Enhancing Autonomous Learning in Vocabulary Learning Strategies: A Structural Equation Modeling Analysis

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ABSTRACT

This study explores the relationship between autonomous learning and vocabulary learning strategies (VLS), emphasising its importance in enhancing language acquisition. There is a scarcity of empirical data confirming the influence of autonomous learning on vocabulary learning strategies, particularly within the realm of learning Arabic as a foreign language (AFL). This study seeks to examine how autonomous learning fosters the development and application of effective vocabulary learning strategies among Arabic language learners. The quantitative data was gathered using a questionnaire employing a 5-point Likert scale that was administered to 144 diploma students majoring in Islamic Studies and analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings reveal that learners who engage in autonomous learning are more likely to employ vocabulary learning strategies, indicating a significant relationship between autonomous learning and vocabulary learning strategies. This research underscores the critical role of autonomy in vocabulary learning, suggesting that educational frameworks should promote autonomous learning to optimize language outcomes. Future studies could investigate the impact of specific vocabulary learning strategies on learner autonomy.

Keywords: Autonomous learning; vocabulary learning strategies; Arabic language learners; language acquisition; PLS-SEM

INTRODUCTION

It is crucial for language learners to have a strong grasp of vocabulary as with sufficient vocabulary, learners can develop proficiency in language skills (Aton et al., 2024; Qian & Lin, 2019). To succeed in language learning, learners need to employ effective learning strategies, particularly when it comes to vocabulary (Wen & Naim, 2023). Consistent with this insight, vocabulary learning strategies (VLS) play a major role in improving vocabulary knowledge. However, vocabulary learning strategies cannot be implemented effectively if the learners rely solely on the teacher for vocabulary learning. Therefore, learners need to be autonomous, so they are conscious of their important role in taking control of the learning process and employing effective vocabulary learning strategies.

This anticipated scenario is not present within the educational setting in learning Arabic as a foreign language (AFL), as language learners depend entirely on teachers' instruction to understand unfamiliar vocabulary (Azrin & Baharudin, 2020). Simultaneously, the instructional hours in Arabic classrooms are limited, making it unfeasible for teachers to teach and explain every single word during class (Sahid et al., 2020). On the other

hand, autonomous learning remains a challenge in foreign language education (Alrashidi, 2022; Lengkanawati, 2019), including in the context of Arabic as foreign language (Albantani et al., 2022).

The capacity of learners to take charge of their learning is essential at all educational levels, but particularly significant during the university phase (Gupta & Gupta, 2023). This is due to the advanced level of knowledge and experience possessed by university students compared to those in primary or secondary school. University students are expected to autonomously manage their learning without constant supervision from teachers, allowing them to plan, monitor, and make decisions regarding vocabulary acquisition. In accordance with this viewpoint, prior research has emphasized the role of teachers to promote autonomous learning among students, thereby enhancing their language learning skills and enabling them to control the learning process (Almusharraf, 2021; Hieu & Thao, 2024).

While autonomous learning has been widely recognized in various educational contexts, its specific influence on Arabic language learners remains underexamined. Building upon existing studies in the field of autonomous learning, this research will examine the impact of autonomous learning on the implementation of vocabulary learning strategies specifically among Arabic language learners in a university context, thus indicating a general picture of learners' perceptions in practicing autonomous learning, vocabulary learning strategies in learning Arabic as a foreign language in Malaysia, and the relationship between these variables. The relationship between autonomous learning and vocabulary learning strategies is explored using Partial Least Squares Structural Equation Modeling (PLS-SEM) to provide insights into how these elements interact and can be enhanced in higher education settings. By identifying effective strategies for fostering autonomous learning, this research seeks to contribute to the development of pedagogical frameworks that can improve vocabulary acquisition outcomes for Arabic language learners in universities.

LITERATURE REVIEW

A. Autonomous learning

Autonomous learning and language learning strategies have been widely discussed in recent years, both focusing on learner-centered approaches to language learning. Numerous researchers have conducted studies to precisely define and differentiate these two concepts. Autonomous learning is closely connected to learning strategies as it is essential to empower learners to become autonomous so they can take ownership of their vocabulary learning and subsequently identify the strategies they will employ in the process of learning.

