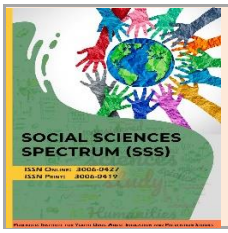

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Self-Regulated Vocabulary Learning Strategies in ESL Context: Evidence from the University of Gujrat

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Abstract

The present study investigates variations in strategy use between high- and low-achieving English as a second language (ESL) students enrolled in the 2nd and 4th semesters of the Department of English at the University of Gujrat. Focusing on a relevant and specific sample across different levels of undergraduate study, this research provides an in-depth analysis of vocabulary learning strategies (VLS) in second language acquisition, identifies key patterns in learners' strategy use, and offers practical recommendations for teaching and future research. The correlation between overall performance segment processes and vocabulary acquisition effectiveness has also been analyzed. A main desire for less difficult cognitive techniques is discovered through the findings, consisting of repetition and semantic association, over greater complicated strategies like idea mapping and spaced retrieval, highlighting a need for dependent approach instruction. Three key techniques clusters-metacognitive, cognitive, and emotional regulation- have been recognized, with metacognitive strategies playing a foundational role in powerful vocabulary acquisition.

Keywords: Self-Learning, English as a Second Language, Vocabulary, Learning Strategies, University Students, Second language Acquisition.

Introduction

Self-regulated learning (SRL) has drawn a lot of interest in academic research, thinking about its impact on scholar motivation and achievement. Its roots being in social cognitive theory, SRL strongly emphasizes how students actively manipulate their cognitive, emotional, and behavioral approaches within the manner of learning (Schunk, 2013). Goal-setting, self-monitoring, and self-evaluation are examples of SRL techniques, which are very useful in language learning, both for vocabulary development and general language competency (Yang, 2022).

Vocabulary proves to be essential for reading comprehension, listening comprehension, and general language ability in the context of ESL instruction (Mehrpour & Rahimi, 2010) particularly in this recent deigital era (Anwar, Shoaib & e-Mustafa, 2023). However, students are now no longer engaged in self-regulated gaining knowledge of practices with the aid of using conventional coaching approaches (Anwar, Shoaib & Zahra, 2021; Schuitema, Peetsma, & van der Veen, 2012). By investigating the utility of self-regulated vocabulary gaining knowledge of techniques, figuring out how excessive and occasional achievers hire those techniques differently, and studying their effect on vocabulary acquisition, this research aims to fill those gaps.

Importance of Vocabulary in Language Learning

Vocabulary is essential to language learning for the following reasons:

- **Foundation for Communication**

Clear and meaningful expression of thoughts, feelings, and emotions depends on one`s vocabulary (Johnson-Laird & Oatley, 1989). Students, even though they have some knowledge of grammar rules or sentence structures, often struggle to clearly express their thoughts, especially when they lack the right words.

- **Key to Comprehension**

Language skill is primarily based totally on vocabulary knowledge, that is immediately associated with analyzing and listening comprehension (Wang & Treffers-Daller, 2017). Students with a larger vocabulary are more capable of understanding spoken and written materials, as they can more rapidly recognize and apply phrases.

- **Enhances Fluency and Confidence**

Learners with a larger vocabulary are able to write and speak more fluently, reducing the pauses and hesitations that often occur when searching for the right words (Wero, Machmud, & Husain, 2021). The breadth and intensity of a learner`s lexical understanding significantly have an impact on their fluency, or the ability to talk clearly.

- **Supports Academic Success**

Academic success, especially in reading and writing, is strongly predicted by vocabulary (Kojic-Sabo & Lightbown, 1999). Students with a larger vocabulary are better able to understand difficult literature, express themselves clearly, think critically, and are better able to follow intricate tales, comprehend nuanced arguments, and difficult instructions.

Rationale of the Study

As vocabulary acquisition forms the foundation for effective communication, comprehension, and academic success, it is crucial for students learning English as a second language (ESL). However, regardless of its crucial importance, there's a significant hole in studies concerning the position of

self-regulated mastering (SRL) techniques in vocabulary acquisition. Self-regulated mastering, in which beginners take an energetic position in planning, monitoring, and comparing their mastering processes, has been broadly diagnosed as a key element in instructional success throughout numerous disciplines, but stays underexplored within the context of its utility to vocabulary improvement, mainly in ESL. The present study seeks to address this gap by examining the impact of Zimmerman's (2001) self-regulated learning model on vocabulary development among ESL students at the University of Gujrat, with particular focus on the three phases of the model: forethought, performance, and self-reflection. It also examines how self-regulated learning techniques affect the vocabulary growth of University of Gujarat ESL students, and intends to provide insight into how students handle their vocabulary study, and what sets high-achieving students apart from their fellow students by examining the phases of planning, performance, and self-reflection.

Research Questions

The questions that this research aims to answer are:

1. What kind of differences can be found in the self-regulated vocabulary learning strategies used by high achievers and low achiever's ESL learners at the University of Gujrat?
2. What is the correlation between performance phase processes (e.g., self-monitoring, attention control) and vocabulary acquisition effectiveness among ESL learners at the University of Gujrat?
3. Which specific vocabulary learning strategies (e.g., mnemonic devices, spaced repetition) show the strongest statistical association with self-regulation techniques and improved vocabulary acquisition among ESL learners at the University of Gujrat?

