

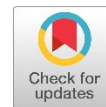
Self-regulated vocabulary learning in Indonesian higher education: Strategies, digital tools, and the awareness-action gap

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ABSTRACT

Vocabulary acquisition is a cornerstone of language proficiency, yet many university students face difficulties in managing their learning autonomously. Self-regulated learning (SRL) strategies offer potential for greater independence, but their actual implementation in English as a Foreign Language (EFL) contexts remains underexplored. This study examines the lived experiences of EFL students in applying SRL strategies for vocabulary learning, focusing on how they adapt these strategies to their individual goals, contexts, and challenges. A qualitative phenomenological design was employed, involving semi-structured interviews with 14 second-semester English Study Program students at Universitas Riau. Data were analyzed through thematic analysis, guided by Zimmerman's SRL model. Three themes emerged. First, students flexibly applied SRL strategies by adapting Zimmerman's framework to personal goals, moods, and contexts, though systematic goal-setting was often absent. Second, digital tools such as Duolingo, TikTok, and YouTube shaped personalized learning ecosystems that blended formal study with informal media, underscoring both creativity and the need for digital self-regulation. Third, students reported difficulties in sustaining consistent SRL due to challenges in time management, emotional regulation, and transforming receptive into productive vocabulary. The study highlights how EFL learners adapt SRL in dynamic and non-linear ways, extending Zimmerman's model to digital and affective dimensions of vocabulary learning. Pedagogically, findings underscore the need for structured support to help students bridge the gap between strategic awareness and consistent application, while offering directions for future research on fostering resilient autonomous learning habits.



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1. Introduction

Vocabulary is a core component of language proficiency, supporting both receptive skills (listening, reading) and productive skills (speaking, writing) (Muslih, 2021; Widiadnya, 2023). However, many English as a Foreign Language (EFL) learners continue to struggle with vocabulary learning, often recognizing words passively without being able to use them productively. Studies at Universitas Riau (Masyhur et al., 2019; Agustianti et al. 2021) show that a significant proportion of students across semesters possess vocabulary sizes below the 10,000-word threshold and lack

strategies for managing their vocabulary learning effectively. Nevertheless, many English as a Foreign Language (EFL) students face persistent challenges in learning English vocabulary, often struggling with a range of lexical categories due to limited contextual exposure, the application of ineffective learning strategies, and low motivation (Harselina et al., 2024). This highlights an urgent need to strengthen self-regulated learning (SRL) in higher education.

SRL refers to learner's ability to plan, monitor, and evaluate their learning by managing cognitive, motivational, and behavioral processes (Zimmerman, 2008). In vocabulary learning, SRL strategies may include setting targets, maintaining word journals, or self-assessing retention. The growing influence of digital tools further shapes these practices, as platforms such as Duolingo, TikTok, or YouTube offer flexible, personalized opportunities while also introducing new challenges of distraction and regulation. Despite increasing attention to SRL and digital learning, research has largely focused on secondary-level learners or applied quantitative designs (Sharizan et al., 2022; Octaviani et al., 2023; Boroughani et al., 2023). Consequently, little is known about the *lived experiences* of university students navigating SRL for vocabulary learning in authentic academic contexts.

To address this gap, the present study adopts a qualitative phenomenological approach to explore how second-semester English Education Students at Universitas Riau regulate their vocabulary learning. Specifically, it seeks to answer the following questions:

1. What SRL strategies do students use for vocabulary learning?
2. How do students integrate digital tools in their SRL practices?
3. What challenges affect their consistency and application of SRL strategies?

By focusing on learners' experiences, this study aims to contribute theoretically by extending SRL research to higher education vocabulary learning and practically by offering insights for designing pedagogical interventions that foster resilient learner autonomy.

2. Literature Review

2.1. SRL Theory and Models in Language Learning

Self-regulated learning (SRL) offers a framework for understanding how learners take an active role in their own academic progress. Zimmerman's (2000) The cyclical model, comprising forethought, performance, and self-reflection, remains the most widely applied framework, conceptualizing learning as a dynamic, recursive process of planning, monitoring, and evaluation. Within language learning, SRL theory has been applied to explore how learners regulate their motivation, strategies, and environment in achieving linguistic goals (Teng et al., 2024). More recent studies highlight the role of affective regulation in sustaining effort, showing that learners who can manage emotions and setbacks maintain stronger vocabulary gains (Elcin & Şahinkarakaş, 2021).

