



Empowering Vocabulary Mastery: Exploring Self-Regulation Strategies Among Iranian EFL Learners

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ABSTRACT

Recent developments in foreign language education have sparked numerous studies emphasizing the importance of students' goal-setting, learning strategy selection, and management of their learning processes. Language learners frequently encounter difficulties in utilizing self-regulation strategies, which educators must address to effectively support their students. This research critically examines the emerging significance of self-regulation learning strategies in vocabulary acquisition. Utilizing an explanatory sequential design and various data collection methods, including questionnaires, interviews, and observations, this study aimed to shed light on different aspects of self-regulation strategy use among 200 Iranian EFL pre-intermediate and intermediate level students, selected through convenient sampling from various English institutes in Urmia, Iran. Statistical analyses, such as the T-test and Mann-Whitney test, indicated that Iranian EFL learners' application of self-regulation strategies for vocabulary learning is above average. The subscales of self-regulated learning strategies positively influence vocabulary acquisition. Additionally, the findings revealed no significant difference in vocabulary learning between male and female Iranian EFL learners. Furthermore, the interviews suggested that learners who consistently employed self-regulation strategies experienced enhanced vocabulary acquisition, better retention, and more effective usage in speaking and writing tasks.

KEYWORDS: Learning Strategy; Self-regulated Learning; Self-regulated Learning Strategies; Vocabulary Knowledge

INTRODUCTION

Vocabulary acquisition is a crucial aspect of learning any language, significantly predicting future success. For learners of English as a Foreign Language (EFL), an extensive vocabulary knowledge base enhances communication capacity, which is vital for effective language use. Vocabulary learning not only involves memorizing word meanings but also understanding pronunciations, collocations, translations, synonyms, and registers, which collectively contribute to proficient language skills. However, learners often face challenges in acquiring the necessary vocabulary due to various factors such as reluctance to listen to teachers, lack of reliance on teacher assistance, and improper use of vocabulary sources.



Self-regulated learning (SRL) is recognized as a crucial skill for continuous learning throughout life (Dent & Koenka, 2016). SRL involves learners actively and persistently engaging in cognitive, emotional, and behavioral activities to reach their individual objectives (Zimmerman & Schunk, 2011). According to Zimmerman (2002), self-regulated learners take control of their learning process by employing goal-oriented metacognitive, cognitive, motivational, and emotional techniques to gain knowledge and skills. Veenman et al. (2006) argued that such a repetitive process includes metacognitive strategies such as planning, monitoring, and evaluating, which are advanced skills that oversee cognitive, emotional, and motivational strategies during learning and task execution. They also explained that metacognition, a fundamental aspect of SRL, helps learners assess their strengths and weaknesses, and track and adapt their actions to realize their aspirations. It includes knowledge about strategies, tasks, and self (Pintrich, 2002). Metacognitive skills are versatile and applicable across various learning contexts and subjects (Donker et al., 2014). However, learners exhibit differing levels of SRL competence, particularly in metacognitive skills (Heirweg et al., 2020; Karlen, 2016). Nonetheless, Donker et al. (2014) asserted that students can enhance their SRL abilities through metacognitive strategy training (Donker et al., 2014).

In 2002, Pintrich claimed the pivotal role played by teachers in helping students become metacognitively engaged self-regulated learners. Perry et al. (2020) and Dignath and Veenman (2021) argued teachers' capacity in developing students' metacognitive growth by designing challenging tasks, granting decision-making autonomy, modeling strategies, and giving students the chance to control and self-assess their learning. However, some educators find it difficult to effectively activate and support their students' metacognitive abilities (Pintrich, 2002; Spruce & Bol, 2015; Zohar & Ben-Ari, 2022). Despite increasing interest in SRL strategies, limited research has examined SRL in vocabulary knowledge among Iranian EFL learners, particularly using a mixed-method design. This research seeks to address this void by thoroughly investigating the impact of self-regulated learning (SRL) on vocabulary acquisition among Iranian EFL students. Key inquiries guiding this study include:

1. How extensively do Iranian EFL students utilize self-regulation techniques in their vocabulary acquisition?
2. Are there notable disparities between Iranian male and female students in their use of self-regulation strategies for vocabulary acquisition?