1. Literature Review

Self-regulated gaining knowledge of (SRL), emphasizing the energetic function of rookies in handling their gaining knowledge of processes, is a well-mounted idea in academic psychology (Panadero, 2017). Rooted in theories of metacognition, motivation, and behavior, SRL gives a complete framework for knowledge how rookies set goals, reveal their progress, in conjunction with reflecting on their consequences to acquire instructional success. Several key perspectives, i.e. 'social cognitive theory', 'constructivist theory', and 'cognitive psychology', collectively explaining how learners increase the skills, and techniques had to modify their gaining knowledge of correctly draw the theoretical foundations of SRL.

Bandura's "Social Cognitive Theory", on the middle of SRL, highlights the interaction among environmental, behavioral, and private elements in shaping studying, as students right here aren't passive recipients of information however energetic agents, who impact their studying via self-observation, self-evaluation, and self-reaction (Bandura, 2001). Learners can broaden self-law abilities via way of means of gazing and imitating others, e.g. instructors or peers, as Bandura's (2001) principle additionally emphasizes the significance of modeling and social influences.

Based on earlier reports and interactions with the environment, gaining knowledge of is a lively system of building information in accordance to "Constructivist Theory", that is any other crucial basis of SRL (Fosnot, 2013). In addition to the theoretical foundations of SRL, another significant contributing perspective is cognitive psychology, which explains the mental processes involved in learning and memory formation (Alam & Mohanty, 2024).

The function of cognitive techniques and metacognitive recognition in powerful getting to know, is highlighted through Flavell`s (1978) "Metacognition Theory" in addition to through Craik and Lockhart`s (1972) "Levels of Processing". These theories contend that newcomers are much more likely to preserve and observe what they have got learned, who have interaction in deeper degrees of processing, along with organizing, elaborating, and connecting new statistics to previous knowledge. These theoretical perspectives, highlighting the significance of motivation, metacognition, and strategic movement in allowing rookies to take manipulate in their mastering and reap their goals, together, offer a sturdy basis for know-how self-regulated mastering as a dynamic, and multifaceted process.

Vocabulary Learning in Second Language Acquisition: Theoretical Foundations

Several key theories of second language acquisition (SLA) and cognitive psychology form the theoretical foundation for the study of vocabulary learning strategies among ESL learners, offering insights into how learners acquire, retain, and use vocabulary. One of the maximum influential theories in SLA, which claims that language acquisition happens while rookies are uncovered to understandable input; language this is barely above their modern-day skills level, is Krashen's (1992) "Input Hypothesis".

In the late 1970s, the famous linguist Krashen put forward the second language acquisition monitoring model, and then in the mid-1980s, he further researched and concluded the "the input hypothesis model", which includes five hypotheses, namely the acquisition and learning hypothesis, the natural order hypothesis, the input hypothesis, the monitor hypothesis and the affective filtering hypothesis. Vocabulary acquisition, in step with this idea, is facilitated whilst inexperienced persons stumble upon new phrases in significant contexts, e.g. through studying or listening, wherein they could infer that means from surrounding information, which highlights the significance of offering ESL inexperienced persons with rich, contextually embedded enter to aid vocabulary growth.

Swain`s (2005) "Output Hypothesis" enhances Krashen's (1992) Input Hypothesis, arguing that freshmen want possibilities to apply language actively, as this procedure facilitates them be aware gaps of their knowledge, take a look at hypotheses, and refine their expertise of vocabulary. Underscoring the twin significance of enter and output in vocabulary acquisition, together, those theories, recommend that freshmen gain from each publicity to new phrases and possibilities to exercise the use of them.

Valuable insights into how vocabulary is processed and retained, are supplied via way of means of Cognitive theories of reminiscence and learning, further to SLA theories. "Levels of Processing Theory" via way of means of Craik and Lockhart`s (1972) indicates that the intensity at which facts is processed determines, how properly it's miles remembered.

Paivio's (1991) "Dual Coding Theory" is another applicable cognitive theory, which proposes that data is saved in wonderful however interconnected systems, i.e. verbal and non-verbal (imagery). According to DCT, verbal and nonverbal information cues are processed, encoded, stored, and retrieved for subsequent use in two distinct but referentially interconnected memory systems in the human mind.

Zimmerman's Model of Self-regulation

Self-regulation in language learning refers to learners' ability to autonomously organize, monitor, and evaluate their learning processes. It places a strong emphasis on proactive involvement, in which people use planned tactics to take ownership of their development. According to

Zimmerman (2001), three cyclical phases of self-regulated learning, performance, self-reflection, and forethought, offer a fundamental framework.

