

Epilogue

Metacognition, Self-Regulation, and Self-Efficacy in Second and Foreign Language Learning

Mark Feng Teng*

Macao Polytechnic University, Macau SAR, China

Lin Sophie Teng

Zhejiang University, China

1 Introduction

The landscape of second and foreign language learning is undergoing a profound transformation, shaped by advances in technology, evolving pedagogical paradigms, and an increasing recognition of learner diversity. The integration of digital tools, like AI, has redefined the classroom, enabling more flexible, personalized, and interactive learning experiences, and called for a higher level of metacognitive awareness in language learning (Teng, F. 2025a). Simultaneously, the shift from teacher-centered to learner-centered approaches, grounded in sociocultural theory (Vygotsky, 1978), has placed greater emphasis on the active role of learners in constructing their own knowledge and developing lifelong learning skills.

Amid these changes, the constructs of metacognition, self-regulation, and self-efficacy have emerged as central to understanding and enhancing language learning outcomes (Teng, F. & Yang, 2023). Metacognition, as conceptualized by Flavell (1979), refers to learners' awareness and control of their cognitive processes, including planning, monitoring, and evaluating their learning strategies. Closely related is the concept of self-regulated learning (Zimmerman, 2002), which encompasses goal setting, strategic action, and self-reflection, empowering learners to take charge of their own progress. Bandura's (1997) theory of self-efficacy further highlights the crucial role of learners' beliefs in their capabilities, influencing their motivation, persistence, and resilience in the face of challenges.

This special issue of the International Journal of TESOL Studies brings together cutting-edge research that explores these constructs in varied contexts, employing diverse methodologies to illuminate their roles in language development, learner autonomy, and academic achievement. The collected works deepen our theoretical understanding, drawing on frameworks such as social cognitive theory, metacognitive models, and motivational constructs. The findings also offer practical insights for educators and curriculum designers seeking to foster more effective, autonomous, and resilient language learners. By bridging theory and practice, we collected articles for this issue to inform the design of learning environments that support the development of metacognitive awareness, self-regulatory skills, and positive self-beliefs, ultimately contributing to more meaningful and successful language learning experiences.

*Corresponding author. Email: markteng@mpu.edu.mo

2 Metacognition in Language Learning: Awareness, Strategies, and Transfer

Metacognition, often described as “thinking about thinking” (Flavell, 1979, p. 907), is a multifaceted construct that involves learners’ conscious awareness of their cognitive processes as well as their ability to regulate those processes to achieve specific learning objectives. The foundational work of Flavell (1979) distinguished between metacognitive knowledge, what learners know about their own learning, the tasks they face, and the strategies available to them, and metacognitive regulation, which refers to the deliberate planning, monitoring, and evaluation of one’s learning activities. In the field of second language acquisition, these dimensions of metacognition are particularly vital. For example, a learner who recognizes a need for listening comprehension might plan to use note-taking strategies, monitor their understanding during listening tasks, and later evaluate their progress by reflecting on which strategies were most effective (Goh & Vandergrit, 2021).

Theoretical frameworks such as Oxford’s (2011) strategic self-regulation model and Zimmerman’s (2002) model of self-regulated learning further highlight how metacognitive processes are intertwined with motivation, emotion, and behavioral control. These models suggest that successful language learners are not only aware of their cognitive strategies but are also adept at managing their emotions (such as anxiety or frustration) and sustaining motivation, especially in challenging or unfamiliar contexts. In the context of L2 learning, metacognitive strategies have been shown to be crucial across a wide range of skills, including reading (e.g., predicting content, clarifying unknown words), writing (e.g., organizing ideas, revising drafts), listening (e.g., identifying main ideas, inferring meaning), and vocabulary acquisition (e.g., using context clues, self-testing) (Teng, 2025b). Explicit instruction in metacognitive strategies may lead to measurable improvements in vocabulary retention and reading comprehension among EFL learners.