Therefore, this study aims to enrich comprehension of how self-regulated learning tactics influence vocabulary attainment in Iranian EFL learners. Through exploring the outlined research questions, it aims to elucidate the efficacy of SRL in augmenting vocabulary proficiency and potential variances in strategy utilization between genders. The outcomes are anticipated to guide educational methodologies and aid in devising interventions that bolster self-regulated vocabulary acquisition in EFL learners.

REVIEW OF THE RELATED LITERATURE

Self-regulated learning is identified by several theories, including phenomenological, operant, and social cognitive theories. Phenomenological theorists argue that there is a bond between cyclic processes and covert perceptual elements such as self-esteem and self-concepts (Karlen et al., 2020). Operant theorists suggest that self-learning involves overt processes such as recording, instructing, and reinforcing the self (Pratibha, 2017). Social cognitive theorists emphasize that positive feedback is crucial for attaining goals, gaining skills, and developing competencies (Schunk & DiBenedetto, 2020). Feedback on learning effectiveness plays a significant role in self-regulated learning.

Oxford (2011) considers cognitive, metacognitive, and various social behavioral dimensions for self-regulation. According to Dörnyei (2005), it is a dynamic and multifaceted process where learners establish educational objectives and actively motivate, regulate, and maintain their emotions and learning behaviors, ultimately enhancing their academic performance. Scholars like Bohlmann and Downer (2016) and DiBenedetto (2018) support the facilitating role of self-regulation in interaction among second language learners and aids their adaptation to classroom settings. In addition, Cadima et al (2019) and Manchón (2020) argued that learners possessing strong self-



regulation skills maintain task focus and exhibit reduced susceptibility to external influences, such as prior educational experiences, classroom management practices, and schooling effects. Moreover, they can effectively address deficiencies in the L2 learning process. Phan and Locke(2015) explained how educators can gauge factors impacting L2 learning through assessments of students' levels of self-regulation.

The literature underscores the significance of self-regulation in bolstering L2 learning outcomes (Ma & Oxford, 2014; Hromalik & Koszalka, 2018; Abdolrezapour & Ghanbari, 2021). Second language learners effectively employ self-regulation during classroom activities and apply their acquired knowledge to enhance speaking, writing, and reading skills beyond formal instruction (Yabukoshi, 2021; Tian et al., 2022). Various models have examined the interplay between self-regulation and factors such as motivation, learning efficacy, and time, highlighting the influence of personal initiative and the variability of these relationships (Nietfeld et al., 2014; Vanslambrouck et al., 2019). For instance, Vietnamese university students with stronger language proficiency demonstrate significantly higher levels of self-regulation in L2 learning compared to their counterparts (Kim et al., 2021).

González-Fernández (2022) explained how understanding of vocabulary encompasses multiple facets and diverse elements. However, Melka (1997) argued that early studies primarily concentrated on the form and meaning of vocabulary, exploring the relationships between these aspects. González-Fernández and Schmitt (2020) criticize the old literature as it overlooked the multidimensionality of vocabulary knowledge, the functions of distinct aspects, and their respective contributions to overall vocabulary knowledge. This complexity presents challenges in accurately measuring vocabulary mastery (González-Fernández & Schmitt, 2020).

Research suggests that learners with stronger self-regulation capabilities (SRCs) tend to benefit more from L2 learning compared to those with weaker SRCs (Raver et al., 2011; Naderifar, 2018). Truong and Wang (2019) observed a notable relationship between self-regulation and proficiency in vocabulary, with both factors mutually influencing each other to enhance L2 vocabulary levels of Vietnamese university students. However, this relationship seems to be more pronounced in the initial and intermediate phases of language acquisition as later stages show no substantial predictive impact of self-regulation on vocabulary knowledge. In fact, at advanced stages, L2 learners may experience adverse emotions and diminished learning effectiveness (Connor et al., 2016; ten Braak et al., 2019). Kim et al. (2020) showed that Vietnamese university students generally exhibit poorer self-regulation compared to their peers from other countries, and Wang and Bai, (2017) consider this deficit particularly noticeable among newly enrolled students compared to those with more broad learning background.