The term autonomous learning was initially introduced by Holec (1979) as a concept of learner's capacity to take responsibility for his own learning, which involves the ability to plan, implement, monitor and evaluate their own learning. This concept has been expanded by scholars such as Benson (2001, 2013, 2014), Dickinson (1995), Little (1991, 2022), and Oxford (2003), who incorporated broader cognitive, metacognitive, and psychological dimensions, emphasizing that learners must develop self-regulation, intrinsic motivation, and the ability to make strategic decisions throughout their learning journey.

In the context of language acquisition, autonomous learning involves learners take responsibility for their learning, including making decisions of learning objectives, educational materials, and learning methods (Butt et al., 2019; Chang, 2007). As a result, autonomous learning will help language learners in developing proficiency in the target language and integrating the language into their identity (Little, 2022). This leads to enhanced language proficiency (Dafei, 2007; Melvina & Julia, 2021), improved academic performance (Chand et al., 2021; Seyed et al., 2013), increased motivation (Ushioda, 2020), and more active participation in language learning activities (Lestari & Hardiyanti, 2020; Zhuo & Kaur, 2015).

Recent research by Le and Nguyen (2022) refines the definition of autonomous learning, identifying three key components: (1) the ability to organize the learning process, from goal-setting to task completion; (2) the willingness to seek support from teachers and peers, and (3) the confidence and expectations learners hold regarding their control over learning and the roles of educators and the community. This view shifts the focus from individual capacity alone to the interactive and collaborative nature of autonomous learning. In conclusion,

autonomous learning fosters lifelong learning skills, enabling learners to adapt, grow, and succeed in ever-changing academic and social environments.

Autonomous learning consists of four aspects: technical, psychological, political-critical, and sociocultural. The technical aspect refers to the conditions that support learners in managing their learning independently, including behavioral strategies like self-monitoring and situational factors such as access to supportive environments (Benson, 2001; Dickinson, 1995; Oxford, 2003). The psychological aspect involves learners' capacity for decision-making, motivation, metacognitive awareness, and emotional regulation, all of which are essential for autonomous learning (Little, 1991; Oxford, 2003; Macaro, 2008). The political-critical aspect, evolving from Benson's (2013) philosophical perspective, emphasizes learner autonomy in making choices about content and goals, while also acknowledging the influence of institutional, social, and cultural constraints (Little, 1991; Oxford, 2003). Lastly, the sociocultural aspect highlights the importance of social interaction and community participation in learning, drawing on Vygotsky's concept of the Zone of Proximal Development (ZPD) and viewing autonomy as a socially developed trait (Benson, 2003; Oxford, 2003). These dimensions collectively illustrate that learner autonomy is not only individual but also deeply embedded in social and contextual dynamics.

B. Vocabulary learning strategies

Vocabulary Learning Strategies (VLS) represent a specific subset of Language Learning Strategies (LLS), which are defined as the deliberate actions learners take to manage language input and facilitate the acquisition process (Cohen, 2014; O'Malley et al., 1990; Oxford, 1990; Oxford et al., 2018; Wenden & Rubin, 1987). Within the context of second and foreign language acquisition, the intersection between learning strategies and vocabulary has resulted in the development of vocabulary learning strategies (Schmitt, 1997).

VLS are commonly understood as learners' knowledge of methods and techniques used to comprehend unfamiliar words, retain them in long-term memory, and apply them effectively in communication (Catalan, 2003). Ellis (1994) defines VLS as the techniques employed by learners to efficiently acquire and manage new vocabulary. Similarly, Kousalová (2023) emphasizes the use of these strategies to uncover the meanings of unknown words. Despite slight variations in definitions, there is consensus that VLS play a critical role in vocabulary acquisition and development (Cameron, 2001; Nosratinia et al., 2015). Different language learners utilize various strategies based on their individual capabilities, leading to diverse outcomes (Chamot & Kupper, 1989, Oxford et al., 2018). These strategies significantly impact how learners process new information and comprehend or retain it (Zaker, 2015), besides enhancing their language acquisition (Syamaun et al., 2019).

Several scholars have developed taxonomies of vocabulary learning strategies (VLS) to reflect different theoretical and research perspectives. Schmitt (1997) created a widely cited model based on Oxford's (1990) language learning strategies framework, classifying VLS into discovery and consolidation strategies, further divided into five subcategories: determination, social, memory, cognitive, and metacognitive strategies. Gu and Johnson (1996) offered a classification specifically for advanced Chinese EFL learners, comprising eight categories such as beliefs, metacognitive regulation, guessing, dictionary use, note-taking, rehearsal, encoding, and activation. Nation (2001) presented a simplified model with three main categories: planning, sources, and processes. In the Arabic learning context, Al-Shuwairekh (2001) identified discovery and integration strategies with subcategories including note-taking, memorizing, practicing, and metacognitive strategies. More recently, Gu (2018) refined his earlier taxonomy, which was empirically validated and later confirmed for reliability by Chou (2024), making it a strong choice for current research.