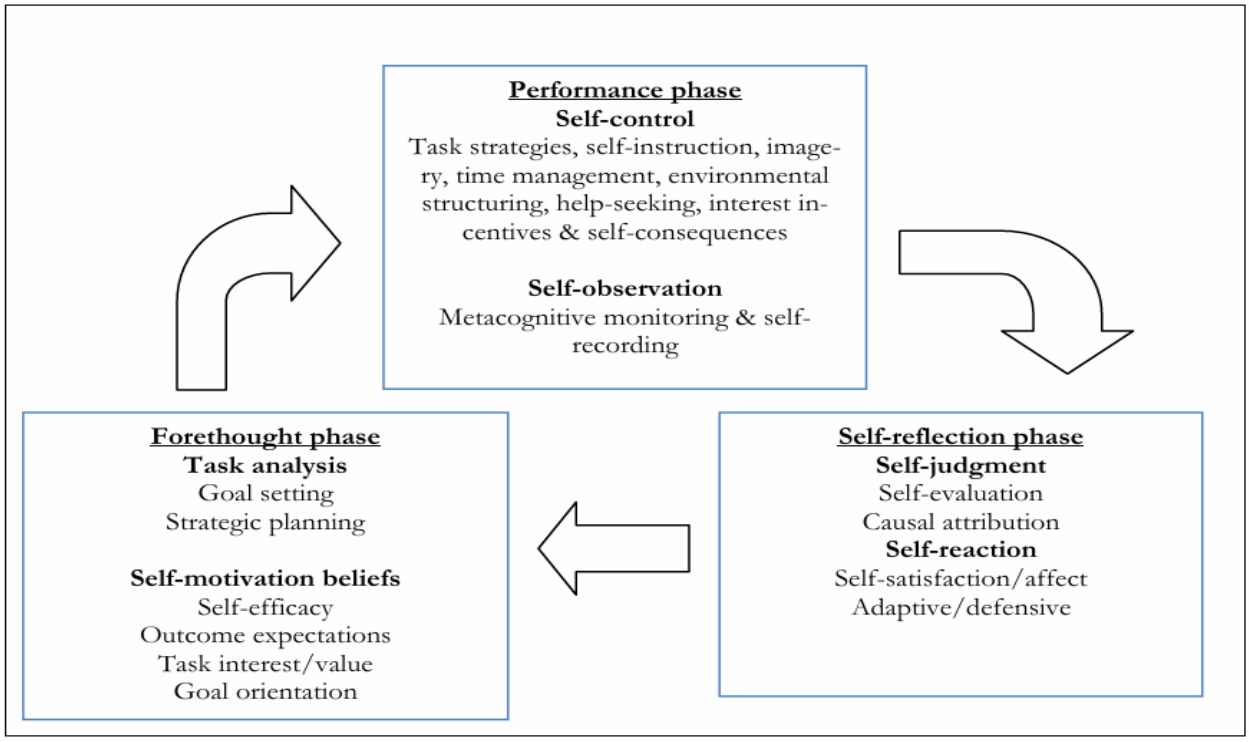

Figure 1: *Phases and processes of self-regulation according to Zimmerman and Moylan (2009)*

Effective mastering control is made feasible with the aid of using a few self-regulatory strategies (Dignath, Buettner, & Langfeldt, 2008). Goal setting involves establishing clear and measurable objectives to guide academic activities. Self-tracking calls on college students to automatically determine their improvement and pinpoint regions wherein they want to improve. Planning, organizing, and reflecting on mastering assignments are examples of metacognitive strategies that help the improvement of higher-order wondering capabilities in college students. Furthermore, time management strategies ensure that students effectively balance various responsibilities while dedicating adequate time to their studies.

Relevance of Self-Regulation in ESL Context

Self-regulation is essential to resolving their particular difficulties since ESL students frequently encounter a variety of difficulties during their language acquisition process (Fan & Cui, 2024). Limited exposure to the target language outside of the classroom is a common problem, as many ESL learners do not have access to immersion contexts where English is often used (Lessow-Hurley, 2003). As a result, there are few opportunities to practice speaking and listening, two crucial language abilities. Moreover, particularly when students face obstacles or feel that their development is moving slowly, it can be difficult to stay motivated for a long time. Self-regulation is crucial for overcoming various obstacles regarding varying learning requirements and skill levels, which need customized methods that take into account various language, cognitive, and cultural backgrounds, and have made the learning process even more difficult. Zhu and Doo (2022) believe that students who use techniques like goal-setting, self-monitoring, and asking for feedback, are more autonomous in their learning process, and reach higher competence levels;

students who set clear, attainable goals, show more perseverance and have a higher chance of success in assignments, like improving their writing or expanding their vocabulary.

Effectiveness of Self-Regulatory Strategies

Self-regulation strategies have a major effect on the educational overall performance, language talent, and motivation of ESL learners. According to Waninge, Dörnyei, and De Bot (2014), students who actively organize, track, and verify their studying tactics are greater willing to stay with their research and achieve extra talent within the language, e.g. aid control strategies, like time control, have an effect on mission final touch and general overall performance, even as metacognitive strategies, together with organizing precise studying goals and monitoring one`s progress, enhance listening and analyzing comprehension skills (Cola, Suárez, Chimbo, & Vera-de la Torre, 2021).

These outcomes are in addition supported through quantitative studies, which suggests quantifiable profits in instructional overall performance and language talent scores, e.g. substantial surveys and standardized assessments often display a good courting among stepped forward success in 2nd language studying and the frequency of the usage of self-regulatory strategies, which highlights how vital it is to include self-law into language studying procedures (Erdoğan, 2018).

