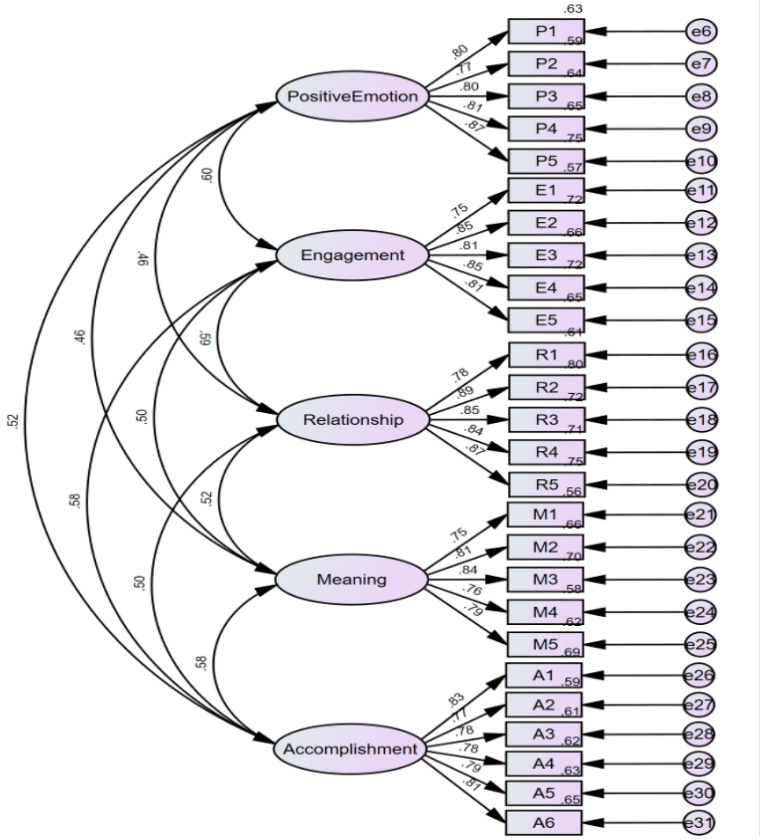


Figure 3. Confirmatory Factor Analysis Model of PERMA Dimensions
Note: P = positive emotion; E = engagement; R = relationship; M = meaning; A = accomplishment.

Overall Level of SRL Strategy Use And PERMA Well-being Level

Following Pimentel's (2010) five-point Likert scale, scores ranging from 3.41 to 5.00 represent high levels, 2.61 to 3.40 indicate moderate levels, and 1.81 to 2.60 reflect low levels. For the four-point PERMA scale, Alico and Guimba (2015) classify 3.25–4.00 as high, 2.50–3.24 as moderately high, 1.75–2.49 as moderately low, and 1.00–1.74 as low.

SRLS was measured on a five-point scale. Participants reported a medium level of SRLS use (M = 3.30, SD = 0.63), falling between "Somewhat true" and "Quite true" (see Table 1). Among the subscales, Study Environment Management had the highest mean score (M = 3.66), followed by Help-Seeking (M = 3.38) and Goal Setting (M = 3.30). Self-Efficacy (M = 3.19) and Organization (M = 3.11) were slightly lower but still moderate.

PERMA was assessed on a four-point scale. Participants showed a moderately high overall well-being level (M = 2.83, SD = 0.51). Engagement (M = 2.94), Accomplishment (M = 2.91), and Meaning (M = 2.85) were highest, while Positive Emotion (M = 2.74) and Relationships (M = 2.68) were relatively lower, approaching the mid-range.

These results suggest moderate use of SRLS and moderately high PERMA well-being. This analysis addresses RQ1, which examined learners' overall levels of SRLS and PERMA well-being.