C. The relationship between autonomous learning and vocabulary learning strategies

McDevitt (1997) and Benson & Voller (2014) assert that the ultimate outcome of language learning is the development of an independent learner in all aspects of the language. Thus, when it comes to vocabulary, guiding learners to become autonomous in their vocabulary learning is crucial. As vocabulary learning requires learners to actively engage in language learning both inside and outside the classroom, learners must become autonomous and make conscious efforts to expand vocabulary independently (Almusharraf, 2021), indicating a strong impact

of autonomous learning towards utilisation of strategies in vocabulary acquisition.

Autonomous learning is gaining prominence attention in vocabulary acquisition as it offers various advantages in the implementation of vocabulary learning strategies such as providing learners with the requisite strategies and tools to autonomously navigate their vocabulary acquisition process, thereby lessening the dependency on teacher's facilitation (Yen et al., 2023). In line with that, teachers are required to shift their roles to facilitators, allowing students to engage in positive learning experiences (Miao & Wang, 2023). When students acquire vocabulary independently, they typically focus on accurately pronouncing and spelling words without being influenced by the cultural background of their teacher, relying solely on their pronunciation or reading as the primary source of input (Alavinia & Rahimi, 2019).

Existing literature have emphasized the relationship between autonomous learning and VLS among English language learners (Abadi & Baradaran, 2013; Anett, 2017; Khalifa & Shabdin, 2016; Sagin, 2019; Tilfarlioglu & Sherwani, 2018). Tilfarlioglu & Sherwani's study (2018) demonstrated a significant relationship between English as a foreign language (EFL) learners' autonomy and choice of vocabulary learning strategies with autonomy predicting 30.7% of strategy choice variance. As a result, the students will actively monitor their vocabulary learning process, identify solutions to address any challenges encountered, and assess their own progress in vocabulary acquisition. This finding is supported by Rahmat et al. (2021) and Tahmina (2023) that learners with higher levels of autonomy tend to employ appropriate strategies such as inferring meaning from context, using dictionaries, and keeping vocabulary notebooks, thus leading to successful vocabulary acquisition.

The study conducted by Abadi & Baradaran (2013) indicated that autonomous learning has a positive relationship with the vocabulary learning strategies employed by students with advanced language proficiency. In line with this, language proficiency is a key factor influencing the effectiveness of autonomous learning and vocabulary learning strategies. Annett's study (2017) confirmed a relationship between autonomous learning and VLS in which students show a positive attitude towards autonomous learning in vocabulary learning and consider themselves capable of taking responsibility for learning, especially in vocabulary acquisition. Therefore, autonomy strengthens the implementation of vocabulary learning strategies, leading to better outcomes (Huang, 2022). In another aspect, autonomous learning boosts learners' motivation, facilitates more effective vocabulary learning, provides ample opportunities for language communication and enhances learners' readiness for active learning and contributes to the development of their self-confidence (Almusharraf, 2020; Gu & Johnson, 1996). Therefore, autonomous learning fosters intrinsic motivation, which leads learners to actively seek out and implement effective vocabulary learning strategies.

However, Aysu's study (2022) found that learner autonomy had a minimal effect on vocabulary learning strategies, explaining only 4% of the variation in vocabulary learning among Turkish EFL students. On the other hand, despite recognising the importance of autonomous learning in English vocabulary acquisition, Tran (2020) discovered that the participants appeared hesitant to engage in autonomous learning. This finding is related to several reasons. Firstly, they perceive independent vocabulary learning as less interactive, preferring to rely on their teacher for new words. Secondly, as first and second year students, they may lack the necessary strategies for effective vocabulary acquisition. Lastly, most participants reported spending less than an hour per day on autonomous vocabulary learning, indicating a lack of autonomy in their approach.

To conclude, several studies have been carried out to investigate different aspects of autonomous learning in the context of English language acquisition. However, there appears to be a lack of emphasis on the research area concerning autonomous learning in Arabic vocabulary acquisition, in addition to its impact on vocabulary learning strategies. As a result, this current study aims to fill this gap by examining the relationship between autonomous learning and vocabulary learning strategies among Arabic language learners at a higher education institution in Malaysia.