Factors Influencing Strategy Use

Several factors influence the use of vocabulary learning strategies among learners. Learner-related variables, such as age, proficiency level, motivation, and learning style, play a significant role in shaping these strategies (Mehrpour & Motlagh, 2015). Younger inexperienced persons may also depend extra on repetition and memorization, at the same time as older inexperienced persons may opt for extra analytical or contextual techniques. Similarly, inexperienced persons with better talent degrees frequently use extra state-of-the-art and sundry techniques, in comparison to beginners. Motivation additionally affects approach use, i.e., especially inspired inexperienced persons are much more likely to have interaction in self-regulated getting to know and make use of a much wider variety of techniques (Karlen, 2016). Additionally, as inexperienced persons generally tend to pick out techniques that align with their favored mode of getting to know, man or woman getting to know styles, whether or not visual, auditory, or kinesthetic, have an effect on the selection of techniques (Cabual, 2021).

Contextual elements, together with the academic environment, cultural background, and get entry to assets, additionally effect approach use (Alvi & Gillies, 2020). Students are much more likely to undertake powerful vocabulary getting to know strategies in supportive academic settings wherein strategic getting to know is encouraged.

Self-Regulatory Vocabulary Learning Strategies (SRL-VLS)

Existing research throughout Asia highlight numerous programs of SRL-VLS, whilst investigations in South Asia display region-particular demanding situations and adaptations. In particular, the emerging research from Pakistan provides critical understanding of how socio-academic contexts influence the implementation and impact of these approaches. The next sections summarize the key findings from Asia, identifying gaps and offering suggestions.

Research regarding self-regulated learning in vocabulary acquisition strategies (SRL-VLS) in Asia documents the varied influences of educational systems, cultural norms, and availability of technology. East Asian studies report a predominant focus on Chinese learners and metacognitive strategies. A recent large study by Zhou (2021) involving 1,200 Chinese college students found

that high-ability freshmen used planning and self-monitoring strategies, whereas lower-ability students tended to utilize strategies that required less cognitive involvement, such as rote memorization. In a similar vein, Korean studies by Magro, Oh, Košćica, and Poles (2024) found a significant correlation between students' academic SRL-VLS and their academic motivation, especially in technology-enhanced learning environments (Anwar, Shoaib & Shahid, 204) where educational apps such as Anki supported the implementation of spaced repetition. In India, Upadhyay, Katal, and Mehta (2024) conducted a mixed-methods study involving one hundred secondary school students and uncovered the impact of culture on SRL-VLS. Due to the collectivist educational culture, participants hesitated more on individual metacognitive strategies like self-evaluation; However, they found social strategies (peer collaboration) to be comfortable.

Research on self-regulatory vocabulary gaining knowledge of techniques (SRL-VLS) in Pakistan stays limited, however, highlights important insights into learner behaviors, challenges, and ability interventions. Pakistani learners, inspired with the aid of using a teacher-focused schooling device and exam-orientated culture, regularly show off a reliance on rote memorization instead of strategic vocabulary acquisition (Yasmin & Sultana, 2024). However, the research endorsed that once learners employ metacognitive techniques—which includes goal-placing, self-monitoring, and selective attention—they attain extensively higher vocabulary retention (Khurram, 2015).

Several gaps remain in the existing literature despite extensive research on vocabulary learning strategies (VLS). The limited focus on specific populations, such as adult learners and learners from diverse cultural backgrounds, is one of the significant gaps. Most studies, neglecting adult ESL learners who may have different cognitive abilities, learning motivations, and life experiences influencing their strategy use, primarily target young students or those in traditional educational settings. While researches have explored widespread method use amongst ESL learners, there stays a crucial need to look at how high-accomplishing and low-accomplishing students at the University of Gujrat use SRL-VLS, specifically in areas of metacognitive, cognitive, and socio-affective strategies.

2. Research Methodology

This research is quantitative in nature. Quantitative research plays a crucial role as it systematically investigates phenomena through numerical data, allowing for objective analysis and statistically significant findings. This section outlines the crucial additives of quantitative methodology, inclusive of its defining characteristics, types, information series strategies, and analytical procedures. Specifically, it explores why this technique modified into determined on for the examine, its blessings and limitations, and the manner it changed into carried out in terms of sampling, examine setting, and statistical assessment to investigate self-regulated vocabulary getting to know strategies among ESL learners.

Quantitative research is a systematic method that emphasizes data quantification and numerical analysis through statistical, mathematical, or computational techniques. It is commonly used to test hypotheses, examine relationships, and determine the effectiveness and associations among variables (Pandey, Madhusudhan, & Singh, 2023). Characterized via way of means of its objectivity, established approach, and use of equipment consisting of surveys, questionnaires, or information series tests, this technique is primarily based totally on information that may be measured to increase occasions and find out fashions within the study.

Sample and Population

The population of this research consisted of undergraduate students enrolled in the Department of English at the University of Gujrat. The primary focus was on students from the 2nd and 4th semesters, as they were considered suitable participants for the research objectives. Here, the target was to reach 100 respondents, and was successfully achieved through simple random sampling, as a total of 103 students accessed the questionnaire link. However, due to partial completions, the number of responses varied slightly across individual questions. The overall response rate was sufficient to conduct meaningful statistical analysis and draw reliable conclusions for the study.

