Research Article

Unveiling Vocabulary Learning Strategies: A Mixed Methods Study among EAP Students

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Abstract

This study focused on the importance of Vocabulary Learning Strategies (VLSs) in English for Academic Purposes (EAP) and how Iranian EAP students learn academic vocabulary. The study used an explanatory mixed method approach by gathering data from undergraduate EAP students of Islamic Azad University in East Azerbaijan. A total of 238 students majoring in engineering and medical sciences responded online self-report VLS questionnaires, analyzed using SPSS-26. Twenty (20) students participated in semi-structured interviews until the point of saturation was reached. The qualitative data was analyzed using thematic analysis methods. Quantitative data analysis revealed that participants frequently used strategies for incorporating new vocabulary into their repertoire. Additionally, teacher-related, student-related, and material-related themes emerged through coding the participants' attitudes toward VLSs. The results indicated that raising learners' consciousness of VLSs, training teachers, providing tasks for all language skills, using technology, materials revision, and developing autonomous and independent learning can help with vocabulary learning and lead to increased motivation, enhanced learning outcomes, and supportive environment for EAP students.

Keywords: beliefs, EAP students, teachers, materials, vocabulary learning strategies

Introduction

Learning vocabulary plays a crucial role in acquiring any language, be it a first, second, or foreign language. Indeed, words are the fundamental building blocks upon which second language learning is built. The significance of vocabulary in language usage is likely. It serves as a crucial component of language abilities and has multiple functions, including facilitating communication, reflecting social reality, enhancing emotions, and predicting academic aptitude. Additionally, prior research suggests that different types of vocabularies, such as receptive and productive, as well as active and passive, have diverse impacts on language proficiency (Dakhi & Fitria, 2019).

Research has shown that learners often require more vocabulary than they are capable of acquiring, leading to an interest in examining how vocabulary learning strategies can be employed to aid learners (Nyikos & Fan, 2007). In recent definition by Schmitt (2020), vocabulary learning strategies are the particular activities or behaviors employed by individuals who are learning a language to improve their ability to acquire, remember, and apply new words. According to Schmitt (1997), vocabulary learning strategies can be defined as any action that has an impact on this relatively extensive process. Afterwards, the items were categorized using Oxford's system (1990), which consists of four categories: social, memory, cognitive, and metacognitive strategies. However, a limitation of Oxford's classification system is the absence of a category for strategies used by students to deduce or infer the meaning of new words without the help of other people. Schmitt (1997) oriented this category as a determination strategy. However, he confessed that discovery strategies can also be used as consolidation strategies. As a result, the most prominent strategies are included in both divisions of the taxonomy.

Table1
Vocabulary Learning Strategies categorized by Ma (2009)

Stages of vocabulary acquisition	Category of strategies
1. What strategies do you use to uncover unfamiliar vocabulary?	Cognitive strategies (3 items) Social strategies (1 item) Metacognitive strategies (3 items)
2. What actions do you take when you come across unfamiliar vocabulary?	Metacognitive strategies (2 items) Cognitive strategies (4 items) Social strategies (1 item)
3. When acquiring a new vocabulary item, what cognitive strategy elements do you focus on in your study?	Cognitive strategies (9 items)

4. How do you structure and organize your knowledge of metacognitive strategies?	Metacognitive strategies (2 items) Cognitive strategies (3 items)
5. What methods or techniques do you employ to commit vocabulary to memory?	Cognitive strategies (7 items) Memory strategies (11 items)
6. What approach do you use to review and reinforce your vocabulary?	Metacognitive strategies (2 items) Social strategies (1 item)
7. How do you retrieve vocabulary?	Cognitive strategies (2items)
8. How do you effectively utilize newly acquired vocabulary?	Metacognitive strategies (3 items) Social strategies (1 items)

In regards to English for Academic Purposes (EAP), the students undergo a variety of academic textbooks. They have to derive the meaning of new information based on their previous knowledge and thus they must have a satisfactory amount of academic vocabulary to pass exams and effectively express themselves. Accordingly, awareness of vocabulary learning strategies occupies a vital position in English for academic purposes. Also, being aware of useful VLSs is an excellent help for EAP majors in dealing with unfamiliar words (Al-Omairi, 2020).

The change in our global society is creating outstanding prospects and challenges for teachers and students, especially English Language Learners (ELLs). As technological innovations and ongoing shifts in the economic and social landscape persist, there will be a change in the competencies and abilities that people require to effectively participate in the contemporary workforce as well as academic and recreational environments (Black, 2009). An e-learning platform that employs multimedia annotation plays an effective role in enhancing English vocabulary learning (Lin & Chiu, 2020). The outbreak of Covid-19 underlined the need for e-learning. Having classrooms on online platforms did not allow university education to stop.

Given to the importance of vocabulary and the role of various factors in dealing with learning vocabulary, the purpose of this study is to uncover VLSs employed by Iranian EAP students and to explore their attitudes toward the use of VLSs, shedding light on their perceptions, preferences, and experiences surrounding vocabulary learning.

Significance of Vocabulary Learning

Being blessed with a sufficient vocabulary is an important factor in effective communication across a variety of settings, including education, business, and second language learning. As Love et al (2021) argued having a bigger vocabulary is linked to improved communication abilities,

encompassing both the capacity to comprehend language (receptive skills) and communicate ideas effectively (expressive skills).

Vocabulary learning is an essential component of language learning and should be prioritized in language instruction. Murphy (2019) discovered that learners who gave importance to learning new vocabulary gained a notable increase in their overall proficiency of the language. Murphy (2019) also revealed that learners who utilized multiple methods such as reading, listening, and speaking to acquire new words had more success compared to those who relied on only one method.