RESEARCH METHODOLOGY

A. Population and sampling

The research sample for this study comprises are diploma students majoring in Islamic studies at university Islam

Antarabangsa Tuanku Syed Sirajuddin (UniSIRAJ). Following the guidelines of Krejcie & Morgan (1970), an ideal sample size of 144 was determined out of 220 students from the total population. The sample selection was conducted through convenient sampling method, with questionnaires physically distributed in the classroom, since distributing paper questionnaires tends to result in a higher response rate among the participants (Ebert et al., 2018).

B. Survey instrument

An instrument comprising adapted questionnaires from Murase's (2015) "Measuring Instrument for Language Learner Autonomy (MILLA)" and a "Vocabulary Learning Questionnaire (VLQ)" developed by Gu (2018) was employed. The selection of these questionnaires was based on their proven validity and reliability. This approach aligns with Aithal and Aithal's research (2020) which highlights the efficiency of using validated questionnaires in terms of time and resources, as well as the ability to make comparisons with data obtained from other studies. MILLA questionnaire comprised of 38 items based on four components of autonomous learning: technical; psychological; sociocultural; and political-critical. The VLQ questionnaire employed in this research contains 32 items divided into seven categories: metacognitive strategies; guessing; using dictionary; note-taking; rehearsal; encoding; and activation. The questionnaire was translated into Malay language using back translation technique (Brislin, 1970).

This research utilized quantitative methods to collect data via a survey containing numerical items on a 5-point Likert scale. Respondents were asked to assess their level of agreement with the statements in the survey. The scale ranged from 1, indicating strong disagreement, to 5, indicating strong agreement. The data collected from the participants was subsequently analysed using Partial Least Square Structural Modeling (PLS-SEM).

RESULTS

A descriptive analysis using Statistical Package for the Social Sciences (SPSS) to examine the respondents' backgrounds is outlined below. Additionally, an advanced statistical method using PLS-SEM was utilised to address the objectives of this study.

A. Descriptive analysis

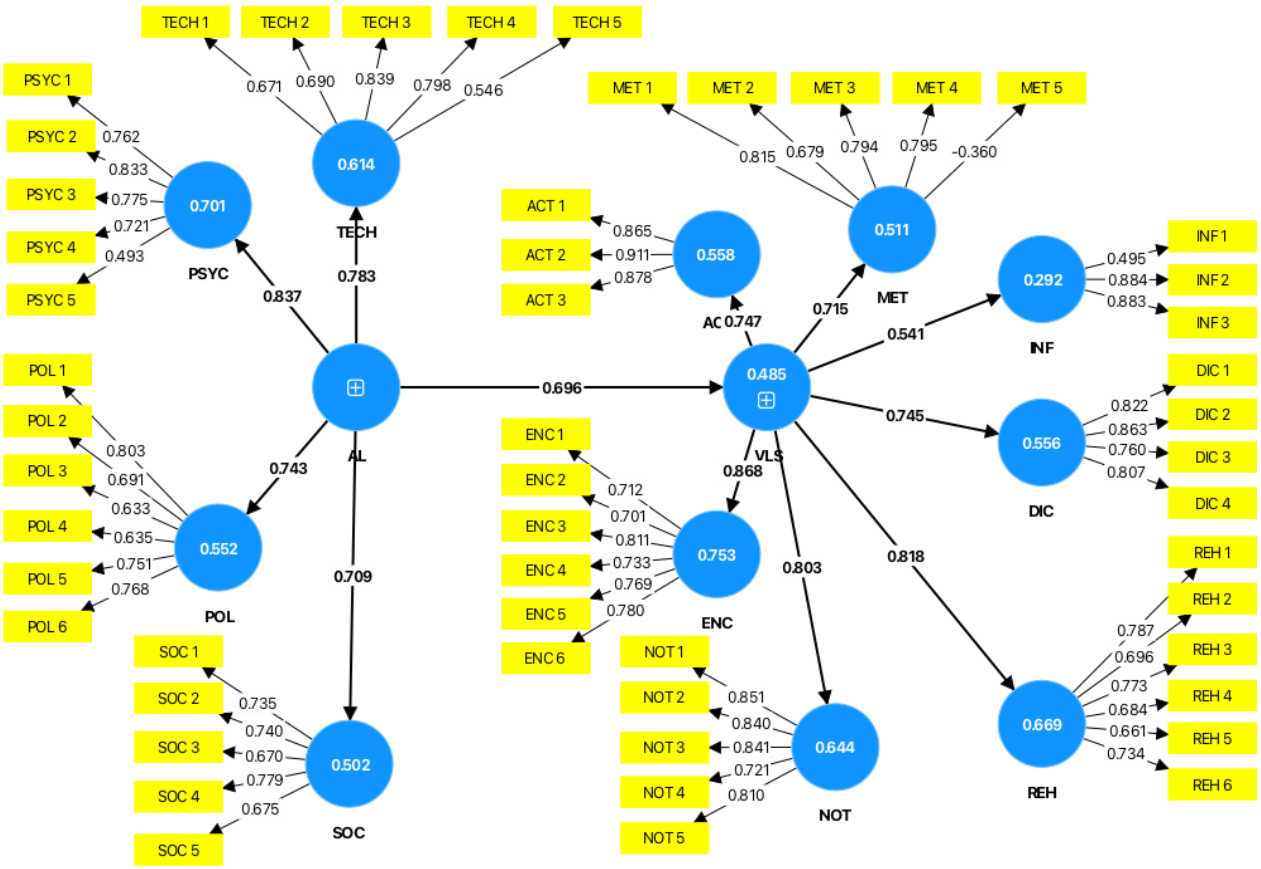
The tabulation gender of the respondents is presented in Table 1. Most of the respondents are female, which aligns with the prevailing trend in many higher education institutions in Malaysia, where the enrolment of female students surpasses that of male students (Kementerian Pengajian Tinggi, 2022).