2.2. Vocabulary Learning Strategies and SRL

Vocabulary learning is a domain where SRL strategies are highly visible. Early work such as Schmitt's (1997) classification of discovery and consolidation strategies and Oxford's (1990) taxonomy of direct and indirect strategies provided foundational insights. Later studies show that vocabulary acquisition depends less on isolated techniques and more on learners' capacity to regulate these strategies systematically. For example, Terzić and Takač (2020) found that more proficient learners employed metacognitive strategies such as planning and monitoring more consistently, leading to greater retention and autonomy. Similarly, Muslim and Mahbub's (2023) showed that cross-cultural learners combined cognitive rehearsal with context-specific tools, demonstrating that SRL mediates the adaptation of strategies to diverse learning environments. In contrast, Zahra (2020) found that environmental control was the most common SRL strategy among Indonesian EFL students, yet it showed a weak negative correlation with vocabulary size, suggesting the influence of instructional methods and resources.

2.3. Digital Literacy and SRL in EFL Contexts

The digital turn in language education has reshaped vocabulary learning practices, making SRL more complex but also more accessible. Studies indicate that digital tools foster motivation and efficiency but require self-discipline. Boroughani et al. (2023) showed that learners using mobile flashcards significantly outperformed those relying on word lists, while Bowles (2024) found that laptops supported stronger SRL practices than smartphones due to reduced distraction. Further showed that digital familiarity enhances self-efficacy and goal orientation, while Octaviani et al. (2023) highlighted that mobile apps such as Socrative still require teacher scaffolding to be effective. These findings suggest that digital literacy and emotional regulation are now integral to SRL in vocabulary learning.

2.4. Conceptual Framework

Synthesizing these perspectives, the present study positions Zimmerman's (2000) SRL cycle as the analytical lens, mapped to vocabulary learning strategies. In this framework, forethought includes goal setting and planning word learning; performance involves using strategies such as rehearsal, elaboration, or digital practice tools; and self-reflection includes reviewing retention and adjusting strategies. Figure 1 illustrates this mapping, integrating SRL phases with vocabulary learning strategies.

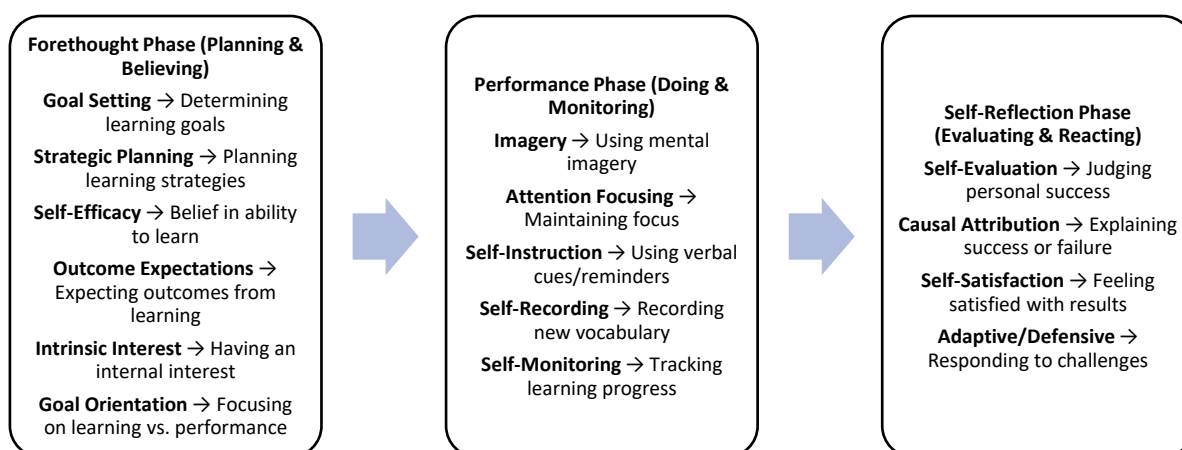


Fig. 1. Conceptual diagram mapping Zimmerman's SRL phases to vocabulary learning strategies

3. Method

3.1. Design

This research employed a qualitative research design with a phenomenological approach to capture the lived experiences of students in self-regulating their vocabulary learning. As Creswell and Creswell (2018) note, qualitative research is particularly suited to examining the meanings individuals assign to their experiences in authentic contexts. At the same time, a phenomenological approach enables the capture of rich, personal insights into those experiences.

