

Article

Exploring the Studies of Self-Regulated Learning in Second/Foreign Language Learning: A Systematic Review

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Abstract

Self-regulated learning (SRL) has garnered significant attention in second/foreign language (L2) research, expanding from the study of learning strategies to diverse contexts. However, since Rose et al.'s review (2018), few studies have thoroughly examined how SRL research has been carried out in L2, leaving the landscape of L2 SRL research somewhat nebulous. To address this gap, we conducted a systematic review to elucidate how L2 SRL studies have been conducted between 2017 and 2023. Our results revealed that while some studies were conducted in European and other contexts, the vast majority of studies were conducted in an Asian context, with a pronounced concentration in China and Hong Kong. There was a predominant focus on writing and quantitative research methods. Studies tended to use learning strategies, self-efficacy, and motivation as determinants of learners' SRL. The relationships between these variables varied depending on the learners' level of education, learning contexts, and target skills. Based on these findings, implications for future research were provided.

Keywords

Self-regulated learning, metacognitive dimension, behavioral dimension, affective dimension, social dimension

1 Introduction

Research on self-regulated learning (SRL) in second/foreign language (henceforth L2) learning emerged from the field of language learning strategies (LLSs). LLS refers to “specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations” (Oxford, 1990, p. 8). Over the past three decades, research on LLS has been the subject of considerable debate among researchers, including issues related to its definition, classification, and measurement (see Takeuchi, 2019 for a comprehensive review). These concerns highlight the need for refinement in LLS research, and many researchers have proposed various solutions to address these issues, such as using different approaches that were not used in previous LLS studies (e.g., approaching LLS use from a prototypical perspective; Gu, 2012) and incorporating alternative concepts of LLS, such as self-regulation (Dörnyei, 2005; Tseng et al., 2006).

The concept of self-regulation, originally rooted in educational psychology, has emerged as one of the most notable alternative ways to address the issues in previous LLS research. Self-regulation refers to learners’ ability to organize and manage their own learning, encompassing control over their metacognition, cognition, behavior, emotions, and environment (Dörnyei, 2005; Tseng et al., 2006). Although self-regulation and SRL are often considered interchangeable, they are distinct concepts. SRL is the learning process aimed at achieving learning goals (L. S. Teng & L. J. Zhang, 2022), whereas self-regulation is the driving force behind the skill to control learning and promote the end product in L2 learning (Dörnyei, 2005; Rose, 2012; Takeuchi, 2019). Thus, SRL is arguably a broader concept than self-regulation, and self-regulation can be considered as one of the variables related to the process of SRL (L. S. Teng & L. J. Zhang, 2022). In early research, Dörnyei and his colleagues developed a self-regulation scale in the context of vocabulary learning, known as the *Self-Regulating Capacity in Vocabulary Learning Scale* (SRCvoc). Dörnyei (2005) emphasizes that although SRCvoc does not directly measure strategy use, a learner’s underlying SRCvoc serves as a precursor to strategy use. In other words, SRCvoc serves as an initial driving force, and its magnitude can predict subsequent strategy use (Rose, 2012). However, the introduction of self-regulation into the field has not been without its critics (e.g., Gao, 2007; Gu, 2012; Ranalli, 2012). While acknowledging the shortcomings of previous LLS studies, LLS researchers have argued that self-regulation presents similar ambiguities (Gu, 2012) and that distinguishing self-regulation from related concepts, such as metacognitive knowledge, can be challenging (Gao, 2007). Others have suggested that LLS remains an important component of L2 research because learner-specific behaviors, such as strategy use, provide valuable insights into learner agency and its connection to L2 learning achievement (Ranalli, 2012).

On the other hand, several researchers have argued that due to the interconnectedness of both LLS and self-regulation in strategic learning (e.g., Gao, 2007; Rose, 2012), it is not ideal to consider one independently of the other (Takeuchi, 2019). Given the confusion in LLS research, Rose et al. (2018) conducted a systematic review of LLS studies between 2010 and 2016 to guide future directions in LLS research. Consequently, they proposed three avenues for future LLS research: (a) continuing traditional LLS studies; (b) incorporating the concept of self-regulation with a focus on strategic learning; and (c) integrating both LLS and self-regulation. Of these, Rose et al. underscored the importance of the third category. Using LLS and self-regulation as distinct yet intertwined concepts yields a wide range of valuable insights into strategic learning. This perspective, which emphasizes the integration of different dimensions of L2 learning, has gained wide acceptance in the field (Oxford, 2017). One reason could be because the use of LLS may not occur without the initial driving force of self-regulation, and the maintenance of LLS use may be difficult without motivation. As a result, there has been a surge of research that combines LLS use (i.e., the behavioral aspect), self-regulation (i.e., the metacognitive aspect), motivation (i.e., the affective aspect), and support from others (i.e., the social aspect) (e.g., McEown & Sugita-McEown, 2018; L. S. Teng & L. J. Zhang, 2017; Ueno & Takeuchi, 2022). These studies are also referred to as SRL research (Takeuchi, 2010).

Although the systematic review by Rose et al. (2018) targeted SRL research in LLS, SRL research has ever since expanded to more diverse contexts of L2 learning and teaching (e.g., Bai & J. Wang, 2023; Guo et al., 2023). However, no studies have examined how SRL research has been conducted in L2 since Rose et al.'s systematic review. Therefore, it would be beneficial to conduct a further review, as more studies on SRL may have been conducted since Rose et al.'s (2018) review, not only within the field of LLS, but also in different areas of L2 research. The new comprehensive review would help to identify new aspects and recent trends in SRL studies within the broader field of L2 research. These new findings can add further important insights to the existing findings of Rose et al. (2018). Moreover, recent comprehensive reviews such as L. S. Teng and L. J. Zhang (2022) claim that the results of SRL studies have not been sufficiently applied to L2 research. However, this statement must be interpreted with caution, as this aspect has not been well investigated in this article.

Given the rapid growth and expansion of L2 SRL research since Rose et al. (2018) (e.g., Bai & Guo, 2021; Guo et al., 2023; McEown & Sugita-McEown, 2018) and the controversial claims made in some studies (e.g., L. S. Teng & L. J. Zhang, 2022) about the application of SRL studies to the field of L2 research, we need a new systematic review to further deepen our understanding of SRL in L2 research. Therefore, the purpose of our study was to investigate how L2 SRL research has been conducted since Rose et al.'s systematic review and whether the claims made in recent systematic reviews are true. Our systematic review, unlike Rose et al., included not only SRL studies in LLS, but also broader areas of SRL studies in L2 learning and teaching.

2 Literature Review

2.1 Self-regulated learning

SRL refers to “the ways that learners systematically activate and sustain their cognitions, motivations, behaviors, and affects toward the attainment of their goals” (Schunk & Greene, 2017, p. 1). Note that we consider self-regulation and SRL separately, but Schunk and Greene (2017) do not consider them separately and treat them almost synonymously. SRL is generally viewed as an active and constructive process in which learners set their own goals and actively monitor, regulate, and control their cognitions, motivations, and behaviors (D. Zhang & L. J. Zhang, 2019). In the context of L2 learning and teaching, Takeuchi (2010) asserts that the interplay of metacognitive, behavioral, affective, and social dimensions is necessary to facilitate superior SRL. This perspective aligns with the recommendations of LLS researchers who suggest that incorporating various variables, including self-regulation in the metacognitive dimension and LLS in the behavioral dimension, can lead to more noteworthy findings on strategic learning (e.g., Oxford, 2017; Rose, 2012; Rose et al., 2018). Therefore, our systematic review focused on previous studies that used the SRL framework to investigate the interplay of multiple dimensions (i.e., metacognitive, behavioral, affective, and social dimensions) of L2 learning and teaching.

2.1.1 Metacognitive dimension

The metacognitive dimension is widely recognized as one of the most crucial components for successful SRL due to its integral role in the entire SRL process (Takeuchi, 2010). According to D. Zhang and L. J. Zhang (2019), metacognition refers to “learners’ knowledge about the cognitive processes that involve them in decision-making before, during, or after performing a learning task” (p. 3). In SRL studies of L2 learning and teaching, three primary variables related to metacognition have been commonly used, including metacognitive knowledge, metacognitive strategy, and self-regulation or SRL strategy (e.g., Bai & Guo, 2021; M. F. Teng, 2019; Ueno & Takeuchi, 2022). Metacognitive knowledge encompasses

“information learners acquire about their learning” while metacognitive strategy refers to “general skills through which learners manage, direct, regulate, and guide their learning” (Wenden, 1998, p. 519). Both components are crucial for establishing achievable goals in SRL and for monitoring and evaluating the entire SRL process (Takeuchi, 2010). Self-regulation and SRL strategies are another vital component of managing one’s own learning. This involves controlling learning behaviors, emotions, the learning environment, and even the learning goals to be achieved (e.g., L. S. Teng & L. J. Zhang, 2016; Tseng et al., 2006; Zheng et al., 2016).

2.1.2 Behavioral dimension

The behavioral dimension is associated with learners’ actual behavior, specifically the use of LLS, which is directly related to L2 learning. Although various classifications of LLS have been proposed by some researchers (e.g., O’Malley & Chamot, 1990; Oxford, 1990), Oxford’s (1990) classification of LLS has been widely used in previous studies (e.g., Lin et al., 2022; Saito, 2020; Yabukoshi, 2018). According to Oxford, LLS can be divided into two types: direct and indirect strategies. Direct strategies are closely tied to language learning processes, facilitating language or information processing and aiding in the retrieval or memorization of language information (cognitive/memory strategies), as well as guessing unknown words or content from context or using clues from prior knowledge (compensation strategies) (Oxford, 1990). In contrast, indirect strategies support language learning, including enhancing affective elements to sustain learning (affective strategies), seeking help from others for learning (social strategies), and planning, managing, and evaluating the learning process (metacognitive strategies) (Oxford, 1990). While metacognitive strategies could be considered in both the metacognitive and behavioral dimensions of SRL, our research placed them within the metacognitive dimension. This decision was based on Wenden’s (1998) definition of metacognitive construction and the assumption that implementing metacognitive strategies requires advanced levels of metacognitive skills.