Ramsook et al. (2020) reported family income and parental influence as the external factors that can disrupt the correlation between self-regulation and vocabulary mastery for a number of second language learners. Conversely, L2 learners' attitudes towards learning have shown a strong impact on vocabulary knowledge (Su et al., 2019; Lan et al., 2020). The duration of L2 learning, learning experiences, and self-regulation are also reported as the factors playing crucial roles in influencing Vietnamese university students' vocabulary knowledge. Studies using the strategic self-regulation model have categorized self-regulation into different dimensions and analyzed L2 learners' use of these strategies through questionnaires (Oxford, 2011; Seker, 2015). However, these studies sometimes fail to clearly differentiate the structural relationships among these factors, resulting in overlapping conclusions (Seker, 2015). This is particularly evident among Vietnamese university students, where significant discrepancies in self-regulation performance exist depending on their language proficiency levels (Truong, 2017).

Longitudinal research has shown that elements like the length of the learning period have a considerable impact on the predictive link between self-regulation and vocabulary acquisition (Hromalik & Koszalka, 2018; Birgisdottir et al., 2020). Truong and Wang, (2019) also consider gender as a significant factor in this relationship among university students, although studies note a predominance of female participants which can skew results. Furthermore, motivation is vital for effective vocabulary use and is influenced by learning conditions (Tseng & Schmitt, 2008). Researchers emphasize the importance of self-regulation in developing the learning process. Tseng et al. (2006) note that good self-regulation is crucial for coping with the large English lexicon. Strategic vocabulary



learning heavily depends on both students and teachers. Teachers should provide opportunities for students to learn lexical items and offer support when needed, especially in selecting learning strategies (Bansaeid, 2013).

In recent studies, researchers have explored the reasons behind teachers' varying support for students' metacognitive growth. Several teacher competences act as influential in teaching practices and classroom dynamics. Specifically, teachers' professional knowledge, beliefs, and motivation are crucial components of their general professional competences (Blömeke et al., 2015) and their competences in self-regulated learning (Karlen et al., 2020). Advancements in research on teachers' professional competences in SRL emphasize the importance of teachers' dual roles. It is essential for teachers to be both effective self-regulated learners and facilitators of SRL to enhance their students' SRL and metacognitive skills (Bembenutty et al., 2015; Karlen et al., 2020). Until now, research has predominantly focused on one aspect of this dual skill set: teachers as facilitators of self-regulated learning (Perry et al., 2008; Dignath & Büttner, 2018). The second aspect, which considers teachers as self-regulated learners, has received significantly less attention. As a result, the combined impact of both roles on teachers' instructional practices has not been thoroughly explored.

A significant amount of empirical studies emphasizes the success of SRL strategies in language teaching and learning. Khezerlou and Sadeghi (2012) analyzed students' employment of self-regulated vocabulary strategies (SRVS) across diverse learning settings and identified notable differences based on individual factors. Similarly, Zarei and Hatami (2012) found strong correlations between self-checking, effort, and vocabulary proficiency among Iranian EFL learners. Studies by Wongsriwivat (2021) and Xie (2020) on the capacity for self-regulation in English vocabulary acquisition demonstrated significant variations influenced by gender and other variables. Understanding the determinants of EFL/ESL learning success is vital for enlightening theoretical frameworks, instructional practices, and policy development. Researchers have continually explored these determinants within EFL/ESL environments (Wang & Bai, 2017; Bai, 2018). Self-regulated language learning strategies involve deliberate, goal-focused actions taken by learners to oversee and direct their language learning journeys (Oxford, 2011). Zimmerman and Schunk, (2001) regard these strategies as metacognitive self-regulation, cognitive techniques, and resource management to efficiently guide their learning. For example, learners persistently invest time and effort despite encountering obstacles (effort regulation). Self-regulation is recognized as a pivotal 21st-century skill, extensively studied within educational psychology. However, its theoretical foundations have not been fully integrated into SLA, applied linguistics, or foreign language pedagogy. Recent explorations of self-regulation and language learning strategies (Rose et al., 2018; Griffiths, 2020) assert that self-regulation concepts, assessments, and practices can greatly enhance second/foreign language learning and teaching, presenting numerous avenues for research (Teng & Zhang, 2022).

METHODOLOGY

DESIGN AND PARTICIPANTS

Given that this study uses a two-step process, starting with the collection and analysis of quantitative data and then proceeding to the collection and analysis of qualitative data, an explanatory sequential design was chosen. This method enables interpretation and highlights areas that need further explanation based on the quantitative results. The design was implemented to gain a more thorough understanding of the participants' vocabulary learning strategies (VLSs) by supplementing the quantitative data with qualitative insights. The goal was to uncover additional reasons behind the participants' responses (Ivankova et al., 2006).