In this special issue, Teng’s (2025c) study probes how learners employ metacognitive strategies to navigate the unique cognitive and affective challenges of online language learning, such as isolation and reduced engagement. By examining not only the specific strategies learners use, like planning study routines, monitoring comprehension during online tasks, and evaluating their own progress, but also how these strategies interact with self-efficacy beliefs and motivation, Teng’s work advances theoretical models of metacognition in several important ways. For instance, the study offers empirical evidence supporting the reciprocal relationship between metacognitive regulation and self-efficacy, a concept central to Bandura’s (1997) social cognitive theory. Learners who actively engage in self-monitoring and strategic planning tend to experience increased confidence in their abilities, which in turn encourages further metacognitive engagement. Moreover, Teng’s longitudinal approach reveals how these relationships evolve over time, providing a dynamic view of metacognition that moves beyond static snapshots of learner behavior. Complementing this empirical perspective, the systematic review by Ueno et al. (2025) offers a comprehensive synthesis of research on self-regulated learning (SRL) and metacognition in second and foreign language contexts. The review makes a significant theoretical contribution by tracing the evolution of metacognition from being regarded as a fixed, individual trait to being understood as a set of dynamic, teachable skills. Drawing on frameworks such as Zimmerman’s (2002) model of SRL and Flavell’s (1979) original conceptualization, Ueno et al. demonstrate that metacognitive skills can be systematically developed through explicit instruction and practice.

It appears that it is possible to talk about the effectiveness of metacognitive strategy instruction, such as teaching learners to set specific reading or listening goals, monitor their comprehension in real time, and reflect on their learning strategies after completing tasks. The understandings reinforce the idea that metacognitive awareness and regulation are not innate qualities but can be cultivated to enhance learner autonomy and academic achievement. For example, learners who are taught to pause and check their understanding while reading, or to evaluate which strategies were most effective after a reading activity, tend to show greater gains in proficiency and more independent learning behaviors (Carrel et al., 1998). The nexus among awareness, strategies, and transfer is cyclical and mutually reinforcing. As learners

successfully transfer strategies to new contexts, their metacognitive awareness is further refined, and they become more adept at recognizing which strategies work best for them and in which situations. This heightened awareness, in turn, informs more effective strategy selection and use in future tasks, perpetuating a cycle of continuous improvement and self-regulation.

3 Self-Regulation: From Other-Regulation to Self-regulation

Theoretically, self-regulation is grounded in the premise that learners are active agents capable of directing their own cognitive, emotional, and behavioral processes toward achieving long-term academic goals. Rooted in social cognitive theory (Bandura, 1986) and further elaborated by Zimmerman's (2002) cyclical model of self-regulated learning, self-regulation involves a constellation of interrelated processes: goal setting, strategic planning, self-monitoring, and self-reflection (Teng, L., 2022). These processes empower learners to move beyond passive reception of information, enabling them to take ownership of their learning trajectories and adapt to evolving demands.

In language learning, self-regulation is theoretically linked to the construct of learner autonomy, the capacity to take charge of one's own learning (Little, 2007; Teng, 2019). This autonomy is not innate; rather, it develops through the gradual internalization of self-regulatory skills, often scaffolded by external support before becoming self-sustaining.

Several studies in this special issue offer empirical support for these theoretical assertions. Sasaki and Takeuchi (2025) investigate the developmental pathway from other-regulation, where learners rely on teachers or peers for guidance, to self-regulation in Japanese e-learning contexts. Their findings align with Vygotsky's (1978) sociocultural theory, which posits that regulation is first mediated socially before being internalized. The study shows that strategic scaffolding, such as prompting students to set goals and reflect on progress, accelerates the shift toward self-regulation. Theoretically, this underscores the importance of designing e-learning environments that balance external support with opportunities for independent practice, gradually fading scaffolds as learners' self-regulatory competence grows. Molnar (2025) further elaborates on the theoretical dimensions of self-regulation by examining the strategies employed by students in an asynchronous online EFL classroom. The study identifies a diverse array of self-regulatory strategies, such as time management, resource selection, self-questioning, and peer collaboration, that reflect Zimmerman's (2002) model. Students who engaged in self-monitoring and self-evaluation reported greater satisfaction and achievement, illustrating the self-reinforcing nature of effective self-regulation. However, persistent challenges like procrastination and fluctuating motivation highlight the need for interventions that address both the cognitive and affective domains of self-regulation, consistent with Boekaerts' (2011) dual processing self-regulation model. Finally, Ortogero et al. (2025) advance the theoretical discussion by demonstrating the impact of a self-regulated multimedia cognitive learning model on vocabulary acquisition for adult English learners. Their results show that integrating metacognitive strategy training with multimedia resources not only enhances vocabulary retention but also cultivates learners' confidence in managing their own learning. This supports the theoretical claim that self-regulation is both teachable and transferable, and that reflective practices, such as self-assessment and strategy evaluation, deepen engagement and facilitate the internalization of self-regulatory behaviors.