2.1.3 Affective dimension

The affective dimension encompasses learners’ motivation and emotions, which are crucial for sustaining L2 learning. A central variable within this dimension is self-efficacy (e.g., Bai et al., 2019; T. Sun & C. Wang, 2020), defined as “beliefs in one’s capabilities to organize and execute the course of action required to manage prospective situations” (Bandura, 1995, p. 2). Previous studies focused on self-efficacy and self-regulation. M. F. Teng (2024) explores how self-efficacy mediates the relationship between social support and foreign language online learning anxiety. Social support boosts self-efficacy, which in turn enhances self-regulation and reduces anxiety, enabling learners to engage more effectively with the language while managing their emotions. M. F. Teng (2025) further emphasizes the reciprocal relationship between self-efficacy and self-regulation in online English learning. Self-efficacy influences self-regulation, while effective self-regulation reinforces self-efficacy, creating a dynamic cycle that shapes learning experiences and outcomes. Another common variable used in previous studies is Deci and Ryan’s intrinsic and extrinsic motivation (Deci & Ryan, 1985). Intrinsic motivation is driven by interest and internal satisfaction, while extrinsic motivation involves actions for external rewards, social approval, avoidance of punishment, or the attainment of a valued outcome (Deci & Ryan, 2000; Ryan & Deci, 2017). The theory emphasizes that a more self-determined level of motivation (i.e., intrinsic motivation) is crucial for fostering L2 learning (e.g., Choi et al., 2018; Tanaka, 2023). The L2 motivational self-system has also been used in existing SRL studies (e.g., Xu & Y. Wang, 2022; Zheng et al., 2018). The self-system consists of three dimensions: the ideal L2 self, the ought-to L2 self, and the L2 learning experience (Dörnyei, 2005; Dörnyei & Ryan, 2015), of which the former two motivational components have been widely used (e.g., Xu & Y. Wang, 2022; Zheng et al., 2018). The ideal L2 self represents the desirable self-image that L2 learners strive to achieve while the ought-

to L2 self reflects the self-image that learners believe they should possess in order to meet external expectations or avoid negative outcomes during L2 learning (Zheng et al., 2018). Recent SRL studies have also introduced affective variables, including negative emotions (e.g., anxiety) alongside positive emotions (e.g., enjoyment) (e.g., Abbott & K. K. Lee, 2023; Zhao et al., 2023). Additionally, the concept of growth mindset has gained traction in recent studies (e.g., Bai & J. Wang, 2023; Guo et al., 2023; M. F. Teng et al., 2024), referring to beliefs that abilities and intelligence can be developed through dedication, effort, and learning. An enhanced growth mindset is thought to be associated with greater adaptability, persistence in the face of adversity, and the use of multiple learning strategies to improve performance (see Guo et al., 2023 for a comprehensive review).

2.1.4 Social dimension

The social dimension encompasses two primary facets. One key aspect is the provision of support from capable others, including teachers, friends, and parents, to cultivate SRL skills in L2 learning (e.g., Bai et al., 2019; McEown & Sugita-McEown, 2018; Mežek et al., 2022). This aspect aligns with Vygotsky's (1978) sociocultural theory, which emphasizes the importance of balancing the zone of proximal development (ZPD) with scaffolding. The ZPD is defined as "the distance between the actual developmental level, determined by independent problem-solving, and the level of potential development, determined through problem-solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). Vygotsky's theory posits that the ZPD represents the most likely zone for learning, facilitated by scaffolding or support from adults or more capable peers. This concept has been applied in SRL studies to explore how scaffolding or support from others stimulates and enhances SRL skills in L2 learners (e.g., Bai et al., 2019; McEown & Sugita-McEown, 2018; M. F. Teng, 2021). Another aspect that has been addressed in prior SRL studies concerns the sociocultural contexts in which SRL studies have been conducted (e.g., Bai & J. Wang, 2021; Hu & Gao, 2018). This focus is rooted in the differences in motivations, beliefs, and LLS use that are influenced by cultural values, social norms, learning environments, and educational systems (e.g., Bai & J. Wang, 2021; Takeuchi et al., 2007).

3 The Current Study

Following the framework and multidimensional aspects of SRL outlined in the aforementioned literature review section, our research conducted a systematic review to synthesize previous SRL studies in L2 learning and teaching. Our study differed from previous review articles (e.g., L. S. Teng & L. J. Zhang, 2022; Thomas & Rose, 2018; D. Zhang & L. J. Zhang, 2019) in three crucial ways. First, given the rapid growth of SRL research in L2, our systematic review, unlike previous reviews of SRL research in LLS (e.g., Ardasheva et al., 2017; Rose et al., 2018), included a wide range of SRL studies in L2 learning and teaching. Second, we collected a comprehensive set of research articles from various databases and journals, thereby avoiding biases associated with a narrow focus on widely accepted articles in the field. Third, we quantified as many variables and results as possible from existing studies to objectively evaluate the trend and commonality of previous SRL studies in L2.

With these considerations in mind, we formulated three research questions (RQs):

RQ1: Has there been sufficient progress (i.e., a dramatic increase in research) in SRL studies since Rose et al.'s (2018) systematic review?

RQ2: Have SRL studies exerted a profound influence on the field of L2 research since Rose et al.'s (2018) systematic review?

4 Methods

4.1 Literature search

In alignment with our research focus on examining the progression of SRL studies after Rose et al.'s (2018) systematic review, which covered studies conducted between 2010 and 2016, our study conducted literature searches for articles (including journal articles, book chapters, conference proceedings, and MA/Ph.D. dissertations) regarding SRL in L2 published between 2017 and the first half of 2023. All the articles used in our research were collected from May to August 2023. To ensure comprehensive coverage, we used various databases based on previous systematic reviews relevant to SRL in L2 learning (e.g., Ardasheva et al., 2017; Rose et al., 2018), including the Educational Resources Information Center, Linguistics and Language Behavior Abstracts, ProQuest Research Dissertations and Theses, and PsycINFO. In accordance with In'nami and Koizumi (2010), our study also used mainstream applied linguistics journals, especially those related to SLA and L2 learning and teaching, to collect more articles, including *Applied Linguistics*, *ELT Journal*, *Foreign Language Annals*, *Language Learning*, *Language Teaching Research*, *RELC Journal*, *Studies in Second Language Acquisition*, *System*, *TESOL Quarterly*, and *The Modern Language Journal*. We further used journals whose scope might include research related to SRL in L2, such as *Computer Assisted Language Learning*, *Innovation in Language Learning and Teaching*, *ReCALL*, *Studies in Self-Access Learning Journal*, *Studies in Second Language Learning and Teaching*, *The Journal of Asia TEFL*, and *Journal of Second Language Writing*. We searched for research articles using various combinations of the following keywords: *self-regulation*, *self-regulated learning*, *language learning strategy/strategies*, *second/foreign language*, and *language learning/teaching*. Consequently, we identified a total of 490 studies for the screening process. This number represents the final count of studies considered for inclusion in the subsequent screening process. While this number may seem small compared to other systematic review articles in the L2 field (e.g., Al-Hoorie et al., 2022; Hiver et al., 2021), it can be attributed to our specific focus on the years 2017-2023 and the relative novelty of SRL research in the field.

4.2 Inclusion and exclusion criteria

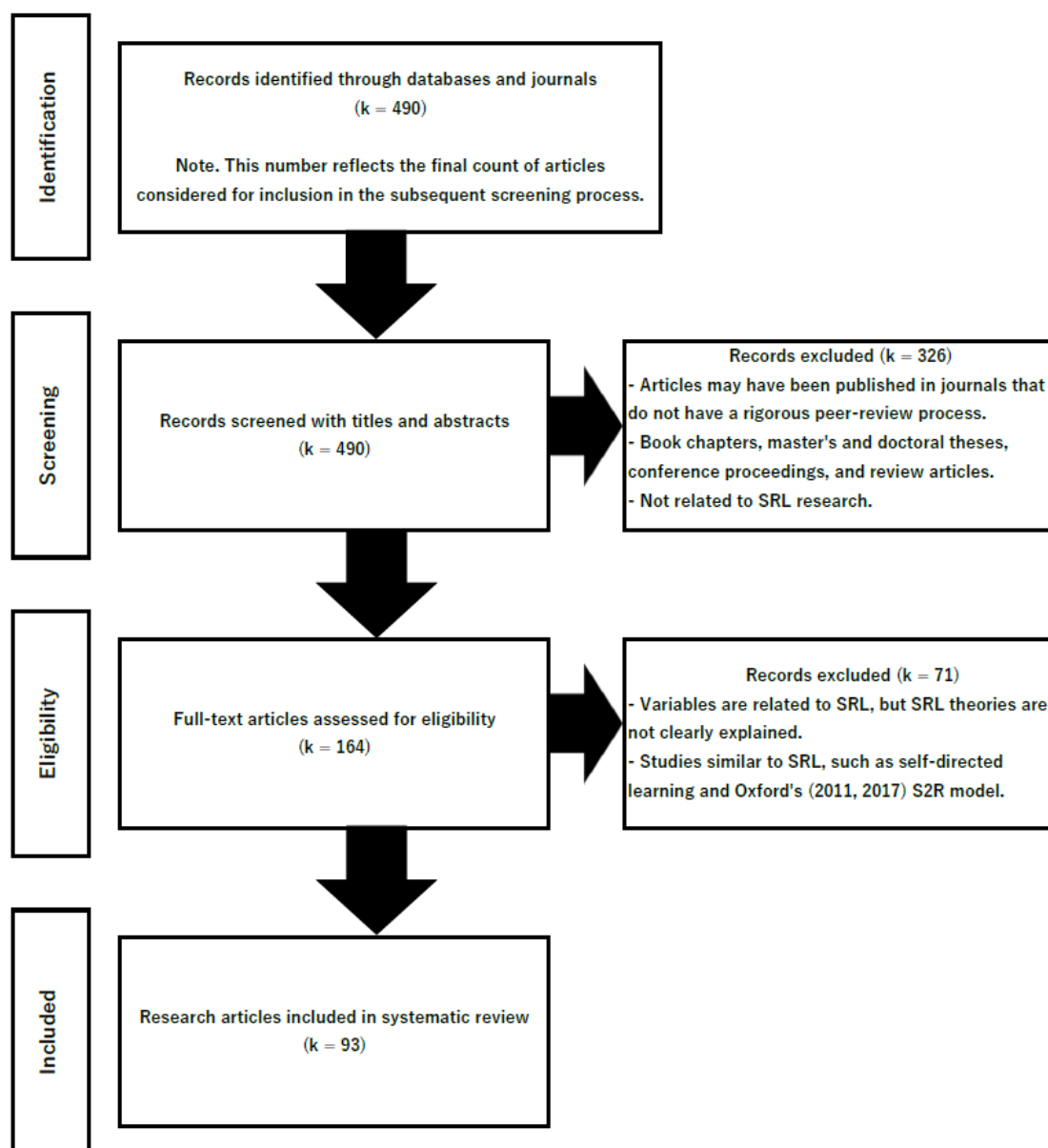
Our research employed the following seven criteria to determine which studies to include in our systematic review.