Table 1 Respondents' Gender

Gender	Frequency	Percentage (%)
Male	64	44
Female	80	56
Total	144	100

B. Advanced statistical analysis

The findings will be divided into two parts: measurement model assessment; and structural model assessment. Partial Least Squares Structural Equation Modeling (PLS-SEM) through the SmartPLS software is employed to analyse both the measurement and structural models, given that it does not require normality assumption and survey research is usually not normally distributed (Chin et al., 2003). The model developed is tested using a 2-step approach (Anderson & Gerbing, 1988). First, the measurement model to test the validity and reliability of the instruments was assessed (Hair et al., 2019). The structural model to test the hypothesis developed was then assessed.



Note: AL (autonomous learning), VLS (vocabulary learning strategies)

Fig. 1 Measurement model

Table 2 Measurement Model for The First Order Construct

First order constructs	Items	Loadings	AVE	CR
Technical	TECH 1	0.671	0.513	0.771
	TECH 2	0.690		
	TECH 3	0.839		
	TECH 4	0.798		
	TECH 5	0.546		
Psychological	PSYC 1	0.762	0.527	0.793
	PSYC 2	0.833		
	PSYC 3	0.775		
	PSYC 4	0.721		
	PSYC 5	0.493		
Political	POL 1	0.803	0.513	0.818
	POL 2	0.691		
	POL 3	0.633		
	POL 4	0.635		
	POL 5	0.751		
	POL 6	0.768		

Social	SOC 1	0.735	0.520	0.778
	SOC 2	0.740		
	SOC 3	0.670		
	SOC 4	0.779		
	SOC 5	0.675		
Metacognitive	MET 1	0.815	0.503	0.789
	MET 2	0.679		
	MET 3	0.794		
	MET 4	0.795		
	MET 5	-0.360		
Inferencing	INF 1	0.495	0.603	0.793
	INF 2	0.884		
	INF 3	0.883		
Using dictionary	DIC 1	0.822	0.662	0.831
	DIC 2	0.863		
	DIC 3	0.760		
	DIC 4	0.807		
Note-taking	NOT 1	0.851	0.663	0.875
	NOT 2	0.840		
	NOT 3	0.841		
	NOT 4	0.721		
	NOT 5	0.810		
Rehearsal	REH 1	0.787	0.524	0.821
	REH 2	0.696		
	REH 3	0.773		
	REH 4	0.684		
	REH 5	0.661		
	REH 6	0.734		
Encoding	ENC 1	0.712	0.566	0.850
	ENC 2	0.701		
	ENC 3	0.811		
	ENC 4	0.733		
	ENC 5	0.769		
	ENC 6	0.780		
Activation	ACT 1	0.865	0.783	0.862
	ACT 2	0.911		
	ACT 3	0.878		