3.2. Context

The research was conducted in the English Language Education Department of Universitas Riau during the 2024/2025 academic year.

3.3. Participants

Fourteen second-semester undergraduate students participated. Participants were selected through purposive sampling based on three criteria: completion of the first-semester Vocabulary course, engagement in independent vocabulary learning, and evidence of SRL strategy use identified through a preliminary screening survey. Data saturation, defined as the point when no new themes emerged, determined the final sample size (Creswell & Creswell, 2018). To ensure confidentiality, pseudonyms (e.g., P1, P2) were assigned to all participants.

3.4. Data Collection

Data were gathered through individual semi-structured interviews lasting 15–25 minutes, conducted in Bahasa Indonesia to ensure clarity and authenticity. All interviews were audio-recorded with participants' explicit consent. The interview protocol was systematically adapted from Zimmerman's (2000) The Self-Regulated Learning Cyclical Phases model guides the discussion through forethought, performance, and self-reflection while allowing flexibility to explore emerging themes.

3.5. Analysis

The interview recordings were transcribed and analyzed using thematic analysis, following the rigorous six-phase framework developed by Braun and Clarke (2006) to identify, analyze, and report patterns within the data. Coding was conducted manually to ensure sustained, close engagement with the data and to allow nuanced interpretation of participants' lived experiences, rather than relying on software-assisted categorization. Emerging codes and themes were iteratively refined through constant comparison until stable thematic patterns were established.

3.6. Trustworthiness

To ensure the study's trustworthiness, the credibility of the findings was significantly strengthened through member checking, where each participant reviewed their interview transcript to confirm its accuracy and ensure their experiences were faithfully represented. Dependability was strengthened by maintaining a clear audit trail of analytic decisions.

3.7. Ethics

The supervising faculty approved the research protocol, and all participants provided written informed consent before their involvement in the study. Throughout the research and in this article, participant confidentiality and anonymity have been protected through the use of pseudonyms.

4. Findings

This section outlines the results of the research centered around the three key research questions. The findings are categorized into three significant thematic discoveries, each supported by direct quotations from participants.

4.1. Theme 1: Adaptive and Personalized SRL Strategies

The first and most prominent finding is that students employed a wide range of SRL strategies in ways that are flexible, personalized, and at times, informal. Their behaviors align with Zimmerman's (2000) three-phase model of forethought, performance, and self-reflection, but the application is rarely linear.

1) Forethought Phase: Personalized Planning and Motivation

In the forethought phase, which involves goal-setting, task analysis, and strategic planning, students demonstrated several behaviors. While some engaged in structured planning, many relied on more fluid, intuitive approaches, especially regarding goal-setting. For instance, P1 described an ambitious plan to formalize her informal learning: "... the 1000-word level, I already know that. But the 5000-word one, then the C1 and C2 levels, I don't... I haven't mastered those yet. I want to master them...Initially, I wanted to make a schedule like I read two articles per day on Medium" (P1). This contrasts with P6, who preferred opportunistic learning: "...back in high school, I had a target of learning 10 vocabulary words per day. But now, not anymore—I just go with whatever I can pick up" (P6). Planning was also time-driven, as P9 explained: "...before the learning process, most of the time it's exam time...ten o'clock and above, this handphone will be used for two hours of study time" (P9). P13 described her interest-driven planning: "...if I'm interested in something, let's say, a topic like 'garden', then I'll look for vocabulary related to that topic. So, I group vocabulary based on specific themes or topics" (P13). Motivation stemmed from enjoyment ("...learning English vocabulary is actually exciting" (P14) and self-efficacy ("...I believe that if I really want it, I can definitely do it" (P1)).