Differences Across Genders And Grade Levels

As regards gender and grade level differences, ANOVA results showed that neither gender nor grade level had significant effects on the total SRLS and PERMA scores. For SRLS, no significant gender differences were observed, $F(1, 564) = 0.039$, $p = .845$, nor were there significant grade level differences, $F(3, 562) = 0.577$, $p = .630$. Similarly, for PERMA well-being, gender differences were not significant, $F(1, 564) = 0.008$, $p = .927$, and grade level differences were also not significant, $F(3, 562) = 1.015$, $p = .386$. These results suggest that both male and female students across different academic years reported comparable levels of SRLS use and PERMA well-being in MOOC-based English learning.

Table 2. *ANOVA results for the effects of gender and grade level on SRLS and PERMA*

Independent Variable	Dependent Variable	*F*	Sig.	Partial eta squared
Gender	SRLS	0.039	.845	.000
Grade level	SRLS	0.577	.630	.003
Gender	PERMA	0.008	.927	.000
Grade level	PERMA	1.015	.386	.005

These results suggest that both male and female students across different academic years reported comparable levels of SRLS use and PERMA well-being in MOOC-based English learning. These results directly address Research Question 2 (RQ2), indicating that no significant differences were found in students' SRL strategy use or PERMA well-being levels across gender or academic grade levels.

Relationships Between SRLS And PERMA Well-being

As illustrated in Table 1, Pearson correlation analysis identified statistically significant and positive associations between all five components of SRLS and the PERMA dimensions of well-being. The correlation coefficients ranged from $r = .142$ to .378 ($p < .01$), suggesting that learners who more frequently engaged in SRLS tended to report higher levels of well-being. Help-Seeking (HS) showed the strongest correlations with Accomplishment ($r = .378$), Engagement ($r = .334$), and Positive Emotion ($r = .232$), all significant at $p < .01$. Organization (O) showed relatively weaker correlations with the PERMA dimensions.

This study employed SEM to test the predictive effects of SRLS on PERMA. As shown in Figure 4, the model demonstrated an acceptable fit to the data: $\chi^2(1066) = 2892.18$, $\chi^2/df = 2.71$, RMSEA = .055, 90% CI [.053, .057], CFI = .903, TLI = .898.