1. Only research articles published in journals with a rigorous peer review process were included, based on our previous experience with meta-analytic research, where articles lacking a proper review process tended to lack detailed information, such as learner characteristics and the learning environment (Ueno & Takeuchi, 2023a, 2023b).
2. Book chapters were excluded because some of them may lack a rigorous review process.
3. Master's or doctoral theses were excluded because most of them were unpublished and could not be used for this study.
4. Only articles written in English were included so that a wide range of readers could assess the research articles we used in our systematic review.
5. Research articles reporting empirical research results were included while review articles, such as narrative review, systematic review, and meta-analysis were excluded.
6. Studies that clearly defined SRL and used the multiple dimensions of L2 learning (i.e., metacognitive, behavioral, affective, and social dimensions) were included.¹
7. Studies similar to SRL, such as self-directed learning and Oxford's S²R model, were excluded in order to provide a more focused review of SRL in L2.

Following the specified criteria, we identified research articles and created a PRISMA flowchart (Figure 1) to ensure transparency in the screening process, based on Moher et al. (2009).² In the identification phase, an extensive search for research articles on SRL in L2 yielded a total of 490 studies. During the first screening process, 326 articles were excluded because they were not directly related to SRL in L2 or, if related, they were review articles (e.g., Rose et al., 2018; Thomas & Rose, 2018), research proceedings, and master's or doctoral theses. In addition, we excluded articles that may not have undergone a rigorous review process at this stage. During the second screening process, 164 articles were reviewed, resulting in the exclusion of 58 articles. Although these articles focused on variables associated with SRL, such as self-efficacy and intrinsic motivation, SRL theories were not explicitly explained in the articles (e.g., Bai et al., 2019; Sugita-McEown & McEown, 2019). Of the remaining 106 research articles, 13 articles were further removed because they used a framework similar to SRL, such as Oxford's (2011, 2017) S²R model (e.g., Sasaki et al., 2018; P. P. Sun, 2022), but did not strictly adhere to the original SRL principles advocated by some researchers (e.g., Schunk & Greene, 2017; Takeuchi, 2010). Thus, in the second screening phase, 71 articles were removed, leaving 93 articles for our systematic review.

Figure 1

PRISMA Flowchart Used to Collect Articles for Systematic Review



4.3 Study coding

We coded 93 studies into five categories as follows: (a) publication information (i.e., publication year, journal name); (b) participant information (i.e., number of participants, age, gender, region/country, first language, second/foreign language, learning environment, educational level, proficiency, learning experience); (c) research design (i.e., target skills, variables in each dimension of SRL); (d) data and analysis (i.e., data type, data collection, data analysis); and (e) research results/findings.

Regarding participants' proficiency, our research classified them into three proficiency types (i.e., lower, intermediate, higher), based primarily on the Common European Framework of Reference for Languages (CEFR) (Cambridge University Press & Assessment, 2024), which explains language proficiency from pre-A1 to C2. In our research, pre-A1-A2 was categorized as the lower level, B1-B2 as the intermediate level, and C1-C2 as the higher level. Some studies used test scores that were not aligned with the CEFR benchmark. In such cases, we compared participants' proficiency in these studies to any available benchmarks. Additionally, some studies reported only the proficiency of learners without providing specific proficiency test scores. While acknowledging the limitation of not precisely assessing proficiency according to the CEFR standard, we categorized participants in these studies based on the authors' descriptions in the articles in order to encompass and evaluate a wide range of SRL studies in L2.

To ensure data reliability, the first author entered coding data into a spreadsheet. After one week, the same author repeated the process on a different spreadsheet. The number of matches and mismatches between the coding data were then tallied, resulting in a 96% match rate. The final version of the spreadsheet was further scrutinized by the remaining two authors. Given the need for detailed scrutiny and discussion of the variables used in each dimension of SRL, we engaged in deliberation until consensus was reached.³

4.4 Data analysis

All data were analyzed using Microsoft Excel 2016. In the systematic review process, we counted the number of empirical studies based on each categorical variable. This approach allowed us to assess the prevailing areas of focus, such as the target L2 and its specific skill, the learning context, and the educational characteristics or proficiency of the learners. Concurrently, we sought to identify the trends in SRL research in the field of L2 learning and teaching, including the frameworks and variables most commonly used across the metacognitive, behavioral, affective, and social dimensions of SRL.

In terms of research findings/results, we found a predominant focus on quantitative research ($k = 55$) or mixed research ($k = 31$) compared to qualitative research ($k = 7$) (see Appendix B for all figures summarizing each categorical data). Among these quantitative studies, many use various statistical analyses to examine the relationships between SRL and L2 learning and acquisition, such as correlation analysis ($k = 41$), factor analysis ($k = 26$), path analysis ($k = 3$), regression analysis ($k = 14$), and structural equation modeling (SEM) ($k = 26$). Given these research trends, the focus of our systematic review was primarily on quantitative findings and results, especially those involving correlation coefficients (r) and standardized coefficients (β).

5 Results and Discussion

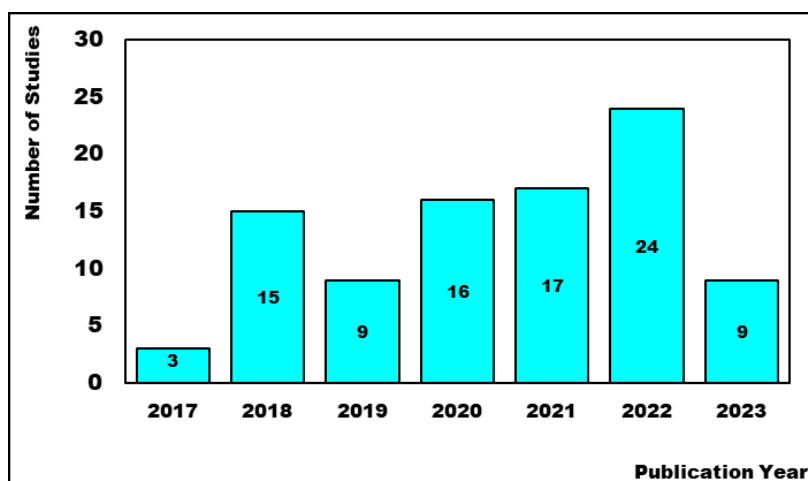
5.1 Number of self-regulated learning studies since Rose et al.'s (2018) systematic review

Our research identified a total of 93 empirical studies published in various journals that underwent a rigorous review process between 2017 and the first half of 2023. This number is particularly noteworthy as our study focused exclusively on studies that used the SRL framework and were published only in reputable journals. It is important to note that a broader inclusion of diverse frameworks relevant to SRL, such as Oxford's (2011, 2017) S²R model, review articles (e.g., Thomas & Rose, 2018), as well as book

chapters (e.g., Takeuchi, 2019; D. Zhang & L. J. Zhang, 2019) and master's or doctoral theses, could yield even more studies. Consequently, contrary to the assertions of previous comprehensive reviews (e.g., L. S. Teng & L. J. Zhang, 2022), our finding suggests that SRL research is widely recognized and actively conducted in the context of L2 learning and teaching. Moreover, our findings indicate that, with the exception of 2017, empirical SRL studies in L2 learning and teaching have been abundant (see Figure 2). The low number of studies in 2017 (and possibly earlier) likely reflects limited interest in L2 SRL research prior to 2017. Following Rose et al.'s (2018) review, there was a marked increase in studies, suggesting sustained interest in SRL, though the influence of their advocacy remains unclear. The lower number of studies in 2023 is likely due to the inclusion of only those published in the first half of the year. Therefore, it is reasonable to expect an increase in studies once data from the second half of the year are included. These findings highlight a significant growth in SRL research since Rose et al.'s (2018) review.