2) Performance Phase: Cognitive and Self-Control Strategies

During the performance phase, students applied cognitive strategies such as repetition, memorization, and note-taking. P1 explained how she used video clips to reinforce memory: "...since they speak English, I usually repeat it over and over... And if I don't repeat it, I'll definitely forget it" (P1). P2 used visual reminders: "...to make it stick better in my head, I might write it on a piece of paper and stick it near my study desk" (P2). P14 also used a systematic, categorical approach learned in middle school: "...yes, I do add new vocabulary, and vocabulary is usually separated - verbs, nouns, like that. It has to be, because there's a table.". However, the discipline required to maintain these habits was a significant challenge for others. P5 admitted: "...I created new vocabulary entries in one notebook... but I didn't continue it in the second semester" (P5). Self-control was evident in managing distractions: "...because I study using a laptop, I asked my mom to hold my phone" (P1).

3) Self-Reflection: Adaptive and Evaluative Practices

Learners modified strategies when ineffective. P6 noted: "...I used to pause whenever I didn't understand something, then translate it... But that turned out to be ineffective. I looked for tutors on YouTube, looked for tips and tricks. Then tried to apply them, and filtered which ones were effective and suitable for me" (P6). Success was measured through real-world competence, as P9 reflected: "...like, when suddenly someone speaks English to me, and I can respond. I immediately feel like, 'Wow, I can actually do it.' Before, I couldn't" (P9).

4.2. Theme 2: Students Actively Use Digital Tools for Vocabulary Learning

Technology played a central role, with students actively curating personalized digital learning environments. Digital tools like Duolingo, YouTube, TikTok, and translation apps like DeepL were not merely supplementary aids but were integral to their vocabulary acquisition strategies. P2 explained that apps like Duolingo motivate through gamification: "...I've been using Duolingo for quite a while, and I think it's really helpful... the app is fun like a game. It doesn't make me bored, and it sticks better in my memory" (P2). TikTok, Netflix, and gaming enriched vocabulary acquisition. P13 explained that she shifted from Instagram to TikTok for vocabulary content: "...lately, I wasn't using Instagram, but it turns out TikTok is more fun. You can search on TikTok, and it's more specific compared to Instagram, which can be general" (P13). P5 added: "...from music, and also from movies on Netflix... without subtitles... I learned new words without realizing it." P14 added another dimension: "...I also learn vocabulary from playing games. Sometimes there are uncommon words, especially in RPGs with storylines." (P14).

4.3. Theme 3: Students Struggle to Turn Awareness into Consistent Action

Despite their resourcefulness and strategic awareness, the third major finding highlights a significant and persistent gap between students' knowledge of effective strategies and their ability to apply them consistently, due to some contextual pressures. P3 described this pressure: "...time, I think. Because in Semester 1, it was still calm, but in Semester 2, there were suddenly so many assignments... I end up thinking, 'I'll do it later; I'm too tired.' Time management becomes an issue" (P3). P2 also admitted this sentiment of fatigue: "...especially when there are lots of assignments. There's no extra time to focus more. I feel tired" (P2). Many students struggled to integrate new vocabulary into their own speaking and writing actively. P14 admitted: "...but the problem is still a lack of practice. I need to use it in sentences or in conversation. Application is rare" (P14). P1 confessed her inconsistency with a daily reading goal: "...but I wasn't consistent... because of inconsistency and laziness, sometimes I didn't read at all" (P1).

4.4. Summary of Findings

Table 1. Summary of the Findings

Theme	Subthemes	Key Evidence (Quotes)	Implications
1. Adaptive SRL Strategies	Forethought, Performance, Self-Reflection	P6: "I just go with whatever I can pick up..." P1: "I asked my mom to hold my phone..." P6: "I looked for tutors on YouTube, then filtered which ones were effective..."	SRL is flexible, adaptive, and context-driven.
2. Digital Learning Environment	Gamified apps, Social media and Entertainment (TikTok, YouTube, Netflix, games), Personalized curation		Digital literacy is integral to vocabulary learning.
3. Awareness-Action Gap	Time management issues under academic demands, Limited productive use of vocabulary, Motivation, and consistency issues	P3: "Suddenly there were so many assignments... I'll do it later" P14: "Application is rare" P1: "I wasn't consistent... laziness kicked in"	Pedagogy must address affective and behavioral regulation.