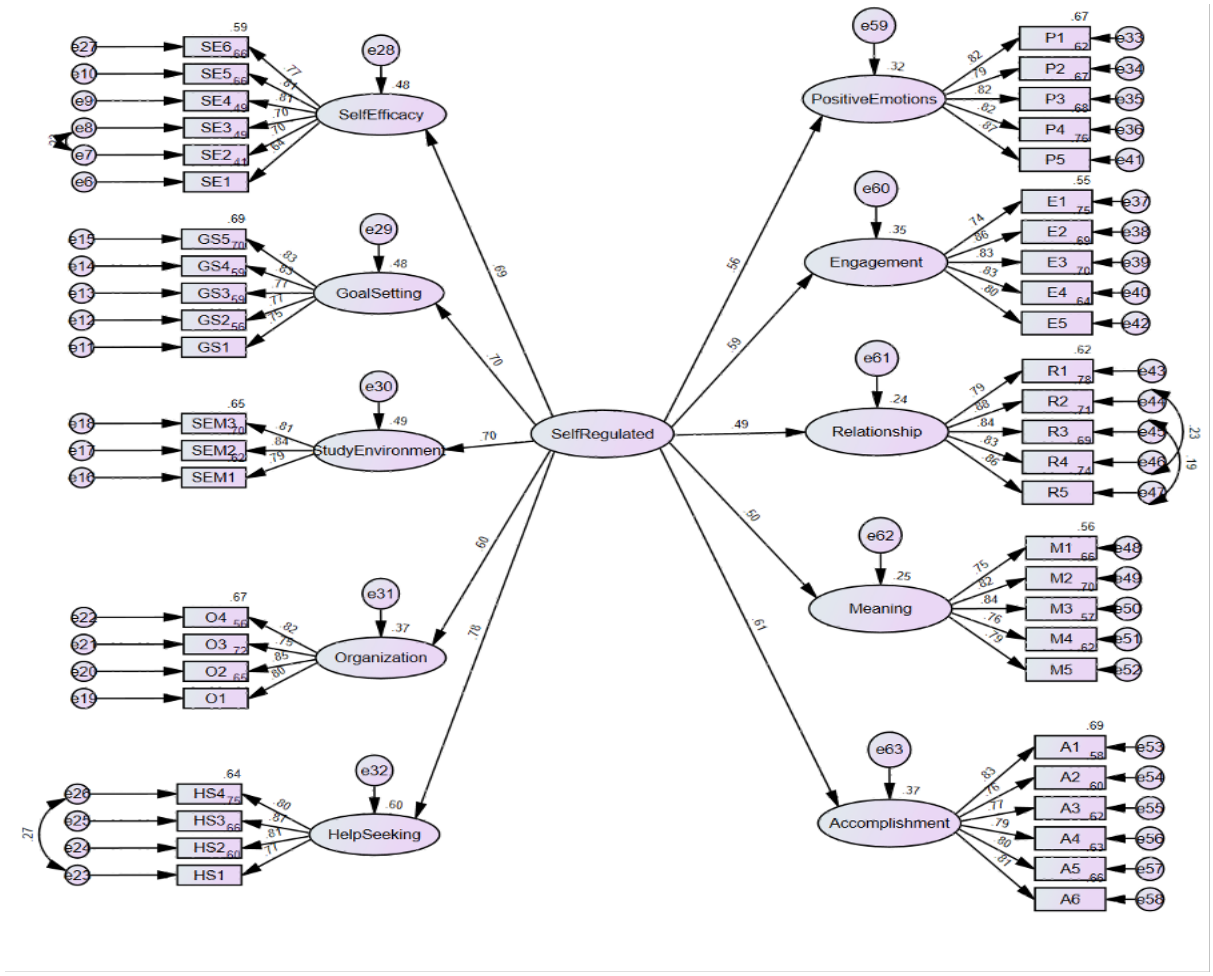


Figure 4. Structural Equation Model (SEM) Showing the Predictive Effects of SRLS on PERMA Well-being Dimensions

Path analysis revealed that SRLS significantly and positively predicted all five dimensions of PERMA well-being: Positive Emotion (β = .441, $p < .001$), Engagement (β = .541, $p < .001$), Relationships (β = .439, $p < .001$), Meaning (β = .462, $p < .001$), and Accomplishment (β = .566, $p < .001$), confirming the hypothesized positive influence of SRLS on PERMA well-being in the context of English MOOCs.

Table 3. *Summary of hypothesis testing results for SRLS → PERMA well-being dimensions*

Path	β (Standardized)	*p*-value	Hypothesis	Supported?
SRLS → Positive Emotion	0.441	< .001	H1	Yes
SRLS → Engagement	0.541	< .001	H2	Yes
SRLS → Relationships	0.439	< .001	H3	Yes
SRLS → Meaning	0.462	< .001	H4	Yes
SRLS → Accomplishment	0.566	< .001	H5	Yes

These results provide empirical support for Research Question 3, demonstrating that SRLS exert significant positive effects on Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. All five proposed hypotheses were statistically confirmed.

Discussion

Overall levels of SRLS use and PERMA well-being

This study found that Chinese university students reported a moderate level of SRLS use in MOOC-based English courses. The result is consistent with prior findings in traditional classrooms (Shen et al., 2023). However, differences were found in the use of specific strategies. They found that persistence and self-evaluation were the most frequently used strategies. In contrast, the current study identified that study environment management was used most commonly, followed by help-seeking and goal setting. This pattern aligns with findings from Dinh and Phuong (2024) in MOOC contexts. This difference may be attributed to the autonomous nature of MOOCs, which require learners to manage their study environments and rely more on digital interaction. The high use of environment management reflects efforts to stay focused in flexible but unstructured settings. And help-seeking is common because online tools like forums and peer support replace real-time teacher feedback. (Dai, Lin, & Liu, 2024).