Participants included 200 EFL students that were selected by convenient sampling from institutes in Urmia. They were male and females and ranged from 14-25 years old but their gender was not controlled during the research. They were taking pre-intermediate and intermediate courses according to the proficiency level placed by language institutes. The participants were informed about the research and they gave their permission to be part of the study. For the purpose of performing the interviews, 30 students out of those 200 participants were chosen to run the interview procedure.



INSTRUMENTS

To gather data from participants, several instruments were utilized in this study:

A) VOCABULARY LEVELS TEST (VLT)

The Vocabulary Levels Test (VLT) was employed to assess participants' English vocabulary size across different frequency levels, such as the 2000 most frequent words and academic vocabulary. Developed by Schmitt et al. (2001), this test is widely recognized in the field and was utilized to measure vocabulary knowledge in this study.

B) SELF-REGULATING STRATEGY IN VOCABULARY LEARNING SCALE (SRCVOC)

The SRCvoc questionnaire, developed by Tseng et al. (2006), was used to evaluate participants' self-regulatory strategies in vocabulary learning. This instrument consists of 20 items rated on a 6-point Likert scale (ranging from "strongly disagree" to "strongly agree") and encompasses five internal indicators: commitment control, metacognitive control, satiation control, emotion control, and environment control strategies. In this study, the SRCvoc's reliability, established by Martina (2017) with a Cronbach's alpha of 0.795, was confirmed to be 0.90. Its validity was also affirmed by the research supervisor.

C) SEMI-STRUCTURED INTERVIEWS

Selected participants underwent semi-structured interviews to provide qualitative insights. These interviews were conducted in English and were based on systematic open-ended questions to explore self-regulated learning strategies comprehensively.

D) OBSERVATION

Classroom observations complemented the interview findings by providing contextualized descriptions of students' self-regulated learning (SRL) strategies. These observations were conducted in English language classrooms, focusing on observable SRL strategies aligned with participants' language learning goals.

PROCEDURE

Participants were briefed on the study's purpose and procedures to ensure their understanding and comfort. They completed the VLT and SRCvoc questionnaire over a two-week period. Semi-structured interviews followed, allowing participants to elaborate on their SRL strategies. Classroom observations were then conducted across various sessions to capture environmental influences on SRL strategy use.

DATA ANALYSIS

a) SRCvoc: Descriptive statistics and internal consistency reliability analyses were employed to identify the most influential subscales of the SRCvoc questionnaire among participants.

b) Semi-structured Interviews: Qualitative data from interviews were thematically analyzed adhering to Braun and Clarke's (2006) six-stage procedure to reveal recurring themes and patterns in participants' SRL practices.

c) Observation: Classroom observation data were coded to identify and categorize observable SRL strategies based on Wang et al.'s (2005) framework. These observations provided insights into the environmental factors influencing participants' SRL practices. The observations were also performed in the evenings between 5:00 p.m. to 8:00 p.m. based on the course instruction time assigned by institutes. Classroom seating arrangements were different in institutes classrooms, some of them were in U-shape and lecture setup, and others included grid and groups-of-four types. Some classes were well decorated and equipped with almost the latest technology while others were based on traditional classroom environments. In addition, the ethical considerations, including the consent and confidentiality of participants were regarded by the researcher during the process of observation and its subsequent procedures.



RESULTS

This section entails the representation of research questions and hypotheses together with their analysis through the incorporation of pertinent statistical tests.

Research Question1: How extensively do Iranian EFL students utilize self-regulation techniques in their vocabulary acquisition?

Null Hypothesis: Iranian English learners’ use of self-regulation strategies in their vocabulary learning is not above the average. Table 4.1 illustrates the results in this respect.

Table 1
Descriptive Statistics

Variable	N	Mean	Std. Deviation	Std. Error
SRCvoc	200	3.93	.799	.056

Table 2
Results of the T-test for the first research hypothesis

Test Value = 3.5						
		Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		
t	df			Lower	Upper	
SRCvoc	7.612	.000	.430	.32	.54	

Based on the analysis of the collected data and the t-test conducted, the results reject the null hypothesis and affirm the acceptance of the alternative hypothesis. The t-test, with a significance level set at less than zero, provides strong evidence to conclude that Iranian English learners' utilization of self-regulation strategies in their vocabulary learning surpasses the average level. The data analysis indicates a clear and statistically significant deviation from the null hypothesis, supporting the contention that Iranian English learners actively take the advantages of self-regulation strategies to refine their vocabulary mastery. This finding highlights the proficiency and effectiveness of their self-regulatory practices, suggesting that these learners possess a heightened ability to monitor, evaluate, and adjust their learning processes.