5. Discussion

This study examined how EFL university students regulate their vocabulary learning. Three key themes emerged: adaptive SRL strategies, digital ecosystems, and the awareness–action gap. Each is discussed below in relation to existing theories of self-regulated learning, previous research on self-regulated vocabulary learning, and broader significance.

5.1. Theme 1: SRL as Adaptive and Context-Sensitive

The findings of this study show that self-regulated learning (SRL) should be understood as a flexible and adaptive process rather than a fixed sequence. Zimmerman's (2000) model: forethought, performance, and self-reflection, has been widely used, but in practice, students did not always follow these steps in order. Instead, they adjusted their learning depending on time limits, emotions, or study conditions. For example, some moved quickly from planning to reflection without a clear performance stage, especially when the workload was high.

This result supports Rosário et al. (2015), who stress the importance of conditional knowledge, or knowing when and why to use strategies. When compared with earlier studies, the findings of this research both confirm and extend current knowledge. Like Terzić and Takač (2020), Mulyani (2020), and Paudel (2019), this study shows that SRL is not a single fixed process but one that learners adjust to fit their personal needs. What this study adds is a closer look at *why* students adapt their strategies, showing how university demands, workload, and emotions shape their choices. This highlights the importance of motivation and self-belief, confirming the role reported in studies such as Sharizan et al. (2022), An et al. (2021), and Mustapha et al. (2023). The rise of intrinsic motivation and interest-based learning (P13, P14) further confirms that personal relevance can be a stronger driver than formal targets, a nuance that expands our motivation within the SRL understanding framework.

This is in line with observations from Japan, where learners with higher proficiency show metacognitive awareness and more active involvement in the process of self-regulation (Yabukoshi, 2020). Further, the evolution of strategic sophistication appears to be related to academic experience, given that significant differences in the use of strategies between undergraduate and postgraduate students have been observed in Iran (Ghalebi et al., 2020) suggesting a common developmental trajectory in various EFL environments.

The findings invite a rethinking of SRL as a cognitive-emotional-digital ecosystem rather than a solely strategic process. From a theory perspective, this means Zimmerman's model should be seen as a guiding framework rather than a step-by-step rule. This is especially important in Global South

contexts, where students often deal with exam-driven systems, large classes, or a lack of learning support. For them, being flexible with strategies is not optional, it is necessary to cope with their environment.

5.2. Theme 2: Digital Ecosystems and Learner Agency

Another strong theme is students' ability to build their own 'digital ecosystems'. They combined apps, online dictionaries, videos, games, and even social media to support vocabulary learning. The strategic and sophisticated selection of tools (e.g., P13 chose TikTok over Instagram) showed students acting as curators of their own learning environment intentionally. These findings are supported by empirical evidence from Iran, where mobile-assisted SRL significantly outperforms traditional methods such as word lists in developing academic vocabulary knowledge (Boroughani et al. (2023)).

The gamified and immersive nature of tools like Duolingo (P2) effectively supports the performance phase by increasing motivation and providing implicit learning opportunities. This relationship between tool use and self-regulation is further strengthened by research in Turkey, which has established a positive correlation between students' self-regulation skills and their use of vocabulary learning strategies by Gorgoz and Tican (2020), which shows that digital literacy and self-regulation reinforce each other.

However, this study moves further by showing students' digital resourcefulness, the way they combined different apps and media to create their own learning systems. Unlike younger learners in Indonesia (Sharizan et al., 2022; Octaviani et al., 2023), who often used apps under teacher guidance, these university students took greater control of their learning. At the same time, problems with distraction support Bowles (2024), while the use of both traditional and digital strategies confirms Sari (2022).

From a broader perspective, these results are globally significant because they show how students in resource-limited contexts develop independent and creative ways of learning through technology. This suggests that digital resilience and adaptability are becoming central features of SRL in higher education, especially in the Global South where institutional support may be uneven.