Participants also reported a moderately high level of overall PERMA well-being. Accomplishment and engagement emerged as the most prominent dimensions. The results imply that learners were deeply immersed in their studies and felt a genuine sense of achievement. In contrast, positive emotion and relationships scored lower, suggesting limited emotional satisfaction and weaker interpersonal support, likely due to the solitary, asynchronous nature of MOOCs. This pattern aligns with previous research showing that online learners often maintain strong task focus but struggle with emotional fulfillment and social connectedness (Lan & Saad, 2024; Miranda et al., 2024). Challenges such as language anxiety and self-doubt (Wang & Zhang, 2021) may further reduce emotional well-being. Compared to findings from face-to-face settings, Li (2024) found that learners reported higher levels of emotional and relational well-being in face-to-face settings. In contrast, the current results emphasize the role of learning modality and learner context. The reduced real-time interaction and sense of community in MOOCs may explain the relatively lower levels of emotional and social well-being observed in this study.

Differences across genders and grade levels

This study found no significant gender or grade-level differences in SRLS or PERMA well-being among Chinese university students in MOOC-based English learning. These findings align with recent research suggesting that gender effects on SRL are generally minimal in online environments (Shen & Bai, 2024; Sun & Wang, 2020). Although earlier classroom-based studies noted that female students often used more planning and time management strategies (Bai, Shen, & Mei, 2020), such differences appear less evident in digital contexts.

Similarly, there is no significant gender differences were observed in emotional well-being, supporting prior findings that male and female Chinese EFL learners report comparable levels of academic emotions, such as enjoyment and anxiety (Jiang & Dewaele, 2019; Li, 2022). This study contrasts with international studies, which often report more substantial emotional variation among females (Dewaele & MacIntyre, 2014). The discrepancy may reflect cultural influences: in collectivist systems like China's, standardized expectations and the depersonalized nature of MOOCs may suppress gender-based emotional differences. Korlat et al. (2021) found higher engagement among Austrian female students in more socially differentiated learning systems.

Likewise, no grade-level differences were found in SRLS or well-being, which is consistent with studies showing that Chinese undergraduates across academic years engage with similar curricula and assessments (Shen et al., 2023; Ying et al., 2023). Emotional development

may vary with age, but such differences may be muted within the relatively narrow span of university education.

In sum, gender and academic year appear to exert limited influence on SRLS and PERMA well-being in MOOC settings. Future research could explore how learner traits such as motivation, digital competence, or self-efficacy interact with demographic variables in shaping learning and well-being outcomes.

Relationships between SRLS and PERMA well-being

The findings indicate that higher levels of SRLS are significantly associated with better outcomes across all five PERMA dimensions. This is consistent with social cognitive theory, which highlights the role of self-regulation in fostering persistence, positive emotion, and a sense of accomplishment (Bandura, 1991). Among the five dimensions, Accomplishment indicated the strongest association with SRLS. This may be attributed to the strong emphasis on test performance and achievement-focused attitudes commonly observed among Chinese EFL learners. In self-paced MOOC environments, students who regulate their goals, time, and progress may experience a stronger sense of competence and success. Engagement was also strongly predicted by SRLS, underscoring the role of self-regulation in sustaining psychological immersion and focus, even in large-scale, low-interaction settings. This supports prior research highlighting the motivational function of SRL in online contexts (Shen & Teng, 2025; Tang, 2024). Meaning and Positive Emotion were positively linked to SRLS as well. Learners who plan intentionally and reflect on their goals are more likely to find personal relevance in their tasks and manage stress effectively, consistent with Fredrickson's broaden-and-build theory (2001). While the relationship factor was still statistically relevant, it showed the weakest link among all variables. This may be due to the asynchronous and socially restricted nature of MOOCs. In such environments, SRLS often struggle to promote meaningful peer interaction unless collaborative elements are deliberately built in.