In evaluating the measurement model, the loadings, average variance extracted (AVE) and the composite reliability (CR) were tested. The values of loadings should be ≥0.5, the AVE should be ≥ 0.5 and the CR should be ≥ 0.7 (Hair et el., 2019). As shown in Table 2, the AVEs are all higher than 0.5 and the CRs are all higher than 0.7. The loadings were also acceptable with only one or two loadings less than 0.708 (Hair et el., 2019). Given that there are two second order constructs, namely autonomous learning and vocabulary learning strategies, the validity and reliability of the second order constructs are assessed as shown in Table 3. The second order measurement is also valid and reliable.

Table 3 Measurement Model for The Second Order Construct

Second order constructs	Items	Loadings	AVE	CR
Autonomous learning	TECH	0.771	0.624	0.869
	PSYC	0.793		
	POL	0.818		
	SOC	0.778		
Vocabulary learning strategies	MET	0.789	0.692	0.940
	INF	0.793		
	DIC	0.831		
	NOT	0.875		
	REH	0.821		
	ENC	0.850		
	ACT	0.862		

In the second step, the discriminant validity is tested by employing the HTMT criterion (Franke & Sarstedt, 2019; Henseler et al., 2015). According to the stricter criterion, HTMT values should not exceed 0.85 or 0.90, while the more lenient criterion allows for values up to 0.90. As indicated in Table 4, all HTMT values were below the stricter threshold of 0.90, meaning that all constructs are distinct. Therefore, these validity tests demonstrate that the measurement items are both valid and reliable.

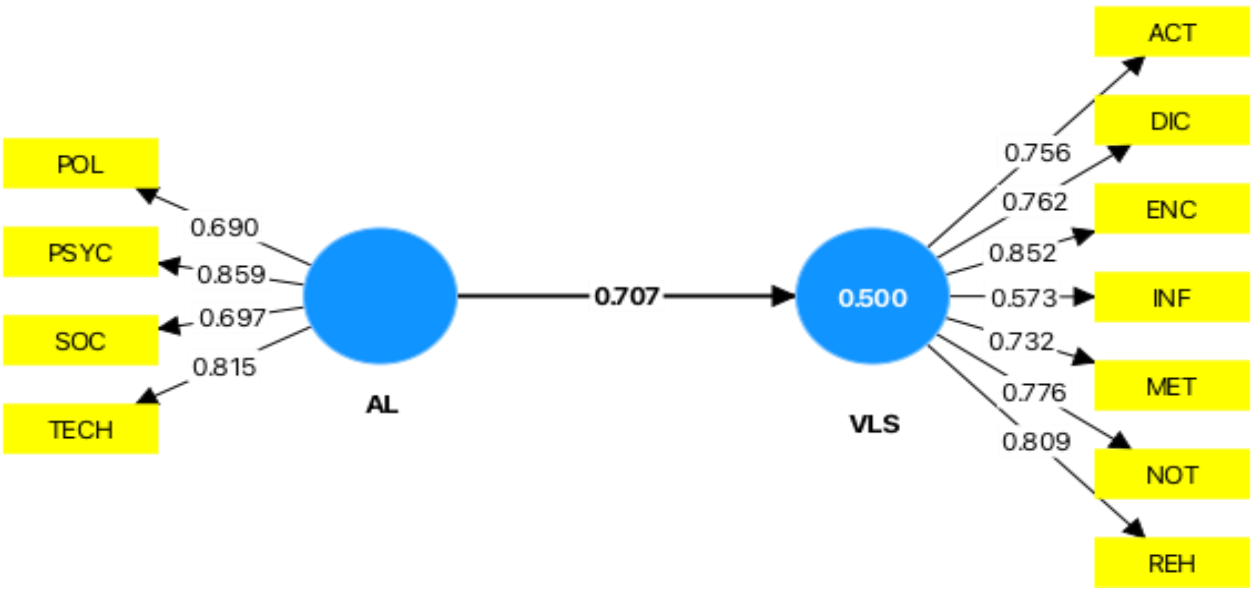
Based on the assessment of convergent validity, discriminant validity, Average Variance Extracted (AVE), and composite reliability, it can be concluded that the outer model in the study met the criteria outlined in the PLS research. Consequently, the research is deemed suitable for progression to the next stage.