5.3. Theme 3: The Awareness-Action Gap

Despite having a high level of strategic awareness and digital access, there is a significant gap between knowing what to do and implementing it consistently. These challenges, driven by excessive academic pressure and poor time management (P2, P3), reveal how environmental pressures can cripple the transition from planning to performance. This phenomenon is not unique to Indonesia; this is a major obstacle to SRL's efficacy. In Turkey, for example, research has shown that the capacity to manage emotions and cope with setbacks is a key differentiator, where learners who are unable to manage negative feelings often stagnate despite having made an effort (Elcin & Şahinkarakaş., 2021).

The struggle to bridge receptive knowledge to active use (P14) points to a specific deficit in self-regulation for productive skills. This gap may be partly explained by underlying motivational beliefs. Research from China shows that a learner's mindset is a strong predictor, finding that growth mindset positively predicts self-regulation capacity, which in turn leads to better vocabulary outcomes (Teng et al., 2024).

Moreover, the data challenge the assumption that strategic awareness necessarily leads to strategic behavior. Several students demonstrated a clear understanding of effective vocabulary strategies but struggled to apply them consistently. The increasing weight of academic assignments, group projects, and other responsibilities as the semester progressed left students feeling mentally and physically exhausted. This finding aligns with research by Wolters and Brady (2021), and the specific barrier of time management pressure echoes the work of Theobald (2021). This illustrates the critical need to consider affective and behavioral regulation as equally central to SRL, echoing Schraw et al.'s (2006) view that metacognitive knowledge alone is insufficient for academic self-regulation. Academic pressure reported by Indonesian students can trigger a fixed mindset, thereby weakening the self-regulatory capacity that is urgently needed to close the awareness-action loop.

This research expands SRL theory by contextualizing it in the digital and socio-academic landscape of Indonesian higher education, revealing both confirmation and critical challenges. Although the findings affirm the core principles of the Zimmerman cycle model and the importance

of metacognitive adaptation, these findings complicate the theory by suggesting that high strategic awareness and access to digital tools are not enough without the capacity to bridge intent into action. Ultimately, this study calls for a more integrated theoretical framework that considers the complex interactions between digital tool curation, mindsets, and contextual pressures in shaping self-regulatory behaviors.

6. Conclusion

6.1. Summary of Findings

This study revealed that EFL students employ personalized and adaptive approaches to vocabulary learning, engaging flexibly in all three phases of Zimmerman's self-regulated learning cycle: forethought, performance, and self-reflection. Digital tools such as Duolingo, TikTok, and YouTube played a central role in shaping individualized learning ecosystems, blending academic study with informal media. However, students struggled with sustaining consistency, particularly in goal-setting, time management, emotional regulation, and transforming receptive vocabulary into productive use. These findings highlight a persistent gap between strategic awareness and effective application.

6.2. Pedagogical Implications

The findings of this study suggest that instruction in SRL needs to go beyond strategy introduction. Educators must recognize that learners often know what to do but struggle with when, how, and how consistently to do it. Thus, SRL support should integrate not only metacognitive and cognitive training but also emotional regulation, motivation management, and peer collaboration. Teachers should provide explicit instruction in goal-setting, planning, and self-monitoring techniques, helping students move from intuitive behavior to systematic habits, moving beyond awareness of strategies to fostering consistent practice. It is important to support students' development of emotional and behavioral regulation skills.

In addition, integrating digital literacy into pedagogy is crucial, enabling learners to harness online platforms productively while minimizing distractions. Digital literacy must be addressed directly. Educators can guide learners in critically selecting and combining tools based on their specific needs and also teach strategies for minimizing distraction and maximizing focus in online environments. Finally, scaffolding emotional and behavioral aspects of SRL is essential. Teachers and institutions can offer peer learning sessions, progress-tracking support, or even regular check-ins to help learners sustain their efforts.

6.3. Limitations and Research Agenda

The study's qualitative design with 14 participants offers rich insights but limits generalizability. Future research could adopt longitudinal or mixed-methods approaches to examine how SRL strategies develop over time and across different learning contexts. Further exploration of how digital tools mediate the transition from receptive to productive vocabulary use would also strengthen understanding of sustainable learner autonomy. Future research could explore how structured interventions, such as SRL workshops or digital portfolio systems, might improve the consistency of vocabulary learning among EFL students. In conclusion, supporting SRL in vocabulary learning requires a multifaceted approach. It involves building learners' strategic capacity, emotional resilience, and digital competence while recognizing the complex realities they face in balancing awareness with consistent action.