Figure 2

Number of Empirical Studies by Publication Year



5.2 Insights from self-regulated learning studies in second/foreign language learning and teaching

To further scrutinize the trends in SRL studies in L2 and gain insights for L2 learning and teaching, we focused on four key aspects: (a) learning environment (i.e., target L2, learning context, region, country); (b) research participants (i.e., educational level, proficiency); (c) research design and variables (i.e., target skills, variables used in each dimension of SRL); and (d) research findings and results, as sufficient data were collected from the 93 studies we targeted.

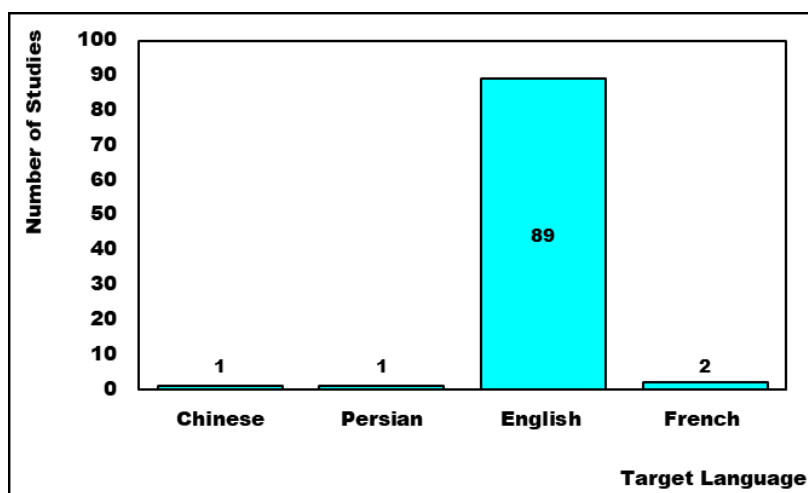
5.2.1 Learning environment

Target second/foreign language

Figure 3 shows the distribution of the targeted L2 type in our data. Our finding indicates that almost all studies focused on English as the L2 ($k = 89$). This prevalence may be due to the widespread acceptance of English as a lingua franca (Jenkins & Leung, 2013) and an international language (Selvi et al., 2023), with many countries adopting English as their designated L2. Another plausible reason may be related to the scope of our target research articles. Since our study focused specifically on research articles written in English, this focus may contribute to the substantial differences in the number of studies between English and other languages. Nevertheless, even with such considerations, the number of SRL studies in L2, excluding English as an L2, remains notably lower. In this regard, exploring languages other than English as an L2 may yield diverse findings.

Figure 3

Number of Empirical Studies by Target Language.

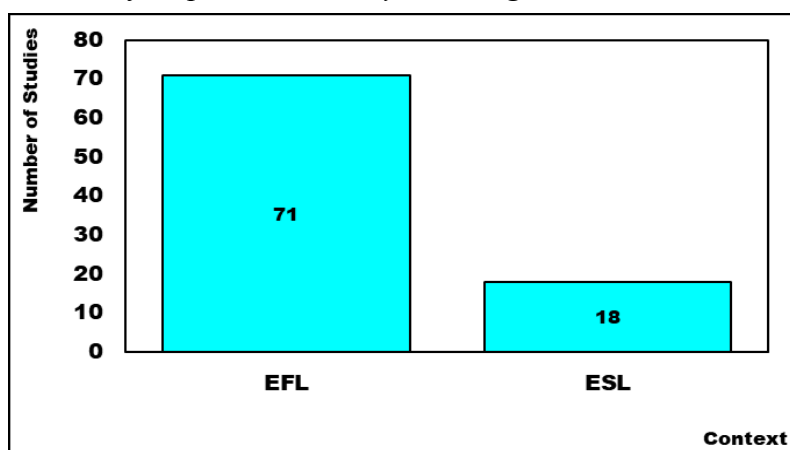


Learning context

Of the 89 studies that targeted English as an L2, we further determined whether these studies were conducted in an English as a foreign language (EFL) or an English as a second language (ESL) context. Our result reveals that the majority of studies were conducted in the EFL context ($k = 71$), while a limited number of studies were conducted in the ESL context ($k = 18$) (see Figure 4). This finding may not be surprising since EFL learners, who generally have limited opportunities to use English in their daily lives, may require more SRL skills to master English compared to ESL learners. Thus, researchers and practitioners working in the EFL context may perceive a greater need for SRL studies compared to those working in the ESL context.

Figure 4

Number of Empirical Studies by Learning Context



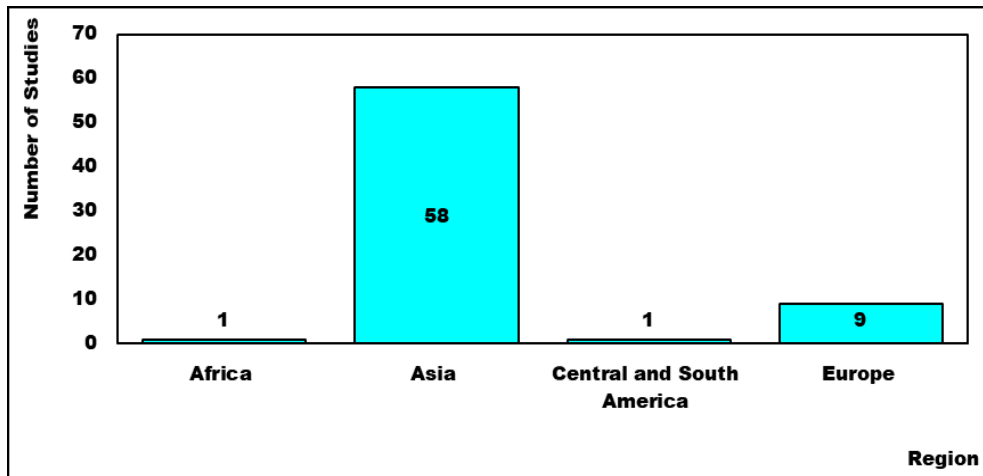
Region and nationality

Examining 71 studies conducted in the EFL context (see Figure 5), the majority of research took place in Asia ($k = 58$), followed by Europe ($k = 9$), and Africa and Central and South America ($k = 1$ each). SRL studies were conducted across a wide range of EFL countries. Most studies were concentrated in China ($k = 31$), followed by Iran ($k = 9$), Turkey ($k = 7$), and Japan ($k = 7$). These results suggest that Asia exhibits the highest number of SRL studies conducted, and among them, China dominates the majority. Thus, it would be beneficial to expand research beyond China to include other Asian nations as well as regions

outside of Asia. This expansion is particularly important given that learners' SRL skills, especially in terms of behavioral dimension (e.g., strategy use) and affective dimension (e.g., motivation), may vary according to the learning context or environment (e.g., [Bai & J. Wang, 2021](#); [Takeuchi et al., 2007](#)).

Figure 5

Number of Empirical Studies by Region



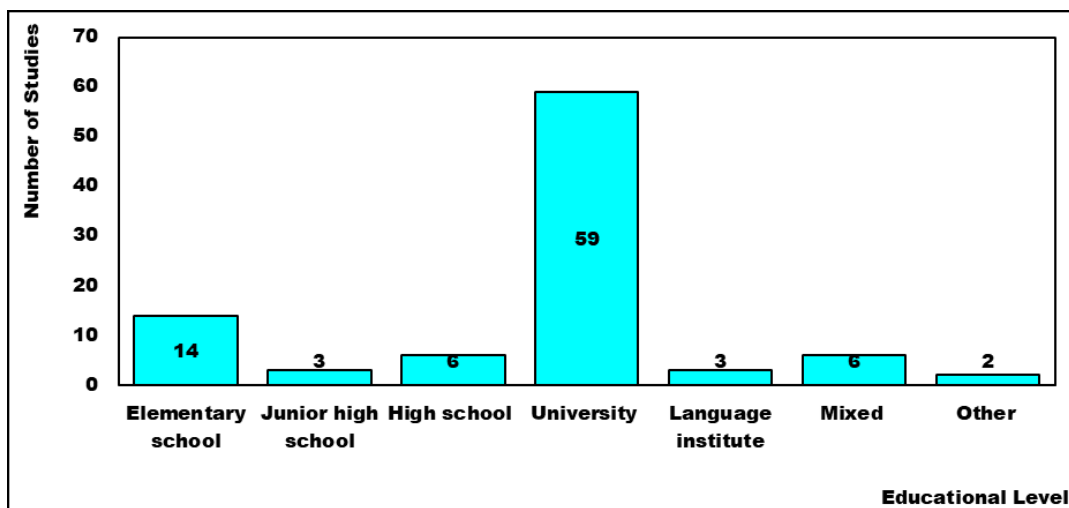
5.2.2 Research participants

Educational level

Figure 6 shows that the majority of studies targeted students at the university level ($k = 59$), followed by elementary school ($k = 14$), high school ($k = 6$), and language institutes and junior high school (each with $k = 3$). The notable concentration of SRL studies on university students may be attributed to researchers focusing on their own students or to the convenience of the sampling method for data availability, where it is relatively easy for researchers to obtain reliable data from their students in the classroom. The presence of fourteen studies conducted in elementary schools is an unexpected number; however, as almost all of these studies were conducted in Hong Kong (e.g., [Bai & Guo, 2021](#); [Bai & J. Wang, 2023](#); [Guo et al., 2023](#)), more studies in diverse contexts beyond Hong Kong are crucial for future research. Similarly, limited attention has been paid to secondary school contexts, such as junior high school and high school. Therefore, it would be beneficial to conduct more studies targeting these educational contexts to examine whether similar findings to those observed in university settings can be obtained.