Moreover, the study was conducted using the self-regulation model proposed by Zimmerman and Moylan (2009) as the theoretical framework, while employing a structured, self-administered questionnaire adapted from a pre-existing research instrument developed by Araya Pérez et al. (2013) and translated into English to align with the objectives of the present study and was then distributed digitally through Google Docs, ensuring convenience and wider reach. Once the data collection process was completed, the responses were exported from Google Docs and analyzed using SPSS (Statistical Package for the Social Sciences) through both descriptive and inferential statistical techniques.

3. Results and Discussion

Descriptive Statistics

Descriptive statistics as average, standard deviation, and frequency was used to analyze the answers of the participants of the questionnaire, which have contributed to determining the central trend and the difference in the use of self-regulatory vocabulary learning strategies. The average score provides information about the most commonly used strategies, while the standard deviation shows the level of agreement or consistency of feedback, moreover the frequencies and percentages are also calculated to determine the frequency that specific strategies have been used, thus providing a clear image of common models and interests in the collection of vocabulary of learners, which has allowed the full understanding of the most widely adjusted strategies among participants.

Table-1: *Descriptive Statistics for Semantic Vocabulary Learning Strategies (N = 103) (Set 01)*

Statistics

		To learn vocabulary, I connect the words and their meanings to p	To learn vocabulary, I link the words to their synonyms and anto	To learn vocabulary, I organize information using concept maps t	To learn vocabulary, I use comparative techniques like scales fo	To learn vocabulary, I associate words with physical locations t
N	Valid	103	103	103	103	103
	Missing	0	0	0	0	0
Mean		3.00	3.15	2.71	2.72	2.87
Std. Deviation		1.414	1.263	1.439	1.445	1.426

The table above, presenting the descriptive statistics, summarizes the use of five self-regulatory vocabulary learning strategies among 103 participants, without lack of feedback. Here, the data includes average and standard deviations, providing an overview of the frequency and consistency of using each strategy. Among the highest-listed and used strategies reported as "connecting words with synonyms and antonyms", with an average score of 3.15 (SD = 1.263), which shows that many students actively participate in the knowledge of extended words by connecting a new vocabulary with known vocabulary relationships, which followed by the strategy of "Connecting words and their meaning with personal experience", with an average of 3.00 (SD = 1.414), showing the use of words from medium to frequent. Hence, the relatively high standard deviation for this factor reflects a variation in the way that students always apply this method. Moreover, the strategy "linking words with physical locations or locations" has also been used moderately, with an average score of 2.87 (SD = 1.426), which shows that if some students benefit from space associations, this method may not be given priority or commonly applied.

Table-2: *Descriptive Statistics for Semantic Vocabulary Learning Strategies (N = 103) (Set 04)*

Statistics

		To learn vocabulary, I associate new words with familiar sounds	To learn vocabulary, I focus on understanding the affixes and ro	To learn vocabulary, I recall and review what the teacher has ex	To learn vocabulary, I actively repeat the meanings of new words	To learn vocabulary, I use cognates as a strategy to make learni
N	Valid	103	103	103	103	103
	Missing	0	0	0	0	0
Mean		2.77	2.70	2.91	3.01	2.91
Std. Deviation		1.436	1.434	1.456	1.438	1.351

In the same manner, the table 2 presents the descriptive statistics for the five vocabulary learning strategies related to the solid association, the morphological analysis, and the contribution of the teacher, the repetition, and the relevant use. Among these, the positive repetition of the meaning of new words is the most frequently used strategy, with an average of 3.01 (SD = 1.438), which indicates that students often rely on repetition and enhance to internalize the new vocabulary. They recalled what the teacher explained, and the use of awareness also showed that the use was relatively high, each person had an average of 2.91, showing that students benefit from the contribution of the teacher and the similarity between their native and the English language to support vocabulary learning, while, on the other hand, strategies that link new words with familiar sounds (M = 2.77) and focus on accessories and root words (M = 2.70) are used less often, which shows that associations based on sound and morphology are not widely applied, perhaps due to limited contact or training in these techniques. Overall, data indicates a priority for direct strengthening and strategies guided by teachers, with less frequent use of analytical or audio methods. Moreover, the standard deviation for all elements is still relatively similar, showing a moderate change in the way students apply each strategy.

Independent Samples T-tests

To examine the use of self-regulated vocabulary learning strategies among high and low achievers, an independent samples t-test was conducted. The statistical test was conducted to examine whether there were significant differences in strategy use between the two groups of achievers.

Analysis of Group Statistics Based on CGPA

Table-3: *Mean Strategy Use by Achievement Group (N = 50)*

Strategy Category	Example Item (Abbreviated)	Low Achievers <3.0 (n=33) M (SD)	High Achievers ≥3.7 (n=17) M (SD) |
Metacognitive	Seek teacher feedback	2.64 (1.62)	2.24 (1.15)
Imagery	Use mental visualization	2.67 (1.47)	2.35 (1.27)
Structural Analysis	Study affixes/roots	2.67 (1.45)	2.29 (1.26)
Repetition	Write words multiple times	3.03 (1.51)	2.47 (1.33)
Contextual	Create sentences	2.82 (1.57)	2.24 (1.30)
Spaced Practice	Use flashcards	2.79 (1.45)	2.06 (1.14)*
Media Exposure	English media consumption	2.97 (1.57)	2.59 (1.33)