Research Question2: Are there notable disparities between Iranian male and female students in their use of self-regulation strategies for vocabulary acquisition?

Null Hypothesis: The use of self-regulating capacity concerning the vocabulary acquisition does not significantly differ between male and female Iranian EFL learners.

Alternative Hypothesis: The use of self-regulating capacity concerning the vocabulary learning differs significantly between male and female Iranian EFL learners.

To examine the research question, The Mann-Whitney test was employed, and its outcomes are depicted below.

Table 3 *Results of the Mann-Whitney Test Concerning the Vocabulary Learning*

Ranks				
	Gender	N	Mean Rank	Sum of Ranks
Vocabulary Learning	Male	186	98.59	18338.50



Female	14	125.82	1761.50
Total	200		

Test Statistics^a

Mann-Whitney U	947.500
Wilcoxon W	18338.500
Z	-1.718
Asymp. Sig. (2-tailed)	.086

a. Grouping Variable: Gender

The Mann-Whitney U test is employed as a nonparametric method to assess distinctions between two separate groups when the dependent variable is ordinal or continuous but does not follow a normal distribution. In this instance, the Mann-Whitney U statistic computes to 947.500, yielding a two-tailed p-value of 0.086.

Traditionally, a p-value of less than 0.05 is considered statistically significant. Given this, with a p-value of 0.086, the null hypothesis is not rejected at a significance level of 0.05. This means that based on the data collected and analyzed, there is no significant evidence to suggest that the vocabulary learning differs between male and female Iranian EFL learners at the 0.05 level. It is important to note that this does not prove that the null hypothesis is true, it simply suggests that based on this particular sample, there is not enough evidence to suggest a significant gender difference in vocabulary learning.

However, the p-value of 0.086 is quite close to the traditional 0.05 cut-off, suggesting that the results might be worthy of further investigation. It's possible that with a larger sample size or different sample selection, a significant difference might be detected. So, while this test does not reveal a statistically meaningful disparity between genders in vocabulary learning among the participants, it does not conclusively prove that such a difference does not exist in the broader population.

INTEGRATION OF QUALITATIVE FINDINGS

In an explanatory sequential research design, the qualitative findings provide a deeper understanding of the quantitative results, adding richness and context to the data. The thematic analysis of the interviews uncovered several key strategies that learners employ to enhance their vocabulary acquisition, and these insights can strengthen the interpretation of quantitative data.

KEY STRATEGIES IDENTIFIED

Goal setting emerged as a significant strategy among participants, with many reporting that they set specific vocabulary learning goals. This often involved learning a certain number of new words each week, providing learners with clear objectives and a focus for their studies. For example, one participant mentioned setting a goal to learn 20 new words weekly and testing themselves at the end of the week to measure retention.

Self-monitoring was another common strategy, where learners kept track of their progress through self-assessment and regular reviews. Tools such as vocabulary journals and digital apps were frequently used to help learners monitor their learning. One learner shared that they used a notebook to write down new words and reviewed them regularly to ensure they remained in their memory.

The use of various resources was also prominent among participants. Learners commonly utilized dictionaries, flashcards, and language apps to aid their vocabulary learning. These resources provided diverse and engaging methods to reinforce learning. A participant noted the effectiveness of flashcards, which help with periodic review of words.

Effective time management was a recurring theme. Participants often allocated specific times for vocabulary study within their daily schedules, helping them to ensure consistent practice. One interviewee explained that they



dedicated 30 minutes every evening to study vocabulary, making it a part of their daily routine. Motivational strategies were also mentioned by several participants. These included both intrinsic and extrinsic rewards to stay motivated, such as taking breaks or treating themselves after achieving their goals. For instance, one participant shared that they rewarded themselves with a small treat, like watching their favorite show, after hitting their weekly target.

THEMATIC ANALYSIS RESULTS

Vocabulary learning strategies: The thematic analysis revealed that both male and female learners employed similar strategies such as memory techniques, contextual usage, and word association. These methods were regularly used by participants to enhance their vocabulary mastery.