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Declarations

- Author contribution : CJ conceptualized the study, drafted the initial manuscript, collected the data, and conducted the analysis. AD and ITP formulated the research questions, reviewed the analysis, and provided critical feedback on the manuscript. All authors contributed to the refinement and finalization of the paper.
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- Conflict of interest : The authors declare no conflict of interest.
- Ethics Declaration : The authors affirm that this study was carried out in accordance with our university's ethical guidelines and that the necessary permissions were obtained from relevant institutions for data collection. We support TEFL Journal's commitment to high standards of integrity and honesty in professional research practices.
- Additional information : No additional information is available for this paper.

REFERENCES

- Agustianti, E, Delfi, S., & Dahnilyah, D. (2021). The correlation between university students' vocabulary learning strategies and the vocabulary mastery level. *J-SHMIC: Journal of English for Academic*, 8(2), 153–167. [https://doi.org/10.25299/jshmic.2021.vol8\(2\).7392](https://doi.org/10.25299/jshmic.2021.vol8(2).7392)
- An, Z., Wang, C., Li, S., Gan, Z., & Li, H. (2021). Technology-assisted self-regulated English language learning: Associations with English language self-efficacy, English enjoyment, and learning outcomes. *Frontiers in Psychology*, 11(January). <https://doi.org/10.3389/fpsyg.2020.558466>
- 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(1). <https://doi.org/10.1007/s44217-023-00028-z>
- Bowles, M. (2024). Digital, self-regulated vocabulary learning and device control in out-of-class , higher education settings. *Electronic Journal of e-Learning (EJEL)*, 22(1), 17–30. <https://doi.org/10.34190/ejel.22.1.3261>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications, Ltd.

- Elcin, D., & Şahinkarakaş, Ş. (2021). Self-regulatory capacity of learners' with differing proficiency levels in vocabulary acquisition during three periods. *Shanlax International Journal of Education*, 9(S1-May), 162–197. <https://doi.org/10.34293/education.v9is1-may.4011>
- Ghalebi, R., Sadighi, F., & Bagheri, M. S. (2020). Vocabulary learning strategies: A comparative study of EFL learners. *Cogent Psychology*, 7(1). <https://doi.org/10.1080/23311908.2020.1824306>
- Gorgoz, S., & Tican, C. (2020). Investigation of middle school students' self-regulation skills and vocabulary learning strategies in foreign language. *International Journal of Educational Methodology*, 6(1), 25–42. <https://doi.org/10.12973/ijem.6.1.25>
- Harselina, I., & Andi, B. S. (2024). Students' difficulties with vocabulary mastery in English language education at the university level. *Journal of English Language Teaching*, 11(2), 120–134. [https://doi.org/10.25299/jshmic.2024.vol11\(2\).18668](https://doi.org/10.25299/jshmic.2024.vol11(2).18668)
- Masyhur, M., Marzuki, M., Harfal, Z., & Yunika, S. (2019). *Vocabulary size of students of English study program of fkip Universitas Riau; A cross-sectional study* Paper presented at the Proceeding of the SS9 & 3rd URICES. <https://scispace.com/pdf/vocabulary-size-of-students-of-english-study-program-of-fkip-4ogwdr92z.pdf>
- Mulyani, S. (2020). Language learning strategies of successful EFL learners. *International Journal in Applied Linguistics of Parahikma*, 2(1), 31–39. Retrieved from <https://journal.parahikma.ac.id/ijalparahikma>
- Muslih, M. (2021). The influence of students' mastery of vocabulary on paraphrasing ability. *Indonesian Journal of Instructional Media and Model*, 3(1), 9. <https://doi.org/10.32585/ijimm.v3i1.925>
- Muslim, B. Z., & Mahbub, Moh. A. (2023). The role of self-regulated learning on foreign vocabulary learning: a multi-case study. *Journal on English as a Foreign Language*, 13(1), 78–101. <https://doi.org/10.23971/jefl.v13i1.5238>
- Mustapha, A. M., Zakaria, M. A. Z. M., Yahaya, N., Abuhassna, H., Mamman, B., Isa, A. M., & Kolo, M. A. (2023). Students' motivation and effective use of self-regulated learning on learning management system moodle environment in higher learning institution in Nigeria. *International Journal of Information and Education Technology*, 13(1), 195–202. <https://doi.org/10.18178/ijiet.2023.13.1.1796>
- Octaviani, R., Setyarini, S., & Rodliyah, R. S. (2023). Self-regulated learning strategies in vocabulary learning using socrative app. *Issues in Applied Linguistics & Language Teaching*, 05(01), 18–23. <https://doi.org/10.37253/ialltech.v5i1.6720>
- Oxford, R. L. (1990). *Language learning strategies : What every teacher should know*. Heinle & Heinle.
- Paudel, P. (2019). Learning strategies employed in English language : Perceptions and practices learning strategies employed in English language : Perceptions and practices. *Journal of NELTA Gandaki, I*, 87–89. <https://doi.org/10.3126/jong.v1i0.24463>
- Rosário, P., Núñez, J. C., Trigo, L., Guimarães, C., Fernández, E., Cerezo, R., Fuentes, S., Orellana, M., Santibáñez, A., Fulano, C., Ferreira, Â., & Figueiredo, M. (2015). Transcultural analysis of the effectiveness of a program to promote self-regulated learning in Mozambique, Chile, Portugal, and Spain. *Higher Education Research and Development*, 34(1), 173–187. <https://doi.org/10.1080/07294360.2014.935932>
- Sari, F. W. (2022). Vocabulary learning strategies employed by undergraduate Indonesian EFL students. *Jurnal Bilingual*, 11(2), 142–145. <https://doi.org/10.33387/j.bilingual.v11i2.3995>
- Schmitt, N. (1997). *Vocabulary learning strategies* In J. C. Richards (Ed.), *Vocabulary: Description, acquisition and pedagogy* (pp. 199–227). Cambridge: Cambridge University Press.
- Schraw, G., Kauffman, D. F., & Lehman, S. (2006). Self-Regulated Learning. *Encyclopedia of Cognitive Science, January*. <https://doi.org/10.1002/0470018860.s00671>