Table 4 Discriminant Validity (Htmt)

Construct	ACT	DIC	ENC	INF	MET	NOT	POL	PSYC	REH	SOC	TECH
ACT											
DIC	0.521										
ENC	0.752	0.645									
INF	0.435	0.402	0.457	0.453							
MET	0.492	0.776	0.634	0.633	0.373						
NOT	0.616	0.638	0.721	0.687	0.381	0.581					
POL	0.383	0.399	0.422	0.413	0.494	0.433	0.324				

PSYC	0.625	0.595	0.705	0.709	0.395	0.632	0.561	0.543			
REH	0.659	0.557	0.802	0.778	0.438	0.684	0.682	0.416	0.703		
SOC	0.323	0.530	0.403	0.515	0.216	0.432	0.405	0.547	0.553	0.517	
TECH	0.586	0.636	0.692	0.349	0.349	0.590	0.519	0.496	0.836	0.647	0.439

*HTMT < 0.90



Note: AL (autonomous learning), VLS (vocabulary learning strategies)

Fig. 2 Structural model

The evaluation of the structural model (inner model) examines the relationships between the latent variables. In Table 5, there is a summary of the path coefficient, accompanied by t-values and p-values.

Table 4 Hypothesis Testing

Relationship	Std beta	Std dev	t-values	p-values	95% CI
AL -> VLS	0.707	0.048	14.698	< 0.05	[0.586, 0.785]

*Note: t>1.96, p < 0.05

The relationship between autonomous learning (AL) and vocabulary learning strategies (VLS) was found to be statistically significant ($\beta = 0.707$, $t = 14.698$, $p < 0.05$). The 95% confidence interval [0.586, 0.785] confirms that this effect is both strong and positive. This conclusion is based on t-values exceeding 1.96 and p-values below 0.05, therefore, hypotheses are confirmed when the significance level is 5% or lower ($p \leq 0.05$) (Hair et al., 2017). This result suggests that higher levels of autonomous learning are associated with increased use of vocabulary learning strategies.

DISCUSSION

The findings of this study indicate a significant and positive relationship between autonomous learning and the use of vocabulary learning strategies (VLS). This suggests that as learners become more autonomous, they are more likely to adopt effective strategies for acquiring vocabulary. This result is consistent with previous research (Abadi & Baradaran, 2013; Anett, 2017; Khalifa & Shabdin, 2016; Nosratinia et al., 2015; Sedighi & Hadidi,

2016; Tilfarlioglu & Sherwani, 2018), which also found that autonomous learning enhances vocabulary learning strategy use. This result highlights two main outcomes which are learner empowerment and active participation. Empowerment refers to the learners' ability to choose and adapt strategies that align with their personal learning styles, enabling more meaningful engagement with vocabulary (Almusharraf, 2020; Gu & Johnson, 1996). Autonomous learners are intrinsically motivated, which drives them to take ownership of their learning processes. As a result, they are more proactive in using diverse VLS and are better equipped to manage their own learning effectively (Almusharraf, 2021).

A unique dimension in this study is the religious and cultural motivation underlying Arabic learning. Given that the respondents specialize in Islamic studies, their motivation to learn Arabic stems from a desire to understand Quran and Islamic texts (Rahmi et al., 2023, Sopian et al., 2024). Motivation in learning Arabic is a drive that can stimulate students to get involved actively in the class (Abdeldaim et al., 2023; Rasit & Ismail, 2024), thus significantly enhances their readiness to engage in autonomous learning and use effective vocabulary learning strategies. Compared to English, where learners are exposed to authentic materials such as television, movies, and social media, Arabic requires a more proactive approach to vocabulary learning. On the other hand, the self-directed nature of Quran memorization and Islamic studies promotes autonomous learning habits among Arabic learners in Malaysia.

The findings of this study align with the educational context in Malaysia, where autonomous learning is essential in acquiring Arabic vocabulary. This result is related to the limited exposure to the language within Malaysian classrooms (Hamidin, 2019; Sahid et al., 2020), where Arabic is taught as a foreign language in schools, universities, and religious institutions. The weekly time allocated for Arabic instruction is often limited. As a result, this creates a situation where learners must engage in autonomous learning outside the classroom to acquire sufficient vocabulary (Haddad, 2016; Nayan & Rawian, 2022; Sedighi & Hadidi, 2016). Therefore, Malaysian Arabic learners must take responsibility for acquiring vocabulary beyond formal lessons. Given the limited exposure to Arabic in daily life, students who develop autonomous learning skills can enhance their learning opportunities through self-study and practice. This supports Wenden's (1991) argument that autonomous learners possess the necessary skills, knowledge, and attitudes to apply learning strategies autonomously, without relying solely on the teacher.