Figure 6

Number of Empirical Studies by Educational Level

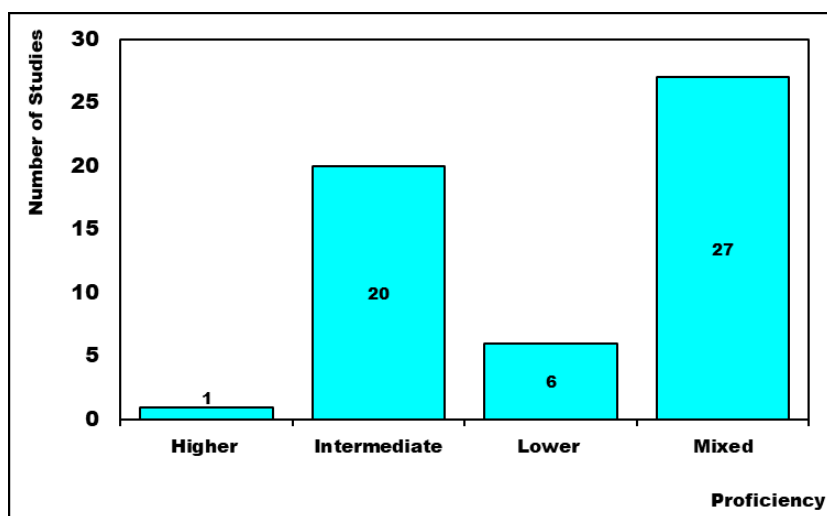


Proficiency

Regarding participants' proficiency (see Figure 7), the majority of studies targeted mixed proficiency learners ($k = 27$), followed by intermediate ($k = 20$), lower ($k = 6$), and higher proficiency learners ($k = 1$). The prevalence of studies focusing on mixed proficiency learners may be due to the convenience sampling method used by the researchers, wherein various proficiency learners taking English classes were included in the research. The relatively small number of studies targeting higher proficiency learners may stem from the assumption that they already possess advanced SRL skills. Conversely, the limited attention given to lower proficiency learners suggests the need for conducting more studies in this area. Since such learners may require more developed SRL skills, it would be beneficial to focus research efforts on them and develop appropriate SRL interventions to enhance their SRL skills in L2 learning.

Figure 7

Number of Empirical Studies by Proficiency Level



5.2.3 Research design and variables

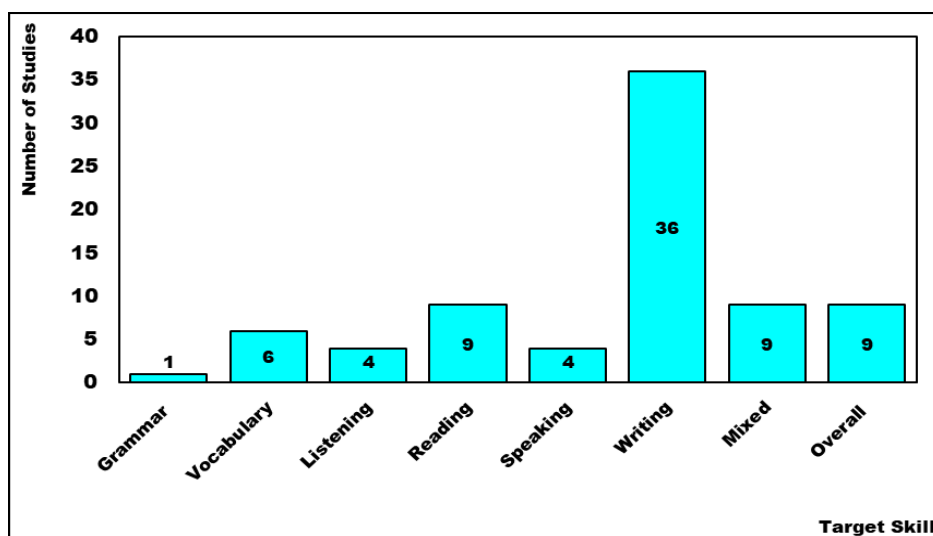
Target skill

Figure 8 shows that the most common target L2 skill was writing ($k = 36$), followed by overall skills (i.e., writing, speaking, listening, reading) ($k = 9$), mixed skills (i.e., combining multiple skills) ($k = 9$), reading ($k = 9$), vocabulary ($k = 6$), listening ($k = 4$), speaking ($k = 4$), and grammar ($k = 1$). The larger number of studies targeting writing may be influenced by the stronger influence of the newly developed SRL scale by L. S. Teng and L. J. Zhang (2016), known as the *Writing Strategies for Self-Regulated Learning Questionnaire* (WSSLQ). Some studies ($k = 8$) used this scale to examine the relationship between the WSSLQ and other factors in L2 learning, such as motivations and behaviors (e.g., J. Chen et al., 2022; L. S. Teng et al., 2020; L. S. Teng & L. J. Zhang, 2017; M. F. Teng & Hung, 2019).

Another notable finding regarding the target skill is that many studies have focused on overall or mixed L2 skills in SRL. While combining multiple skills of L2 learning in SRL studies may yield various findings, given that L2 learners are unlikely to learn all skills of their target L2 in the same way (i.e., learning strategies may be different in each skill), it would be important to conduct SRL studies separately for each target skill as was suggested by Tseng et al. (2006). In particular, research focusing on the skills of grammar, listening, vocabulary, and speaking is important given the limited number of studies targeting these skills. It should also be noted that since no studies have examined the relationship between SRL and pronunciation, or phonological aspect of L2 learning, more SRL studies in this domain are needed for future research.

Figure 8

Number of Empirical Studies by Target Skill



Variables used in each dimension of self-regulated learning

Given the limited focus on variables within the social dimension in previous SRL studies, which primarily include SRL instruction to foster SRL ($k = 28$), along with support or feedback ($k = 8$), our attention here is directed to the metacognitive, behavioral, and affective dimensions.

In the metacognitive dimension, the most prominent variable was self-regulation or related strategies and skills ($k = 80$), followed by metacognitive strategy ($k = 21$). Other notable variables, though fewer in number, included metacognitive awareness ($k = 4$), self-assessment ($k = 3$), and co-regulation ($k = 2$). The prevalence of self-regulation can be attributed to the belief that it plays a significant role in initiating the use of LLS (Rose, 2012). This suggests that self-regulation is central to SRL in the context of L2 learning and teaching, a recognition that may have been widely acknowledged by numerous researchers (e.g., Bai & Guo, 2021; J. Chen et al., 2022; M. F. Teng et al., 2022; L. S. Teng & L. J. Zhang, 2017; Ueno & Takeuchi, 2022). Another contributing factor may be the rapid development of scales to measure self-regulation or related strategies (e.g., Bai et al., 2014; Bai & Guo, 2018; L. S. Teng & L. J. Zhang, 2016; Zheng et al., 2016). The development of these scales may have led to further investigations into the external validity of the scales in relation to other dimensions of SRL (e.g., Bai & Guo, 2018; Tao et al., 2020; L. S. Teng et al., 2020), indicating a broader interest in understanding the intricate relationship between self-regulation and various dimensions of SRL in the context of L2 learning and teaching. The greater effect of self-regulation or related strategies on L2 performance has also been confirmed in previous studies (e.g., M. F. Teng et al., 2022; M. F. Teng & L. J. Zhang, 2024). For example, in a series of studies by Teng and his associates, the use of SRL strategies was found to have a significant impact on Chinese EFL students' English writing performance. It has also been shown that the use of these strategies may have the relationship with individual factors such as working memory and overall language proficiency level (M. F. Teng & L. J. Zhang, 2024). These results suggest that the use of SRL strategies and their effectiveness may be influenced by such individual factors. However, because these lines of research are very limited, expanding these studies and accumulating more findings would be beneficial in future L2 SRL studies.

In the behavioral dimension, most studies focused on strategy use ($k = 28$), with fewer studies examining motivated learning behavior ($k = 3$), engagement ($k = 2$), and procrastination ($k = 2$). The pronounced use of strategy use is not surprising given that research on SRL in L2 learning originally emerged from the field of LLS. However, compared to the prevalence of self-regulation and SRL strategy ($k = 80$), the use of LLS in SRL research seems comparatively modest. This may be related to the shift

from LLS to SRL strategy, suggesting that the emergence of the SRL framework in LLS studies may lead L2 researchers to focus more on SRL strategies than on LLS.

In the affective dimension, the most frequently used variable in previous research was self-efficacy ($k = 31$), followed by intrinsic motivation and related variables ($k = 9$), negative emotion ($k = 6$), growth mindset ($k = 5$), goal orientations ($k = 4$), ideal L2 self ($k = 4$), ought-to L2 self ($k = 3$), attitude ($k = 3$), extrinsic motivation ($k = 2$), and positive emotion ($k = 2$). The extensive use of self-efficacy may be rooted in the theoretical perspective that views self-efficacy as central to self-regulated L2 learning (e.g., Mizumoto, 2012; L. S. Teng et al., 2018). Meanwhile, the inclusion of intrinsic motivation under self-determination theory may be related to its affinity with SRL theory, as self-determination theory posits that more self-determined motivation (i.e., intrinsic motivation) is aligned with autonomous behavior (Ryan & Deci, 2017). Other affective variables, such as positive emotions, ideal and ought-to L2 self, and growth mindset, remain largely unexplored and require further empirical evidence. Although these variables have the potential to enhance other dimensions of SRL, studies involving these variables have been confined to specific regions, such as Hong Kong and mainland China (e.g., Bai & Guo, 2021; Bai & J. Wang, 2021; Guo et al., 2023; Xu & Y. Wang, 2022). Therefore, future studies in various learning contexts would provide valuable insights to strengthen and advance the SRL framework in L2 learning and teaching.