Goal setting and planning: Another prominent theme was goal setting and planning. Both male and female participants frequently mentioned setting specific goals for their vocabulary acquisition and establishing learning schedules to achieve these objectives. This reflects a shared tendency among participants, regardless of gender, to engage in proactive planning and organization.

Monitoring and adaption: Monitoring progress and adapting learning strategies based on performance was emphasized by participants from both groups. This theme highlights the importance of tracking progress and making necessary adjustments to improve learning outcomes.

LINKING FINDINGS TO SELF-REGULATION STRATEGIES

The utilization of self-regulation strategies among Iranian EFL learners shows noteworthy consistency across both male and female participants. Techniques such as memory aids, contextual usage, and goal-setting are consistently applied, indicating a proactive approach to managing the vocabulary learning process. Themes like goal-setting, planning, monitoring, and adaptation underscore the active engagement of both genders in regulating their vocabulary learning.

The absence of distinct gender-specific themes suggests that self-regulation strategies in vocabulary learning are not influenced by gender within this cohort. Both male and female participants rely on similar mechanisms to enhance their vocabulary skills, highlighting the universal role of self-regulation in language learning environments. Integrating qualitative insights with quantitative findings, the study offers a comprehensive view of how Iranian EFL learners employ self-regulation strategies. It emphasizes the broad applicability of these strategies in improving vocabulary acquisition outcomes and underscores their importance in effective language learning.

DISCUSSION

This study offers valuable insights into the effectiveness of self-regulation strategies among Iranian EFL learners in the context of vocabulary acquisition. The findings demonstrate a high level of self-regulation among participants, with mean scores notably above average as indicated by the t-test results ($t = 7.612$, $df = 199$, $p < 0.001$). This underscores that Iranian EFL learners actively utilize self-regulation strategies to enhance their vocabulary learning, highlighting the critical role of these strategies in effective language acquisition.

SELF-REGULATION AND VOCABULARY ACQUISITION

The high mean score of 3.93 (on a scale where 3.5 represents the average) reflects the learners' strong engagement with self-regulation strategies. This aligns with recent research suggesting that self-regulated learners demonstrate better academic performance due to their ability to manage their learning processes effectively (Panadero & Romero, 2014). Self-regulation strategies, such as goal setting, self-monitoring, and the use of metacognitive strategies, are crucial for learners to manage their learning processes and improve outcomes (Cleary & Zimmerman,



2012). The findings of this study support this literature, demonstrating that Iranian EFL learners who utilize these strategies are likely to experience better vocabulary acquisition.

Self-regulated learning enables learners to take control of their educational experience, fostering autonomy and responsibility (Zimmerman & Schunk, 2011). The successful application of self-regulated learning strategies has been associated with increased academic accomplishment and motivation (Saks & Leijen, 2014). Specifically, goal setting allows learners to define clear, attainable objectives, which enhances focus and direction in their studies (Schunk, 2005). Self-monitoring, or the process of regularly checking one's progress toward these goals, ensures that learners stay on track and can make adjustments as needed (Zimmerman & Schunk, 2005). Metacognitive strategies, which involve reflecting on one's learning process, help learners identify the most effective study methods for them, further enhancing learning efficiency (Veenman et al., 2006).

In the realm of EFL vocabulary acquisition, SRL strategies not only improve the retention and recall of new words but also contribute to a deeper understanding of their usage and nuances. This comprehensive approach to vocabulary learning aligns with the multifaceted nature of vocabulary acquisition, which involves memorizing word meanings, understanding pronunciations, collocations, translations, synonyms, and registers. As Iranian EFL learners employ SRL strategies, they can better navigate these complexities, leading to more proficient language use. Recent advancements in technology have also been shown to impact SRL and vocabulary acquisition. For instance, Hsu et al. (2023) explored the impact of AI-assisted image recognition technologies on students' vocabulary learning, self-regulation, and learning anxiety. Their study revealed that students who used AI-supported image recognition with SRL significantly outperformed those using traditional methods, highlighting the potential of integrating modern technologies with SRL strategies to enhance learning outcomes.

GENDER DIFFERENCES IN SELF-REGULATION

The study also explored potential gender differences in the use of self-regulation strategies. The results from the Mann-Whitney U test ($U = 947.500$, $p = 0.086$) indicate no statistically significant difference between male and female learners. This finding contrasts with some previous studies that suggested gender differences in self-regulation, with females often reported to use these strategies more effectively (Usher & Pajares, 2008; Voyer & Voyer, 2014). However, the absence of a notable difference in this study implies that both male and female Iranian EFL learners engage with self-regulation strategies similarly.