Previous research has mainly addressed the cognitive and behavioral aspects of SRLS, whereas this study highlights its emotional and psychological significance. Overall, SRLS serve dual functions in the context of MOOCs: supporting goal-directed engagement and promoting emotional resilience. Future research may further explore how specific SRLS components influence each PERMA dimension and how socially enriched course designs can enhance learners' relational well-being.

Overall, these findings highlight the role of SRLS as a significant predictor of learner well-being across various dimensions in English-language MOOCs. These findings provide empirical support for the study's hypotheses. Specifically, all five proposed hypotheses were confirmed that SRLS significantly and positively predicted positive emotion, engagement, relationships, meaning, and accomplishment. This reinforces the theoretical assumption that SRLS are not only cognitive and behavioral enablers, but also important predictors of learners' emotional and psychological well-being in online language learning environments.

Implications And Directions for Future Research

This study advances our understanding of how SRLS influence the well-being of Chinese EFL learners within MOOC-based English learning environments, using the PERMA model as a theoretical lens. Theoretically, the research bridges self-regulated learning and positive psychology by demonstrating how cognitive and motivational strategies contribute to

psychological well-being in digital language education. It extends the PERMA framework to autonomous online contexts and highlights SRLS as a key mechanism for sustaining learner flourishing beyond academic performance. Practically, the findings underscore the need to design MOOC environments that structurally support SRLS at multiple levels. This involves more than offering isolated strategy prompts. Instead, platforms should embed SRLS-enhancing features directly into the course structure, including goal-setting interfaces, real-time reflection checkpoints, progress dashboards, and feedback systems responsive to learners' emotional needs. These design features should function synergistically to foster learner autonomy, emotional engagement, and task persistence. Moreover, developers and instructors should consider balancing cognitive demands with social and affective supports. While MOOCs often emphasize content delivery, greater attention is needed to support learners' emotional and motivational regulation, especially in the absence of real-time teacher and peer interaction. This could be achieved by aligning SRLS features with personalized learning paths, adaptive challenges, and scaffolded peer interaction modules.

Future research should consider longitudinal or experimental designs to explore the dynamic relationship between SRLS and well-being. Integrating multimodal data such as system logs and screen activity could also offer insights beyond self-reported measures (Ifenthaler & Yau, 2020). Further studies may examine potential mediators such as self-efficacy and emotional regulation, and moderators such as digital literacy and instructional style that influence the SRLS–PERMA relationship. Cross-cultural investigations could clarify contextual influences. Lastly, intervention studies evaluating SRLS training programs in MOOC settings may help enhance both learner well-being and academic persistence, offering practical implications for online course design and learner support.

Conclusion

This study examined how SRLS predict PERMA well-being among Chinese EFL learners in MOOC-based English courses. Results showed moderate SRLS use and moderately high well-being, with the highest scores in study environment management and Accomplishment. The analysis revealed no significant differences across gender or academic year. Structural equation modeling confirmed that SRLS significantly predicted all five PERMA dimensions, with the strongest effects on Accomplishment and Engagement. The results suggest that SRLS are crucial for learners' psychological well-being. They also highlight the need to combine cognitive and emotional support in English MOOCs. Designing platforms that cultivate SRLS while addressing learners' well-being can help promote more engaged, resilient, and successful EFL learners in digital contexts.

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About the Authors:
Danyang Yue is a PhD candidate in the Department of Language and Literacy Education, Faculty of Education, University of Malaya. Her research focuses on self-regulated learning strategies and positive psychology in English as a Second Language contexts, particularly in relation to students' English achievement in online learning platforms. ORCID: https://orcid.org/0009-0005-4406-2849

Mohd Rashid Bin Mohd Saad (PhD) is a Senior Lecturer in the Department of Language and Literacy Education, Faculty of Education, University of Malaya. He has over 25 years of teaching experience in higher education. His research focuses on TESL issues, trends, and emerging technologies for non-native EFL teachers. ORCID: https://orcid.org/0000-0002-1050-294X

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