Based on these findings, previous research on L2 SRL typically includes self-regulation and metacognitive strategy in the metacognitive dimension, LLS in the behavioral dimension, and self-efficacy as well as intrinsic motivation in the affective dimension. Such results are crucial for guiding future directions in L2 SRL studies, suggesting that the variables should be considered core elements for improving L2 SRL. Additionally, although our research identified limited variables in the social dimension (i.e., instruction, support, or feedback), they may play a critical role as moderators in enhancing variables in the aforementioned dimensions of SRL. Instruction and support or feedback have been beneficial not only for general L2 learners (e.g., Bai et al., 2019; Mežek et al., 2022) but also for L2 learners with disabilities (Torres & Ray, 2022). The findings from Torres and Ray (2022) may be particularly crucial for L2 teaching, as diverse L2 learners are in general instructional classrooms but few studies have focused on them to date. Since L2 SRL research with L2 learners with disabilities is a new field, accumulating more findings in this direction in future studies would be important.

5.2.4 Research findings and results

As described in the above-mentioned data analysis section, the predominant approach in existing studies has been the use of quantitative research methods, specifically employing multivariate analyses such as correlation analysis, regression analysis, and SEM. We extracted and summarized correlation coefficients (r) and standardized coefficients (β) based on their widespread use. To assess the magnitude of correlation coefficients (r), we applied the criteria outlined by Plonsky and Oswald (2014), which categorizes the degree of correlation as follows: $r = .25$ for small, $r = .40$ for medium, and $r = .60$ for large. However, when it comes to standardized coefficients (β), we encountered a lack of established benchmarks in our field at the time this study was conducted. Therefore, for convenience, we decided to define the standardized coefficients using the same magnitudes as the correlation coefficients (i.e., $\beta = .25$ for small, $\beta = .40$ for medium, and $\beta = .60$ for large).

The results show that some studies yield relatively stronger relationships and associations between variables within each SRL dimension (e.g., intrinsic value/motivation, self-efficacy, self-regulation, and cognitive and metacognitive strategy use), while others yield comparatively weaker relationships and associations (see Appendix C for a summary of the correlation coefficients and standardized coefficients). These divergent findings may be attributed to variations in learning environments (Ueno & Takeuchi, 2022), individual differences (e.g., proficiency level and length of L2 learning experience), and research designs (e.g., sub-categorical or observed variables to define each latent variable, target

skill, measurement for each dimension of SRL). However, a closer examination of the findings for each categorical variable revealed certain common trends. Notably, studies conducted in East Asian countries, including Hong Kong, Korea, China, and Japan, tend to exhibit relatively stronger relationships and associations between variables. However, it should also be noted that some studies found relatively weaker relationships and associations in these countries, too. The reasons for these inconsistencies in the results are not yet clear, but may be explained by individual differences among learners, such as proficiency and educational levels, and the learning environment (Bai & J. Wang, 2021; Takeuchi et al., 2007). Thus, to better understand these discrepancies in findings from previous studies, it may be important to consider the possible effects of these individual differences and learning environment in future studies. To pursue this line of research, multi-group SEM, which can compare different relationships between variables across multiple different populations of learners (Ueki & Takeuchi, 2013), would be beneficial in determining the differential effects of individual differences and learning environments. Additionally, qualitative methods, such as interviews and journals, would also be beneficial in identifying causes to complement the findings of quantitative research.

Another valuable finding is that relatively stronger relationships and associations between variables associated with SRL were confirmed among secondary school students and even among the students at elementary levels (e.g., Bai & Guo, 2018, 2021; Bai & J. Wang, 2023; Choi et al., 2018; J. H. Lee et al., 2022). This finding is particularly important given the importance of continuous efforts to improve the target L2. If students engage in SRL activities related to their target languages earlier in their education, they may acquire SRL skills that contribute not only to academic success in the classroom, but also to sustained language learning beyond formal educational settings. Consequently, this could potentially enhance their proficiency in the target L2. Therefore, this finding has important implications for educators in secondary schools, highlighting the potential benefits of introducing SRL strategies at an earlier stage of education to support and enrich L2 learning both inside and outside the classroom.

A further notable finding is the relatively stronger relationships and associations observed in writing. It is true that previous studies have highlighted the stronger relationships between some SRL variables, such as self-efficacy, growth mindset, and SRL strategies, or the greater contributions of these variables to other SRL variables in L2 writing (e.g., Bai & Guo, 2018, 2021; Bai & J. Wang, 2021; Guo et al., 2021; M. F. Teng, 2019; Wilby, 2022). However, some of these studies also found relatively weaker associations between SRL variables, such as teacher support and SRL strategies (Guo et al., 2021), and motivational variables and some SRL strategies (Bai & J. Wang, 2021; Wilby, 2022). These mixed results may suggest that the relationships between SRL variables may differ depending on the target learners, the learning environment, and the research designs (e.g., the target SRL variables and their measures), although this study could not find the clear reasons. Therefore, future studies in this area that consider these aspects could help clarify the specific causes underlying the different results across studies.

In addition, vocabulary learning has shown relatively stronger relationships and associations between the variables of SRL. Vocabulary is undoubtedly one of the most critical components in L2 learning, supported by numerous previous studies highlighting stronger correlations between L2 vocabulary knowledge and proficiency (e.g., Milton et al., 2010; Miralpeix & Muñoz, 2018). On the other hand, L2 vocabulary acquisition is often considered a challenging task. Unlike native speakers of a target L2 who are exposed to an abundance of vocabulary and naturally acquire useful words as they mature, the majority of L2 learners acquire vocabulary strategically within limited L2 input and output environments (Gu, 2020). In this context, SRL plays a crucial role in facilitating autonomous vocabulary learning among L2 learners who have limited opportunities to use the language in their daily lives. Our findings support this aspect with empirical data. On the one hand, our findings also show relatively weak relationships between variables such as motivation or strategy use and vocabulary knowledge (e.g., Choi et al., 2018; J. H. Lee et al., 2022). While it may be tempting to attribute the weaker coefficients to the indirect association of motivation and metacognitive strategy use with vocabulary learning compared to the more direct associations with learning gains, such as cognitive/memory strategy use, our research did not identify the cause of this finding. Therefore, future studies would be needed.

6 Conclusion

In this systematic review, we explored the landscape of SRL studies in L2 after Rose et al.'s (2018) review was conducted. Our study focused on studies conducted between 2017 and the first half of 2023 and identified a total of 93 studies, indicating a substantial amount of research in our field. However, a significant proportion of SRL studies were concentrated in the Asian context, particularly in China and Hong Kong. The studies also mainly focused on L2 writing learning and used quantitative research methods to investigate the relationships between different dimensions of SRL variables (e.g., Bai & Guo, 2018; Guo et al., 2021; M. F. Teng & Huang, 2019; Xu & Y. Wang, 2022). Therefore, there is a need to conduct SRL studies outside of China or Hong Kong and to explore skills beyond writing using qualitative methods. Based on these findings, we propose several recommendations for future studies.

First, SRL studies with more diverse contexts are needed. Our findings show that previous SRL studies have mainly focused on Asian countries, especially China and Hong Kong. However, since motivational beliefs and LLS use may be influenced by the learning environment and context (e.g., Bai & J. Wang, 2021; Takeuchi et al., 2007), it is crucial to conduct more SRL studies in diverse contexts beyond these countries. This will contribute to a more comprehensive understanding of the variables associated with SRL in different settings.

Second, in order to expand our view to a more diverse domain of L2 learning, future studies should encompass a broader range of skills within L2 learning. Our findings show that many studies focused on writing and limited studies focused on other skills. In particular, no studies examined the relationship between the learning of pronunciation and SRL. Given the fundamental importance of pronunciation skills in facilitating intelligible and comprehensible communication, there is a compelling need for SRL research in this skill.

Third, our findings show that most existing SRL research focused on the use of self-regulation and metacognitive strategy in the metacognitive dimension, LLS in the behavioral dimension, and variables such as self-efficacy, intrinsic and extrinsic motivation, or negative emotions in the affective dimension. However, very few attempts have been made to examine the effects of the affective variables on SRL, such as the L2 motivational self-system, positive emotions, and growth mindset. Therefore, more studies on these affective variables are needed in future research.

Fourth, it is crucial to recognize the importance of incorporating qualitative research methods such as narratives, interviews, diaries, journals, and portfolios in order to obtain more accurate findings, as the predominant approach in existing SRL research in L2 relies on quantitative research methods. Qualitative methods can provide valuable insights when exploring the behavioral dimension of learners, especially the use of LLS in the SRL process. Therefore, the use of qualitative approaches should be encouraged to better understand the intricacies of the SRL process in L2 learning.

Finally, new perspectives from sociocultural theory (e.g., other-, co-, and socially shared regulation) could provide valuable insights into SRL research in L2 (Nakata et al., in press). In addition, as several studies have demonstrated the use of technological tools in SRL provides different views and insights from traditional SRL research in terms of how scaffolding is provided (e.g., Boroughani et al., 2023; Viberg et al., 2020). Therefore, more SRL studies with new theoretical perspectives and/or with technological tools would be needed.

Notes

1. While SRL encompasses the four aspects of L2 learning, including metacognitive, behavioral, affective, and social aspects, our review also included studies that examined several aspects of the four.
2. *k* shown in Figure 1 indicates the number of studies collected in the research collection process.

3. The spreadsheet for the classification of each variable used in existing studies is available in Appendix A. All the appendices used in this study are accessible from IRIS (<https://www.iris-database.org/iris/app/home/index>).