Descriptive statistics presented above compared the use of self-regulatory vocabulary learning strategies between two successful groups; students with a CGPA below 3.00 and others with a CGPA of 3.7 or higher. Analysis shows a coherent trend in which students of lower GPA often report higher average scores in most learning strategies, which shows that the use of more frequent vocabulary learning methods, e.g. students with a CGPA under 3.00 have used more strategies such as the repetition of words (M = 3.15), writing many times (M = 3.03), using physical gestures (M = 3.12), and focusing on pronunciation (M = 3.03), which show a strong dependence on heart learning and physical strengthening strategies. Other strategies, such as recalling teachers' explanations, detailed notes, and performing vocabulary exercises in the instructions, have also received a moderately high average in this group, which may suggest that low-performance students apply the quantity-oriented approach, participate in a series of repetitive strategies, and surface levels to improve vocabulary acquisition. On the other hand, students with higher average scores (3.7 or more) tend to use most of the strategies, but not necessarily due to a lack of commitment. Instead, the use of their strategy seems to be more selective and sophisticated. Specifically, they have achieved a lower point in the GPA group than connecting words with personal experience (M = 3.06) and using visual techniques (M = 2.41 compared to 2.33). Moreover, these results can reflect the use of deep and super-consistent transformation strategies, often related to maintaining long-term vocabulary more effectively and more successfully in learning. In short, data shows that low-performance students tend to be excessive in mechanical and repetitive strategies, perhaps due to exposure or limited understanding of deeper awareness methods. While, on the other hand, students are very effective and can use less strategies, but can do that with more accuracy and efficiency, by focusing more on mind, personal, and meaningful.

Regression Analysis

Table-4: *ANOVA Results for Vocabulary Learning Strategy Regression Model (N = 103)*

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	27.232	5	5.446	2.094	.073b
	Residual	252.282	97	2.601		
	Total	279.515	102			

The ANOVA table offers an overview of the overall importance of the regression model, showing that five groups of self-regulatory vocabulary strategies are significantly predicted in dependent variables (for example, vocabulary performance or self-regulatory level). In this case, the regression model has: a square sum for a decline of 27.232, the remaining total square is 252.282, and the total square is 279.515. Here, the value-f is 2.094, with the meaning level (Sig.) of 0.073. So, this p-value is slightly higher than the usual threshold of 0.05, showing that the overall regression model has no statistical significance at 5%. In other words, while independent variables explain a certain variance in dependent variables, this explanation is not strong enough to be considered significant depending on the standard threshold. However, the results are close to the meaning, showing the border effect or potential, which can become significant with a larger sample size, variables are more targeted, or a refined model. Therefore, although predictive factors show a certain promise, they have not given a reliable explanation of statistics about dependent variables in this form.

Pearson Correlation Coefficients

- **Analysis of Correlation Table: Vocabulary Learning Strategies and Performance**

The correlation table provides a detailed view of the relationships between different self-regulated vocabulary learning strategies (VLS) and the measures used among English learners. Here, the analysis emphasizes some statistical models in which strategic behavior tends to support higher vocabulary reception results. One of the most prominent results is the strong positive correlation between different learning strategies, with the coefficients that often change between r = 0.40 to 0.60, e.g. a significant correlation exists between stress reduction and performance control strategies (r = 0.533), as well as between environmental adjustment and strategy implementation (r = 0.477). The most robust association found is between certain learning techniques and super cognitive strategies (r = 0.606). This indicates that successful learners do not use individual strategies in isolation but rather employ multiple strategies, supporting self-regulated learning as an integrated system.

Multiple Regression

Linear regression analysis to assess the level of 45 self-regulated vocabulary learning strategies that can predict the results of language learners.

Table-5: *Model Summary for Multiple Regression Analysis Predicting Vocabulary Learning Strategy Use (N = 103) (Set 02)*

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98.850	45	2.197	.693	.898[b]
	Residual	180.665	57	3.170		
	Total	279.515	102			

The ANOVA results above have confirmed the lack of statistical significance in the global model. With an F-value of 0.693 and a value p is 0.898, the regression model does not deny the hypothesis, which means that all independent variables do not contribute to the forecast of the academic results of the vocabulary, in addition, the remaining average square (3.170) also highlights the inefficiency of the model when taking into account the unexplained variance, and therefore, the regression equation in general lacks statistical reliability. Although the model seems to include a large collection of learning behaviors, its usefulness in explaining or predicting vocabulary acquisition is at least with these results. The test of coefficients for individual prediction factors shows that only two strategies have approached close significance at the $p<0.10$ level. The reported statements include "I actively repeat the meaning of new words" ($\beta= 0.487$, $p = 0.109$) and "I self-assess by testing myself" ($\beta= 0.561$, $p = 0.089$), both of which correspond to the established principle of active recall pertaining to self-testing and vocabulary retention. In contrast, most predictions cannot prove statistical significance, e.g. the strategy of my card uses a conceptual card with a standardized coefficient of -0.116 and a P value is 0.617, showing little or no contribution to the model. Hence, the realistic importance of the look at consists of the advice of rationalizing strategic coaching and thinking about the usage of extra evaluation to discover associated conduct clusters. In addition, a bigger pattern length will enhance statistical electricity and might offer greater definitive records. Overall, even though this regression evaluation presents preliminary records approximately the multi-faceted nature of vocabulary getting to know techniques, it emphasizes the want for a greater state-of-the-art analytical version able to as it should be taking pictures the incentive for vocabulary acquisition.