Collectively, these contributions reinforce the theoretical perspective that self-regulation is not a static trait but a dynamic, developmental process essential for language learning success. Central to this process is the gradual transition from other-regulation, where learners initially rely on external guidance from teachers, peers, or structured scaffolds, to self-regulation, characterized by independent goal setting, strategy use, and self-monitoring. These studies highlight how cognitive, motivational, and social factors interact throughout this progression, illustrating that effective instructional designs should intentionally provide external support in the early stages and then systematically reduce these supports as learners

internalize self-regulatory strategies. By fostering this shift, educators can empower learners to become increasingly autonomous, adaptable, and resilient in their language learning journeys.

4 Self-Efficacy: Beliefs, Motivation, and Confidence

The concept of self-efficacy, learners' beliefs in their capacity to succeed at specific tasks, draws heavily on Bandura's (1997) social cognitive theory, which posits that self-efficacy is a central determinant of human motivation, behavior, and achievement. Within the domain of language learning, self-efficacy theory explains not only why some learners are more willing to tackle challenging tasks, but also how they persist through setbacks and regulate their own learning (Teng, L., 2024). Self-efficacy is theorized to mediate the use of cognitive and metacognitive strategies, influence the seeking and providing of feedback (Teng & Teng, 2024), and shape learners' emotional responses such as anxiety and resilience (Etherton et al., 2022).

Several articles in this special issue extend these theoretical insights by empirically examining the mechanisms through which self-efficacy operates in language learning. Shen and Tao (2025) investigate the interplay between metacognitive strategies, AI-based writing self-efficacy, and writing anxiety in the context of AI-assisted writing. Their findings support Bandura's assertion that self-efficacy is both shaped by and shapes the use of self-regulatory strategies: students with strong metacognitive skills are more likely to develop high self-efficacy for writing, which in turn reduces anxiety and improves writing outcomes. The study also aligns with Vygotskian sociocultural theory, demonstrating that external scaffolding, here, in the form of AI feedback, can enhance self-efficacy, especially when learners are explicitly taught to use such tools reflectively and strategically. Park et al. (2025) further reinforce the theoretical importance of self-efficacy by exploring its relationship with resilience and self-regulation in L2 proficiency among ESL learners. Drawing on both social cognitive theory and resilience theory, their findings reveal that self-efficacy acts as a motivational engine: learners with higher self-efficacy are more persistent, better able to cope with challenges, and more likely to engage in self-regulated learning behaviors. This, in turn, leads to greater language proficiency and well-being, illustrating the interconnectedness of motivational, cognitive, and affective factors in successful language learning.

Collectively, these studies illuminate the theoretical perspective that self-efficacy is a foundational belief system that actively drives motivation and developmental growth in language learning. Rather than being a passive byproduct of achievement, self-efficacy interacts dynamically with metacognitive awareness (Flavell, 1979), strategic self-regulation (Zimmerman, 2002), and the broader social environment (Vygotsky, 1978). This interplay shapes learners' willingness to engage with challenging tasks, sustain effort, and persist through setbacks. Furthermore, these studies highlight how self-efficacy beliefs catalyze both motivational processes and the development of adaptive learning behaviors, ultimately fostering higher performance and emotional resilience across the language learning journey.

5 The Dynamic Nexus between Self-Regulation and Self-Efficacy

Research on self-regulation and self-efficacy has often emphasized individual cognitive and behavioral mechanisms, drawing on foundational theories such as Bandura's social cognitive theory (1997), Zimmerman's model of self-regulated learning (2002), and Flavell's conceptualization of metacognitive awareness (1979). Several articles in this issue extend these frameworks by highlighting the crucial social and emotional dimensions that underpin the development and enactment of self-regulation and self-efficacy in language learning. Adiyono et al. (2025) foregrounds the role of social context, specifically, family support, in shaping self-regulation and self-efficacy. This perspective aligns with Vygotsky's sociocultural theory (1978), which posits that learning and cognitive development are fundamentally mediated by social interactions and cultural tools. The study demonstrates that learners' self-regulatory

and self-efficacious behaviors are not cultivated in isolation; rather, they are scaffolded by social support networks, including family, peers, and teachers. These networks provide emotional encouragement, instrumental assistance, and role modeling—factors that collectively foster learners' confidence, autonomy, and resilience. The findings advocate for a more ecological and holistic approach to language education, one that acknowledges the dynamic interplay between individual agency and contextual influences.

Liu and Zhang (2025) further expand the theoretical landscape by examining the intersection of new media literacy, critical thinking, and learner confidence. Their work draws on contemporary theories of digital literacy and critical pedagogy, arguing that proficiency in navigating digital environments and critically evaluating information is increasingly central to learner development in the modern era. The study finds that students who possess strong digital and critical thinking skills exhibit higher levels of confidence in their language abilities, a form of self-efficacy that Bandura (1997) describes as task-specific and context-dependent. This heightened confidence translates into a greater willingness to take risks, experiment with novel strategies, and engage more deeply in the learning process. The results underscore the necessity of integrating digital literacy and critical thinking instruction into language curricula, especially in an age marked by information abundance and technological change.