Next, the availability of digital learning tools and resources supports the relationship between autonomous learning and vocabulary learning strategies. Online resources such as Arabic language learning applications, YouTube lessons, and digital dictionaries have positive impacts on Arabic vocabulary learning (Razak et al., 2024; Umar et al., 2024; Zulkepli et al., 2024). The study results are justified because learners who engage with technology, such as watching Arabic videos and using language learning applications, tend to develop effective vocabulary learning strategies. Meanwhile, educational institutions in Malaysia are increasingly integrating blended learning approaches, encouraging students to take responsibility for their learning beyond class hours.

This result highlights the importance of autonomous learning in the acquisition of Arabic vocabulary. Since Arabic is a complex language with a morphological system (Bakker, 2019), vocabulary acquisition requires systematic strategies beyond traditional classroom instruction. This is consistent with the current study, which indicates that Malaysian students who engage in autonomous learning are more likely to explore various vocabulary learning techniques, such as using flashcards, mnemonic devices, and contextual learning (Bakker, 2020). As a result, the ability to organize self-learning helps learners tackle the challenge of the root-based word formation system in Arabic, leading to better vocabulary retention. This justifies why learners who take charge of their learning tend to use vocabulary learning strategies effectively, ultimately improving their proficiency in Arabic language.

The relationship between autonomous learning and vocabulary learning strategies is linked to the influence of previous studies within the context of English as a foreign language. While previous studies primarily focused on English as a foreign language, the current research involving Arabic learners in Malaysia has produced similar results, indicating that autonomous learners are more effective in employing vocabulary learning strategies regardless of the language being studied. The research builds on previous findings (Kaur, 2013; Nayan & Rawian, 2022) by demonstrating that autonomous learning in the context of Arabic language learning in Malaysia reflects the trends observed in English as a foreign language study, even though Arabic is less

commonly utilized outside academic settings.

This research is among the first empirical studies to examine the relationship between autonomous learning and vocabulary learning strategies in the context of Arabic as a foreign language in Malaysia. It provides a valuable overview of learners' autonomy levels and their strategies for vocabulary acquisition in Arabic language context. The results emphasize the need for educators to foster autonomous learning**,** as it enables learners to adopt effective strategies and take control of their learning journey, thereby improving language outcomes.

CONCLUSIONS

The outcomes of this study revealed a significant relationship between autonomous learning and vocabulary learning strategies among Arabic language learners, or in other words, the higher the level of autonomous learning, the higher the level of employing vocabulary learning strategies among the learners would be. This result can be explained by the fact that autonomous learning is an important element that leads to the use of vocabulary learning strategies, thus learners are able to take responsibility for learning vocabulary on their own, enhance their motivation to acquire vocabulary, and thus develop their ability to determine the strategies they use in learning vocabulary. Therefore, fostering learner autonomy not only empowers students but also equips them with the tools to enhance their vocabulary skills.

The findings of this study hold significance for both theoretical and practical aspects. Theoretically, the results of this study could provide useful insights concerning the level of autonomous learning and vocabulary learning strategies practice in learning Arabic vocabulary, especially for university students, and thus improving their performance in learning and acquiring vocabulary. The study's outcomes also provide practical implications especially for teachers as well as curriculum designers and material developers in integrating autonomous learning and vocabulary learning strategies into Arabic language subjects or courses. Hence, the learner is expected to be independent from the beginning of learning Arabic language.

Considering the need for further investigation, this study recommends conducting more research on autonomous learning and vocabulary learning strategies in learning Arabic vocabulary, especially their correlation with other variables such as gender, cultural background, educational background, language proficiency, learning styles and motivation. Additionally, it is worth noting that the absence of qualitative approach in data collection represents a limitation in this study. Therefore, it is suggested that future research should use other data collection methods such as interviews, diary or journal writing, and classroom observations to enhance the richness of the data and obtain a more comprehensive picture of student' actual practices in autonomous learning and vocabulary learning strategies. Future research could also explore the specific strategies that are most effective for autonomous learners and how these strategies can be integrated into diverse educational settings.

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