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References

- Abbott, M. L., & Lee, K. K. (2023). Relationships between students' emotions, self-regulated learning, and literacy gains in beginning/basic level ESL literacy classes for adults. *System*, *115*, 103061. <https://doi.org/10.1016/j.system.2023.103061>
- Al-Hoorie, A. H., Oga-Baldwin, W. L. Q., Hiver, P., & Vitta, J. P. (2022). Self-determination mini-theories in second language learning: A systematic review of three decades of research. *Language Teaching Research*, *0*(0). <https://doi.org/10.1177/13621688221102686>
- Ardasheva, Y., Wang, Z., Adesope, O. O., & Valentine, J. C. (2017). Exploring effectiveness and moderators of language learning strategy instruction on second language and self-regulated learning outcomes. *Review of Educational Research*, *87*(3), 544–582. <https://doi.org/10.3102/0034654316689135>
- Bai, B., Chao, G. C. N., & Wang, C. (2019). The relationship between social support, self-efficacy, and English language learning achievement in Hong Kong. *TESOL Quarterly*, *53*(1), 208–221. <https://doi.org/10.1002/tesq.439>
- Bai, B., & Guo, W. (2018). Influences of self-regulated learning strategy use on self-efficacy in primary school students' English writing in Hong Kong. *Reading & Writing Quarterly*, *34*(6), 523–536. <https://doi.org/10.1080/10573569.2018.1499058>
- Bai, B., & Guo, W. (2021). Motivation and self-regulated strategy use: Relationships to primary school students' English writing in Hong Kong. *Language Teaching Research*, *25*(3), 378–399. <https://doi.org/10.1177/1362168819859921>
- Bai, B., & Wang, J. (2021). Hong Kong secondary students' self-regulated learning strategy use and English writing: Influences of motivational beliefs. *System*, *96*, 102404. <https://doi.org/10.1016/j.system.2020.102404>
- Bai, B., & Wang, J. (2023). The role of growth mindset, self-efficacy and intrinsic value in self-regulated learning and English language learning. *Language Teaching Research*, *27*(1), 207–228. <https://doi.org/10.1177/1362168820933190>
- Bai, R., Hu, G., & Gu, P. Y. (2014). The relationship between use of writing strategies and English proficiency in Singapore primary schools. *Asia-Pacific Education Researcher*, *23*, 355–365. <https://doi.org/10.1007/s40299-013-0110-0>
- Bandura, A. (1995). *Self-efficacy in changing societies*. Cambridge University Press.
- Boroughani, T., Xodabande, I., & Karimpour, S. (2023). Self-regulated learning with mobile devices for university students: Exploring the impacts on academic vocabulary development. *Discover Education*, *2*(5), 1–10. <https://doi.org/10.1007/s44217-023-00028-z>
- Cambridge University Press & Assessment. (2024). *International language standards: About the common European framework of reference for languages (CEFR)*. English Language Assessment. Retrieved from <https://www.cambridgeenglish.org/exams-and-tests/cefr/>

- Chen, J., Zhang, L. J., & Chen, X. (2022). L2 learners' self-regulated learning strategies and self-efficacy for writing achievement: A latent profile analysis. *Language Teaching Research*, 0(0). <https://doi.org/10.1177/13621688221134967>
- Choi, Y., Zhang, D., Lin, C.-H., & Zhang, Y. (2018). Self-regulated learning of vocabulary in English as a foreign language. *Asian EFL Journal*, 20(1), 54–81. Retrieved from <http://hdl.handle.net/10871/31414>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer New York.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Lawrence Erlbaum Associates.
- Dörnyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited*. Routledge.
- Gao, X. (2007). Has language learning strategy research come to an end? A response to Tseng et al. (2006). *Applied Linguistics*, 28(4), 615–620. <https://doi.org/10.1093/applin/amm034>
- Gu, P. Y. (2012). Learning strategies: Prototypical core and dimensions of variation. *Studies in Self-Access Learning Journal*, 3(4), 330–356. Retrieved from <http://sisaljournal.org/archives/dec12/gu>
- Gu, P. Y. (2020). Strategies for vocabulary learning. In S. Webb (Ed.), *The Routledge handbook of vocabulary studies* (pp. 271–287). Routledge.
- Guo, W., Bai, B., & Song, H. (2021). Influences of process-based instruction on students' use of self-regulated learning strategies in EFL writing. *System*, 101, 102578. <https://doi.org/10.1016/j.system.2021.102578>
- Guo, W., Bai, B., Zang, F., Wang, T., & Song, H. (2023). Influences of motivation and grit on students' self-regulated learning and English learning achievement: A comparison between male and female students. *System*, 114, 103018. <https://doi.org/10.1016/j.system.2023.103018>
- Hiver, P., Al-Hoorie, A. H., Vitta, J. P., & Wu, J. (2021). Engagement in language learning: A systematic review of 20 years of research methods and definitions. *Language Teaching Research*, 0(0). <https://doi.org/10.1177/13621688211001289>
- Hu, J., & Gao, X. (2018). Self-regulated strategic writing for academic studies in an English-medium-instruction context. *Language and Education*, 32(1), 1–20. <https://doi.org/10.1080/09500782.2017.1373804>
- In'nami, Y., & Koizumi, R. (2010). Database selection guidelines for meta-analysis in applied linguistics. *TESOL Quarterly*, 44(1), 169–184. <https://doi.org/10.5054/tq.2010.215253>
- Jenkins, J., & Leung, C. (2013). English as a lingua franca. *The Companion to Language Assessment*. <https://doi.org/10.1002/9781118411360.wbcla047>
- Lee, J. H., Ahn, J. J., & Lee, H. (2022). The role of motivation and vocabulary learning strategies in L2 vocabulary knowledge: A structural equation modeling analysis. *Studies in Second Language Learning and Teaching*, 12(3), 435–458. <https://doi.org/10.14746/ssl.2022.12.3.5>
- Lin, V., Liu, G.-Z., & Chen, N.-S. (2022). The effects of an augmented-reality ubiquitous writing application: A comparative pilot project for enhancing EFL writing instruction. *Computer Assisted Language Learning*, 35(5-6), 989–1030. <https://doi.org/10.1080/09588221.2020.1770291>
- McEown, K., & Sugita-McEown, M. (2018). Individual, parental and teacher support factors of self-regulation in Japanese students. *Innovation in Language Learning and Teaching*, 13(4), 389–401. <https://doi.org/10.1080/17501229.2018.1468761>

- Mežek, Š., McGrath, L., Negretti, R., & Berggren, J. (2022). Scaffolding L2 academic reading and self-regulation through task and feedback. *TESOL Quarterly*, 56(1), 41–67. <https://doi.org/10.1002/tesq.3018>
- Milton, J., Wade, J., & Hopkins, N. (2010). Aural word recognition and oral competence in English as a foreign language. In R. Chacón-Beltrán, C. Abello-Contesse, & M. M. Torreblanca-López (Eds.), *Insights into non-native vocabulary teaching and learning* (pp. 83–98). Multilingual Matters.
- Miralpeix, I., & Muñoz, C. (2018). Receptive vocabulary size and its relationship to EFL language skills. *International Review of Applied Linguistics in Language Teaching*, 56(1), 1–24. <https://doi.org/10.1515/iral-2017-0016>
- Mizumoto, A. (2012). Exploring the effects of self-efficacy on vocabulary learning strategies. *Studies in Self-Access Learning Journal*, 3(4), 423–437. Retrieved from <http://sisaljournal.org/archives/dec12/mizumoto>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Nakata, Y., Takeuchi, O., & Sugita-McEown, M. (in press). Rethinking the role of ability beliefs in self-regulated learning. *Studies in Second Language Learning and Teaching*.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Newbury House.
- Oxford, R. L. (2011). *Teaching and researching language learning strategies*. Pearson Education.
- Oxford, R. L. (2017). *Teaching and researching language learning strategies: Self-regulation in context* (2nd ed.). Routledge.
- Plonsky, L., & Oswald, F. L. (2014). How big is “big”? Interpreting effect sizes in L2 research. *Language Learning*, 64(4), 878–912. <https://doi.org/10.1111/lang.12079>
- Ranalli, J. (2012). Alternative models of self-regulation and implications for L2 strategy research. *Studies in Self-Access Learning Journal*, 3(4), 357–376. Retrieved from <http://sisaljournal.org/archives/dec12/ranalli>
- Rose, H. (2012). Reconceptualizing strategic learning in the face of self-regulation: Throwing language learning strategies out with the bathwater. *Applied Linguistics*, 33(1), 92–98. <https://doi.org/10.1093/applin/amr045>
- Rose, H., Briggs, J. G., Boggs, J. A., Serio, L., & Ivanova-Slavianskaia, N. (2018). A systematic review of language learner strategy research in the face of self-regulation. *System*, 72, 151–163. <https://doi.org/10.1016/j.system.2017.12.002>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. The Guilford Press.
- Saito, A. (2020). Strategy use, self-efficacy beliefs, and self-regulatedness in adult foreign language learning. *Australian Journal of Applied Linguistics*, 3(2), 152–167. <https://doi.org/10.29140/ajal.v3n2.282>
- Sasaki, M., Mizumoto, A., & Murakami, A. (2018). Developmental trajectories in L2 writing strategy use: A self-regulation perspective. *The Modern Language Journal*, 102(2), 292–309. <https://doi.org/10.1111/modl.12469>
- Schunk, D. H., & Greene, J. A. (2017). Historical, cotemporary, and future perspectives on self-regulated learning and performance. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed.) (pp. 1–15). Routledge.
- Selvi, A. F., Galloway, N., & Rose, H. (2023). *Teaching English as an international language*. Cambridge University Press.