Collectively, these contributions move beyond traditional, individual-centric models and reinforce the view that self-regulation and self-efficacy are dynamic, socially situated, and developmentally constructed. They highlight the importance of considering both the intrapersonal (cognitive, motivational, and emotional) and interpersonal (social, cultural, and technological) factors that shape learners' beliefs, behaviors, and developmental trajectories (Teng, L., 2024). This expanded theoretical lens calls for language educators and researchers to design learning environments that nurture not only individual metacognitive skills, but also the social and digital competencies essential for success in contemporary language learning contexts.

6 Pedagogical Implications: Fostering Metacognition, Self-Regulation, and Self-Efficacy

The collective findings of the articles in this special issue have significant implications for language teaching and curriculum design. First, they highlight the need for explicit instruction in metacognitive and self-regulatory strategies. Teachers should model and scaffold processes such as goal setting, strategic planning, self-monitoring, and reflection, gradually transferring responsibility to learners as they become more proficient.

Second, the research underscores the importance of creating supportive learning environments that nurture self-efficacy (Teng, F., 2024). This includes providing timely and constructive feedback, celebrating incremental progress, and encouraging learners to view challenges as opportunities for growth. Teachers can also foster self-efficacy by helping students set realistic goals, recognize their achievements, and reflect on their learning journeys.

Third, the studies point to the value of leveraging technology to support metacognition and self-regulation. Online platforms, multimedia resources, and AI tools can offer personalized feedback, adaptive scaffolding, and opportunities for self-assessment. Technology is most effective when integrated with pedagogical strategies that promote reflective and strategic engagement.

Fourth, the role of social support—whether from family, peers, or teachers—should not be underestimated. Collaborative learning activities, peer feedback, and family involvement can all contribute to the development of self-regulation and self-efficacy. Educators should seek to build strong learning communities that foster a sense of belonging and mutual encouragement.

Finally, the research calls for a more nuanced understanding of learner diversity. Individual differences in metacognitive awareness, self-regulatory capacity, and self-efficacy beliefs are shaped by

a range of factors, including age, proficiency level, cultural background, and prior learning experiences. Effective instruction must be responsive to these differences, offering differentiated support and opportunities for personalized growth.

7 Future Directions and Research Gaps

While the articles in this special issue make significant contributions to our understanding of metacognition, self-regulation, and self-efficacy in L2 learning, they also point to several areas for future research. First, there is a need for longitudinal studies that track the development of these constructs over time, examining how they interact with language proficiency, motivation, and academic achievement. Such research could shed light on the processes by which learners move from dependence on external regulation to independent self-regulation, and how self-efficacy beliefs evolve in response to successes and setbacks. Second, more research is needed on the role of culture and context in shaping metacognitive and self-regulatory behaviors. Cross-cultural comparisons can reveal how learners from different backgrounds approach language learning, the strategies they employ, and the challenges they face. Understanding these differences is essential for designing culturally responsive interventions. Third, the integration of technology into language learning environments raises important questions about digital metacognition and self-regulation. As learners increasingly engage with online resources, AI tools, and multimedia content, it is crucial to investigate how these technologies influence cognitive, motivational, and affective processes. Research should explore not only the affordances of technology but also the risks, such as distraction, information overload, and reduced opportunities for deep reflection. Fourth, the social and emotional dimensions of self-regulation and self-efficacy warrant further exploration. Studies that examine the role of peer collaboration, teacher-student relationships, and family involvement can provide valuable insights into how social support networks facilitate or hinder the development of autonomous, confident learners. Finally, there is a need for research that bridges the gap between theory and practice. Intervention studies that test the effectiveness of specific instructional strategies, curricular innovations, and technological tools can inform evidence-based practice and guide teacher professional development.