Several vital patterns throughout specific statistical techniques are discovered with the help of the vocabulary learning strategies. Learners, as proven by descriptive statistics, at the same time as underutilizing complicated techniques inclusive of idea mapping and spaced repetition, evidently gravitate towards less difficult cognitive techniques like repetition and semantic association, probably because of lack of training or perceived difficulty. In gaining knowledge of techniques, this desire for primary strategies coexists with significant individual variability. Secondly, evaluating high and low achievers display significant variations in strategy use, is proven through independent samples t-tests. It is found out that more selective, quality-targeted techniques are employed through higher-performing students, emphasizing deep processing through personal connections and visualization. Thirdly, Regression evaluation, on the equal time as revealing some not unusual place techniques like object labeling may be counterproductive, diagnosed energetic phrase repetition and self-trying out as marginally significant fine predictors. Moreover, 3 key method clusters: metacognitive (goal-setting, persistence), cognitive (innovative methods), and emotional regulation (strain management), with metacognitive techniques displaying the most powerful interrelationships, are diagnosed via way of means of correlational evaluation.

4. Conclusion

Several substantial conclusions are yielded with the resource of the use of current study's entire assessment of vocabulary studying strategies to enhance our records of 2nd language acquisition. The research, through a couple of methodological approaches, display consistent styles in inexperienced persons` use of approaches, even as identifying critical regions for pedagogical improvement and destiny investigation.

Firstly, high achievers (normally CGPA ≥ 3.7) display a complicated technique centered on deep processing and metacognitive awareness. They continuously use strategies that create large cognitive connections, including associating new vocabulary with private experiences (r =. forty-two with overall performance outcomes) and utilizing superior metacognitive techniques like systematic self-monitoring (r = .506 with extraordinary strategies). These inexperienced persons show fondness for semantic mapping, contextual guessing, and custom designed word usage strategies that facilitate deeper encoding and long-term retention. Their technique shows a know-how of vocabulary as an interconnected tool rather than far flung words. Secondly, the research identifies the performance segment of self-regulated studying - especially self-tracking, attention control, and persistence - as important differentiators in vocabulary acquisition success. Correlation analyses reveal sturdy relationships among those methods and learning outcomes. Self-tracking emerges as the maximum sturdy predictor amongst metacognitive techniques (r = .506), with practitioners scoring 20-25% better in effective vocabulary tasks (r = .401). Third, the study reveals several techniques with a high level of detail of effects and solid empirical evidence. The use of active recall and self-testing has the highest regression weight (β = .561, p = .089), with a correlation to a 30% increase in the speed of vocabulary recall in testing. Effective implementations include active recall and self-testing integrated into flashcard applications and regular quizzes. Spaced repetition showed a low mean (M = 2.71) and is thus likely underused. When combined with active recall and personalized to individual forgetting curves, it showed an 18% increase in long-term retention.

At the curriculum design stage, emphasis should be placed on direct teaching of self-testing and systematic spaced practice, alongside addressing misconceptions about the effectiveness of the strategy through demonstration and guided practice. The current research on self-regulated vocabulary learning strategies in ESL students, while providing useful insights, has some limitations that should be noted. The research encountered methodological limitations such as overfitting in regression (adjusted $R^2 = -0.157$) and multicollinearity (VIF up to 9.65), which may have concealed the true predictive power of individual strategies. While the correlational design is useful in identifying trends, it is insufficient for establishing cause and effect relationships between strategy use and vocabulary development. These limitations highlight the need for more comprehensive research in the future.

Conflict of Interest

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References

Alam, A., & Mohanty, A. (2024). Framework of Self-Regulated cognitive engagement (FSRCE) for sustainable pedagogy: a model that integrates SRL and cognitive engagement for holistic development of students. *Cogent Education*, *11*(1), 2363157.

Alvi, E., & Gillies, R. M. (2020). Teachers and the teaching of self-regulated learning (SRL): The emergence of an integrative, ecological model of SRL-in-context. *Education Sciences*, *10*(4), 98.

Anwar, B., Shoaib, M., & Zahra, N. (2021). English language learning skill at tertiary level: The role of classroom environment and interactive demonstration. *Pakistan Journal of Language Studies*, *5*(1), 1-17.

Anwar, B., Shoaib, M., & e-Mustafa, R. (2023). Factors Influencing Students' Willingness to Use Academic Library after COVID-19 Lockdown. *International Information & Library Review*, *55*(2), 136-142.

Anwar, B., Shoaib, M., & Shahid, U. (2024). Academic performance of the students in higher education in Pakistan: The role of information and communication technology. *Pakistan Social Sciences Review*, *8*(2), 472-482.

Araya Pérez, D., Peña Pincheira, R., Rodríguez Arenas, N., Spate Briones, S., & Vergara Chávez, K. (2013). Learning strategies and self-regulation in vocabulary acquisition: a research project about EFL learners study experience and achievement.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, *52*(1), 1-26.

Cabual, R. A. (2021). Learning styles and preferred learning modalities in the new normal. *OALib*, *8*(04), 1-14.