Research has shown that gender differences in self-regulation can be influenced by various factors, including cultural context, educational background, and social expectations (Zimmerman & Schunk, 2011). Usher and Pajares (2008) found that while females often report higher levels of self-regulation, these differences are not always significant and can vary based on the specific context and population studied. Voyer and Voyer (2014) conducted a meta-analysis that highlighted small but consistent gender differences favoring females in self-regulation and academic achievement. However, these differences are often minimal and may not be universally applicable. The p -value of 0.086, while not below the traditional threshold of 0.05, is close enough to suggest that further investigation might be warranted. It is possible that with a larger and more balanced sample size, subtle differences could emerge. Future research should continue to explore this aspect, considering larger and more diverse populations to validate these findings. Additionally, qualitative studies could provide deeper insights into how male and female learners use self-regulation strategies differently and what factors contribute to these patterns.

IMPLICATIONS FOR EDUCATIONAL PRACTICE

The implications of this study are far-reaching for educational practice. Understanding the critical role of SRL in vocabulary acquisition can inform the design of targeted interventions that promote self-regulation among EFL learners. Educators should focus on providing explicit instruction on metacognitive strategies, fostering a supportive



learning environment, and offering continuous feedback to enhance learners' self-efficacy and motivation. Moreover, addressing gender differences in SRL strategy use can lead to more personalized and effective teaching approaches that cater to the unique needs of both male and female learners.

As Pintrich (2002) emphasized teachers' critical function in fostering students' development as metacognitively engaged, self-regulated learners, by creating demanding assignments, allowing autonomy in decision-making, modeling effective strategies, and offering opportunities for self-assessment and control over learning, educators can substantially enhance students' metacognitive skills (Dignath & Veenman, 2021; Perry et al., 2020). However, Pintrich (2002) also notes that some teachers may struggle to effectively activate and support their students' metacognitive abilities, highlighting the necessity for professional development programs aimed at equipping teachers with the essential skills to promote self-regulated learning (SRL) in their classrooms. Recent research underscores the significance of self-regulatory strategies across various educational contexts. For instance, Teng et al. (2022) found that self-regulatory writing strategies significantly predicted writing performance among young EFL learners, demonstrating the broad applicability of SRL strategies in different domains of language learning. Similarly, Ayhan and Payan (2023) identified a positive correlation between learners' self-regulation in vocabulary acquisition and their proficiency in second language (L2) vocabulary, highlighting the relevance of SRL in enhancing vocabulary learning outcomes.

Rohman and Indriati (2020) explored gender differences in self-regulated learning within mathematics, suggesting potential gender-based variations in SRL that may also exist in EFL learning contexts, warranting further investigation. Moreover, the COVID-19 pandemic has underscored the critical role of SRL in online education. Xie and Yang's (2021) study revealed that self-regulated learning, Internet self-efficacy, and learner-content interaction significantly predicted students' satisfaction with online education. This finding suggests that strengthening SRL strategies can enhance learners' experiences and outcomes in remote learning environments, which has become increasingly pertinent in today's educational landscape.

CONCLUSION

The findings of this study highlight the significance of self-regulation in vocabulary acquisition among Iranian EFL learners. The observed high level of self-regulation indicates that these learners effectively utilize strategies to improve their learning outcomes. Although no notable gender disparities were detected, the proximity of the p-value to the threshold suggests the need for further investigation into the role of gender in self-regulated learning. Continued exploration of these dynamics by educators and researchers can enhance support for all learners in developing effective self-regulation strategies. It is essential to recognize that the efficacy of these strategies may vary based on individual learner characteristics and contextual factors. Therefore, learners should be encouraged to employ a diverse range of self-regulated learning strategies, adapting them according to their personal learning styles, goals, and learning environments. Educators play a crucial role in promoting these strategies and fostering an environment that supports learner autonomy and self-directed learning.

It is important to note that the absence of significant gender differences does not imply uniformity in self-regulation within male and female student groups. Variations may exist among individuals within each gender, influencing the adoption of self-regulating strategies. Moreover, factors such as prior language learning experiences or cognitive abilities, which were not examined in this study, could contribute to differences in the utilization of self-regulation strategies.



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