References

- Adiyono, A., Nurhayati, S., Muti'ah, N., Abdurrohim, A., Rienovita, E., & Arianti, S. (2025). Self-efficacy as a mediator: How self-regulated learning and family support reduce academic procrastination among Indonesian English as a foreign language (EFL) students? *International Journal of TESOL Studies*, 7 (1), 148-176. <https://doi.org/10.58304/ijts.20250619>
- Bandura, A. (1986). Fearful expectations and avoidant actions as coeffects of perceived self-inefficacy. *American Psychologist*, 41(12), 1389-1391.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Boekaerts, M. (2011). Emotions, emotion regulation, and self-regulation of learning. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 408–425). Routledge.
- Carrell, P. L., Gajdusek, L., & Wise, T. (1998). Metacognition and EFL/ESL reading. *Instructional science*, 26(1), 97-112.
- Etherton, K., Steele-Johnson, D., Salvano, K., & Kovacs, N. (2022). Resilience effects on student performance and well-being: the role of self-efficacy, self-set goals, and anxiety. *The Journal of General Psychology*, 149(3), 279-298. <https://doi.org/10.1080/00221309.2020.1835800>

- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, 34(10), 906–911. <https://doi.org/10.1037/0003-066X.34.10.906>
- Goh, C. C., & Vandergrift, L. (2021). *Teaching and learning second language listening: Metacognition in action*. Routledge.
- Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *Innovation in Language Learning and Teaching*, 1(1), 14-29. <https://doi.org/10.2167/illt040.0>
- Liu, X., & Zhang, D. (2025). Learning critically and confidently: A correlation study of the new media literacy and English learning self-efficacy of junior high school students. *International Journal of TESOL Studies*, 7 (1) 88-104. <https://doi.org/10.58304/ijts.20250106>
- Molnar, J. A. (2025). Self-regulated learning in an online asynchronous EFL classroom in Japan: What strategies do students use? *International Journal of TESOL Studies*, 7 (1) 48-69. <https://doi.org/10.58304/ijts.20250104>
- Ortoger S. P., Ray, A. B., & Connor, K. E. (2025). Self-regulated multimedia cognitive learning model: Enhancing vocabulary acquisition in adult English learners. *International Journal of TESOL Studies*, 7 (1), 30-47. <https://doi.org/10.58304/ijts.20250103>
- Oxford, R. L. (2011). Strategies for learning a second or foreign language. *Language Teaching*, 44(2), 167-180. doi:10.1017/S0261444810000492
- Park, S., Ueno, S., & Sugita, M. (2025). The impact of resilience and self-regulation on L2 proficiency among ESL learners. *International Journal of TESOL Studies*, 7 (1), 105-125. <https://doi.org/10.58304/ijts.20250107>
- Sasaki, A., & Takeuchi, O. (2025). Transitioning from other-regulation to self-regulation in e-learning strategies among Japanese EFL university students. *International Journal of TESOL Studies*, 7 (1), 177-195. <https://doi.org/10.58304/ijts.20250623>
- Shen, X., & Tao, Y. (2025). Metacognitive strategies, AI-based writing self-efficacy and writing anxiety in AI-assisted writing contexts: A structural equation modeling analysis. *International Journal of TESOL Studies*, 7 (1) 70-87. <https://doi.org/10.58304/ijts.20250105>
- Teng, L. S. (2022). *Self-regulated learning and second language writing: Fostering strategic language learners*. Springer.
- Teng, L. S. (2024). Individual differences in self-regulated learning: Exploring the nexus of motivational beliefs, self-efficacy, and SRL strategies in EFL writing. *Language Teaching Research*, 28(2), 366-388. <https://doi.org/10.1177/13621688211006881>
- Teng, M. F. (2019). *Autonomy, agency, and identity in teaching and learning English as a foreign language*. Springer.
- 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, 2227-2227. <https://doi.org/10.29140/dal.v1.2227>
- Teng, M. F. (2025a). Metacognitive awareness and EFL learners' perceptions and experiences in utilising ChatGPT for writing feedback. *European Journal of Education*, 60(1), e12811. <https://doi.org/10.1111/ejed.12811>
- Teng, M. F. (2025b). *Metacognition in language teaching*. Cambridge University Press.
- Teng, M. F. (2025c). 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., & Teng, L. S. (2024). Validating the multi-dimensional structure of self-efficacy beliefs in peer feedback for L2 writing: A bifactor-exploratory structural equation modeling approach. *Research Methods in Applied Linguistics*, 3(3), 100136. <https://doi.org/10.1016/j.rmal.2024.100136>

- Teng, M. F., & Yang, Z. (2023). Metacognition, motivation, self-efficacy belief, and English learning achievement in online learning: Longitudinal mediation modeling approach. *Innovation in Language Learning and Teaching*, 17(4), 778-794. <https://doi.org/10.1080/17501229.2022.2144327>
- Ueno S., Takeuchi, O., Shinhara, Y. (2025). Exploring the studies of self-regulated learning in second/foreign language learning: A systematic review. *International Journal of TESOL Studies*, 7 (1) 126-147. <https://doi.org/10.58304/ijts.2025010>
- Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2), 64-70. https://doi.org/10.1207/s15430421tip4102_2