- Sharizan, S., Purwanti, I. T., & Eliwarti, E. (2022). Self-efficacy and self-regulated learning for English content courses in online learning. *JURNAL PAJAR (Pendidikan Dan Pengajaran)*, 6(2), 608. <https://doi.org/10.33578/pjr.v6i2.8703>
- Teng, M. F., Mizumoto, A., & Takeuchi, O. (2024). Understanding growth mindset, self-regulated vocabulary learning, and vocabulary knowledge. *System*, 122(June), 103255. <https://doi.org/10.1016/j.system.2024.103255>
- Terzic, B. B., & Takac, V. P. (2020). Cognitive and metacognitive vocabulary learning strategies: Insights from learning diaries. *Vocabulary in curriculum planning* (pp. 122–142). Springer.
- Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology*, 66(May), 101976. <https://doi.org/10.1016/j.cedpsych.2021.101976>
- Widiadnya, I. G. N. B. Y. (2023). Teaching vocabulary to young learners: Combination of semantic mapping and bingo game. *Jurnal Pendidikan, Sains Dan Teknologi*, 2(4), 747–754. <https://doi.org/10.47233/jpst.v2i4.1182>
- Wolters, C. A., & Brady, A. C. (2021). College students' time management: A self-regulated learning perspective. *Educational Psychology Review*, 33(4), 1319–1351. <https://doi.org/10.1007/s10648-020-09519-z>
- Yabukoshi, T. (2020). Self-regulated learning processes outside the classroom: Insights from a case study of Japanese efl students. *Journal of Asia TEFL*, 17(3), 758–777. <https://doi.org/10.18823/asiatefl.2020.17.3.1.758>
- Zahra, S. M. (2020). Self-regulated learning strategies and vocabulary size among Indonesian EFL senior high students. *E-Journal Unesa*, 08, 167–173. <https://ejournal.unesa.ac.id/index.php/retain/article/view/34472/30995>
- Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp.13-39). Academic Press. <https://doi.org/10.1016/B978-012109890-2/50031-7>
- Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, 45(1), 166–183. <https://doi.org/10.3102/0002831207312909>