- Sugita-McEown, M., & McEown, K. (2019). The role of parental factors and the self in predicting positive L2 outcomes among Japanese learners of English. *Journal of Multilingual and Multicultural Development*, 40(10), 934–949. <https://doi.org/10.1080/01434632.2019.1597874>
- Sun, T., & Wang, C. (2020). College students' writing self-efficacy and writing self-regulated learning strategies in learning English as a foreign language. *System*, 90, 102221. <https://doi.org/10.1016/j.system.2020.102221>
- Sun, P. P. (2022). Strategic self-regulation for speaking English as a foreign language: Scale development and validation. *TESOL Quarterly*, 56(4), 1369–1383. <https://doi.org/10.1002/tesq.3132>
- Takeuchi, O. (2010). *Gakushusha no kenkyu kara wakarukoto: Kobetsu kara tougou he* [What we have learned from language learner research: From an individualistic perspective to a holistic one]. In H. Kojima, N. Ozeki & H. Hiromori (Eds.), *Seichosuru eigo gakushusha: Gakushusha yoin to jiritsugakushu* [Learner development in English education: Learner factors and autonomous learning] (pp. 3–20). Taishukan.
- Takeuchi, O. (2019). Language learning strategies: Insights from the past and directions for the future. In X. A. Gao (Ed.), *Second handbook of English language teaching* (pp.683–702). Springer. https://doi.org/10.1007/978-3-030-02899-2_37
- Takeuchi, O., Griffiths, C., & Coyle, D. (2007). Applying strategies to contexts: The role of individual, situational and group differences. In A. D. Cohen & E. Macaro (Eds.), *Language learner strategies: Thirty years of research and practice* (pp. 69–92). Oxford University Press.
- Tanaka, M. (2023). Motivation and growth in kanji proficiency: A longitudinal study using latent growth curve modeling. *International Review of Applied Linguistics in Language Teaching*. <https://doi.org/10.1515/iral-2022-0210>
- Tao, J., Zheng, C., Lu, Z., & Liang, J-C., & Tsai, C-C. (2020). Cluster analysis on Chinese university students' conceptions of English language learning and their online self-regulation. *Australasian Journal of Educational Technology*, 36(2), 105–119. <https://doi.org/10.14742/ajet.4844>
- Teng, L. S., Sun, P. P., & Xu, L. (2018). Conceptualizing writing self-efficacy in English as a foreign language context: Scale validation through structural equation modeling. *TESOL Quarterly*, 52(4), 911–942. <https://doi.org/10.1002/tesq.432>
- Teng, L. S., Yuan, R. E., & Sun, P. P. (2020). A mixed-methods approach to investigating motivational regulation strategies and writing proficiency in English as a foreign language context. *System*, 88, 102182. <https://doi.org/10.1016/j.system.2019.102182>
- Teng, L. S., & Zhang, L. J. (2016). A questionnaire-based validation of multidimensional models of self-regulated learning strategies. *The Modern Language Journal*, 100(3), 674–701. <https://doi.org/10.1111/modl.12339>
- Teng, L. S., & Zhang, L. J. (2017). Effects of motivational regulation strategies on writing performance: a mediation model of self-regulated learning of writing in English as a second/foreign language. *Metacognition Learning*, 13(2), 213–240. <https://doi.org/10.1007/s11409-017-9171-4>
- Teng, L. S., & Zhang, L. J. (2022). Can self-regulation be transferred to second/foreign language learning and teaching? Current status, controversies, and future directions. *Applied Linguistics*, 43(3), 587–595. <https://doi.org/10.1093/applin/amab032>
- Teng, M. F. (2019). The role of metacognitive knowledge and regulation in mediating university EFL learners' writing performance. *Innovation in Language Learning and Teaching*, 14(5), 436–450. <https://doi.org/10.1080/17501229.2019.1615493>
- Teng, M. F., & Huang, J. (2019). Predictive effects of writing strategies for self-regulated learning on secondary school learners' EFL writing proficiency. *TESOL Quarterly*, 53(1), 232–247. <https://doi.org/10.1002/tesq.462>

- Teng, M. F. (2021). Interactive-whiteboard-technology-supported collaborative writing: Writing achievement, metacognitive activities, and co-regulation patterns. *System*, 97, 102426. <https://doi.org/10.1016/j.system.2020.102426>
- Teng, M. F. (2024). Do self-efficacy belief and emotional adjustment matter for social support and anxiety in online English learning in the digital era?. *Digital Applied Linguistics*, 1, 2227. <https://doi.org/10.29140/dal.v1.2227>
- Teng, M. F. (2025). Metacognition, self-efficacy belief, language learning motivation, and perceived progress in online English learning: A Cross-lagged analysis. *International Journal of TESOL Studies*, 7(1), 4-29. <https://doi.org/10.58304/ijts.20250102>
- Teng, M. F., & Huang, J. (2019). Predictive effects of writing strategies for self-regulated learning on secondary school learners' EFL writing proficiency. *TESOL Quarterly*, 53(1), 232-247. <https://doi.org/10.1002/tesq.462>
- Teng, M. F., Mizumoto, A., & Takeuchi, O. (2024). Understanding growth mindset, self-regulated vocabulary learning, and vocabulary knowledge. *System*, 122, 103255. <https://doi.org/10.1016/j.system.2024.103255>
- Teng, M. F., Wang, C., & Zhang, L. J. (2022). Assessing self-regulatory writing strategies and their predictive effects on young EFL learners' writing performance. *Assessing Writing*, 51, 100573. <https://doi.org/10.1016/j.asw.2021.100573>
- Teng, M. F., & Zhang, L. J. (2024). Assessing self-regulated writing strategies, working memory, L2 proficiency level, and multimedia writing performance. *Language Awareness*. <https://doi.org/10.1080/09658416.2023.2300269>
- Thomas, N., & Rose, H. (2018). Do language learning strategies need to be self-directed? Disentangling strategies from self-regulated learning. *TESOL Quarterly*, 53(1), 248-257. <https://doi.org/10.1002/tesq.473>
- Torres, C., & Ray, A. B. (2022). Supporting English learners with disabilities in writing through self-regulated strategy development. *International Journal of TESOL Studies*, 4(4), 79-105. <https://doi.org/10.46451/ijts.2022.04.06>
- Tseng, W. T., Dörnyei, Z., & Schmitt, N. (2006). A new approach to assessing strategic learning: The case of self-regulation in vocabulary acquisition. *Applied Linguistics*, 27(1), 78-102. <https://doi.org/10.1093/applin/ami046>
- Tseng, W. T., Dörnyei, Z., & Schmitt, N. (2006). A new approach to assessing strategic learning: The case of self-regulation in vocabulary acquisition. *Applied Linguistics*, 27(1), 78-102. <https://doi.org/10.1093/applin/ami046>
- Ueki, M., & Takeuchi, O. (2013). Forming a clearer image of the ideal L2 self: the L2 Motivational Self System and learner autonomy in a Japanese EFL context. *Innovation in Language Learning and Teaching*, 7(3), 238-252. <https://doi.org/10.1080/17501229.2013.836205>
- Ueno, S., & Takeuchi, O. (2022). Self-regulated vocabulary learning in a Japanese high school EFL environment: A structural equation modeling approach. *JACET Journal*, 66, 97-111. https://doi.org/10.32234/jacetjournal.66.0_97
- Ueno, S., & Takeuchi, O. (2023a). Effective corpus use in second language learning: A meta-analytic approach. *Applied Corpus Linguistics*, 3(3), 100076. <https://doi.org/10.1016/j.acorp.2023.100076>
- Ueno, S., & Takeuchi, O. (2023b). Relationship between second language vocabulary knowledge and vocabulary learning strategy use: A meta-analysis of correlational studies. *International Review of Applied Linguistics in Language Teaching*. <https://doi.org/10.1515/iral-2023-0100>
- Viberg, O., Wasson, B., & Kukulska-Hulme, A. (2020). Mobile-assisted language learning through learning analytics for self-regulated learning (MALLAS): A conceptual framework. *Australasian Journal of Educational Technology*, 36(6), 34-52. <https://doi.org/10.14742/ajet.6494>

- Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. Harvard University Press.
- Wenden, A. L. (1998). Meta-cognitive knowledge and language learning. *Applied Linguistics*, 19(4), 515–537. <https://doi.org/10.1093/applin/19.4.515>
- Wilby, J. (2022). Motivation, self-regulation, and writing achievement on a university foundation programme: A programme evaluation study. *Language Teaching Research*, 26(5), 1010–1033. <https://doi.org/10.1177/1362168820917323>
- Xu, J., & Wang, Y. (2022). The differential mediating roles of ideal and ought-to L2 writing selves between growth mindsets and self-regulated writing strategies. *System*, 110. <https://doi.org/10.1016/j.system.2022.102900>
- Yabukoshi, T. (2018). Self-regulation and self-efficacy for the improvement of listening proficiency outside the classroom. *The Language Learning Journal*, 49(1), 27–40. <https://doi.org/10.1080/09571736.2018.1472626>
- Zhang, D., & Zhang, L. J. (2019). Metacognition and self-regulated learning (SRL) in second/foreign language teaching. In X. A. Gao (Ed.), *The second handbook of English language teaching* (pp.1–15). Springer. https://doi.org/10.1007/978-3-030-02899-2_47
- Zhao, P., Zhu, X., Yao, Y., & Liao, X. (2023). Ideal L2 self, enjoyment, and strategy use in L2 integrated writing: A self-regulatory learning perspective. *System*, 115, 103033. <https://doi.org/10.1016/j.system.2023.103033>
- Zheng, C., Liang, J.-C., Li, M., & Tsai, C.-C. (2018). The relationship between English language learners' motivation and online self-regulation: A structural equation modelling approach. *System*, 76, 144–157. <https://doi.org/10.1016/j.system.2018.05.003>
- Zheng, C., Liang, J.-C., Yang, Y.-F., & Tsai, C.-C. (2016). The relationship between Chinese university students' conceptions of language learning and their online self-regulation. *System*, 57, 66–78. <https://doi.org/10.1016/j.system.2016.01.005>

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