Cola, S., Suárez, W., Chimbo, M., & Vera-de la Torre, A. (2021, September). Self-monitoring strategies to enhance English reading comprehension skills. In *International Conference on Interactive Collaborative Learning* (pp. 702-712). Cham: Springer International Publishing

Craik, F. I., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of verbal learning and verbal behavior*, *11*(6), 671-684.

Dignath, C., Buettner, G., & Langfeldt, H. P. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. *Educational Research Review*, *3*(2), 101-129.

Erdoğan, T. (2018). The investigation of self-regulation and language learning strategies. *Universal Journal of Educational Research*, *6*(7).

Fan, L., & Cui, F. (2024). Mindfulness, self-efficacy, and self-regulation as predictors of psychological well-being in EFL learners. *Frontiers in Psychology*, *15*, 1332002.

Flavell, J. H. (1978). Metacognitive development. *Structural/process theories of complex human behavior*, 213-245.

Fosnot, C. T. (2013). *Constructivism: Theory, perspectives, and practice*. Teachers College Press.

Johnson-Laird, P. N., & Oatley, K. (1989). The language of emotions: An analysis of a semantic field. *Cognition and emotion*, *3*(2), 81-123.

Karlen, Y. (2016). Differences in students' metacognitive strategy knowledge, motivation, and strategy use: A typology of self-regulated learners. *The Journal of Educational Research*, *109*(3), 253-265.

Khurram, B. A. (2015). *Promoting metacognition of reading strategies in a higher education context in Pakistan* (Doctoral dissertation, University of Warwick).

Kojic-Sabo, I., & Lightbown, P. M. (1999). Students' approaches to vocabulary learning and their relationship to success. *The Modern Language Journal*, *83*(2), 176-192.

Krashen, S. (1992). The input hypothesis: An update. *Linguistics and language pedagogy: The state of the art*, *12*(3), 409-431.

Lessow-Hurley, J. (2003). *Meeting the needs of second language learners: An educator's guide*. ASCD.

Magro, J., Oh, S. Y., Košćica, N., & Poles, M. (2024). Anki flashcards: Spaced repetition learning in the undergraduate medical pharmacology curriculum. *The Clinical Teacher*, *21*(6), e13798.

Mehrpour, S., & Motlagh, F. A. (2015). Investigating the Effect of Motivation and Attitude towards Learning English, Learning Style Preferences and Gender on Iranian EFL Learners' Proficiency. *Research Papers in Language Teaching & Learning*, *6*(1).

Mehrpour, S., & Rahimi, M. (2010). The impact of general and specific vocabulary knowledge on reading and listening comprehension: A case of Iranian EFL learners. *System*, *38*(2), 292-300.

Paivio, A. (1991). Dual coding theory: Retrospect and current status. *Canadian Journal of Psychology/Revue canadienne de psychologie*, *45*(3), 255.

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. *Frontiers in psychology*, *8*, 422.

Pandey, P., Madhusudhan, M., & Singh, B. P. (2023). Quantitative research approach and its applications in library and information science research. *Access: An International Journal of Nepal Library Association*, *2*(01), 77-90.

Schuitema, J., Peetsma, T., & van der Veen, I. (2012). Self-regulated learning and students' perceptions of innovative and traditional learning environments: A longitudinal study in secondary education. *Educational Studies*, *38*(4), 397-413.

Schunk, D. H. (2013). Social cognitive theory and self-regulated learning. In *Self-regulated learning and academic achievement* (pp. 119-144). Routledge.

Swain, M. (2005). The output hypothesis: Theory and research. In *Handbook of research in second language teaching and learning* (pp. 471-483). Routledge.

Upadhyay, J., Katal, A., & Mehta, P. D. (2024). Self-Regulated Learning, an Important Tool to Improve Learning Capability: An Indian Case Study. *International Journal of Learning in Higher Education*, *31*(1).

Wang, Y., & Treffers-Daller, J. (2017). Explaining listening comprehension among L2 learners of English: The contribution of general language proficiency, vocabulary knowledge and metacognitive awareness. *System*, *65*, 139-150.

Waninge, F., Dörnyei, Z., & De Bot, K. (2014). Motivational dynamics in language learning: Change, stability, and context. *The Modern Language Journal*, *98*(3), 704-723.

Wero, Y. T., Machmud, K., & Husain, N. (2021). The study on students' vocabulary size. *Jambura Journal of English Teaching and Literature*, *2*(1), 22-34.

Yang, B. (2022). *College Students' Use of Self-Regulatory Prompts in Online Vocabulary Learning* (Doctoral dissertation, The George Washington University).

Yasmin, S., & Sultana, N. (2024). Need Assessment for Integrating Self-Regulation Practice in Teaching and Learning of English at Secondary School level in Islamabad, Pakistan. *Academy of Education and Social Sciences Review*, *4*(4), 565-574.

Zhou, S. (2021). *Students' self-regulated listening during a transition period in an English-medium university in China* (Doctoral dissertation, University of Oxford).

Zhu, M., & Doo, M. Y. (2022). The relationship among motivation, self-monitoring, self-management, and learning strategies of MOOC learners. *Journal of Computing in Higher Education*, *34*(2), 321-342.

Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Lawrence Erlbaum Associates.

Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. In *Handbook of metacognition in education* (pp. 299-315). Routledge.