Learning Strategies (LLSs)

Researchers have been interested in Language Learning Strategies (LLS) since the 1970s when they began studying the strategies used by successful second language (L2) learners (e.g., Rubin, 1975). In the history of LLS studies, there was a growing trend in the 1980s and 1990s to categorize these strategies. One of the earliest contributors to language learning strategies is Professor Stephen Krashen (1982). He presents five hypotheses regarding language learning strategies. One of these hypotheses describes two types of language learning strategies. The first type, known as conscious learning or formal learning, involves language learners focusing on language forms to enhance their language skills. The second strategy is known as subconscious learning or language acquisition. Subconscious learning entails language learners improving their language skills through communication practice with authentic media. This approach is similar to how humans learn their first language. Krashen emphasizes the significance of subconscious learning over conscious learning. O'Malley and Chamot (1990) also proposed three types of strategies: cognitive, metacognitive, and social/affective strategies. Around the same time, Oxford (1990) introduced a widely accepted taxonomy that classifies LLS into six categories: cognitive, metacognitive, mnemonic, compensatory, affective, and social strategies.

In more recent research, Malik and Asnur (2019) conducted a study titled "Using Social Media as a Learning Medium for Foreign Language Students in Higher Education." They discovered that YouTube and Instagram are the preferred platforms for foreign language students in higher education. These platforms are commonly used as learning tools. Sakkir (2016) also argued that contemporary language learning strategies implemented by proficient millennial students heavily rely on electronic media or e-learning platforms. These students leverage the advancements in technology available today. E-learning platforms offer various benefits, such as motivation and

encouragement for students to improve their language skills in areas such as listening, speaking, reading, and writing English.

Vocabulary Learning Strategies (VLSs)

The research suggests that a combination of different methods and techniques may be the most effective approach to vocabulary learning, and that learners should be encouraged to use a variety of resources and tools to support their learning. Finding effective ways for enhancing the power of words helps in learning vocabulary at an achievable pace. Due to the limitations of teaching all words to meet students' needs, research has shown that teaching vocabulary learning strategies can have a positive impact on students' vocabulary knowledge and overall language proficiency. Barens et al. (2020) examined how effective a vocabulary intervention program was in teaching word-learning strategies to adolescent readers who were struggling with reading. The results showed that the program was successful in improving the participants' vocabulary knowledge and reading comprehension abilities.

While teachers can provide guidance and facilitate learning, it ultimately comes down to the individual student to take ownership of their education and actively seek out effective strategies to improve their vocabulary (Efklides & Volet, 2020). However, studies suggest students' lack of familiarity with vocabulary learning strategies. For example, Seferoglu and Güngör (2020) explored Turkish EFL learners' awareness and use of vocabulary learning strategies. The researchers found that the participants had a low level of awareness of these strategies, indicating that they may need more explicit instruction and training in order to effectively employ them.

In the EAP context, the studies highlight the importance of vocabulary in the EAP context. Schmitt (2010) examined the relationship between vocabulary size and academic achievement among university students. The study found that students with larger vocabularies tended to perform better academically, particularly in areas such as reading comprehension and essay writing. Meara and Wang (2018) also investigated the link between vocabulary knowledge and academic writing performance. It shed light on how vocabulary size could influence academic writing, making it a useful resource for those interested in English for academic purposes. Moreover, studies suggest that vocabulary instruction should be an integral part of EAP programs, and that teachers should focus on teaching not only general vocabulary but also domain-specific academic vocabulary to help students succeed academically. This is supported by Coxhead (2012) who reported that teaching vocabulary directly can result in a notable enhancement in EAP students' comprehension and application of academic vocabulary.

Using Technology to Improve Vocabulary Learning

In recent years, there have been many studies and articles highlighting the importance of using technology to teach and learn vocabulary. Mobile technology, multimedia tools, digital resources, and online assessments are just a few examples of how technology can support effective vocabulary learning. These resources can provide learners with engaging and interactive experiences that help them acquire new words more effectively and retain them over time. Additionally, technology can help teachers assess learners' vocabulary skills more accurately and efficiently, allowing them to adapt their teaching strategies as needed (Tate, 2018).

The COVID-19 pandemic forced education to go online, causing a major impact on the global educational system. Schools worldwide had to rapidly adopt new strategies and technologies for remote learning. Many countries made online education the primary method of instruction and even mandated its use due to the uncertainty surrounding in-person schooling (Gaba et al., 2021). Online education is a form of instruction where teachers and students are physically separated but use technology to communicate. Initially, interactions were asynchronous, but the Internet introduced synchronous methods like chat rooms and videoconferencing for real-time communication. Digital platforms now facilitate the exchange of assignments and course materials (Simonson & Berg, 2016). According to Lathifah et al. (2020), the characteristics of an online classroom include real-time, synchronous communication between teachers and students, geographical distinctions between teachers and students, and the use of a closed platform for specific individuals. Despite the lack of physical contact and the challenges of managing rules, virtual classrooms offer greater flexibility and a learner-centered approach compared to traditional classrooms (Rufai et al., 2015).

Ghateolbahra and Samimi (2021) emphasize the importance of professional development in online education. They suggest that practical strategies, strong communication with students, effective classroom management programs, and the management of asynchronous discussions and online teamwork are crucial for successful online teaching.

In sum, by investigating vocabulary learning strategies specifically within the domain of EAP and understanding how EAP students approach vocabulary learning is crucial for designing effective instructional methods tailored to their specific needs. As Nawir et al. (2023) concluded EAP students have unique requirements, coupled with strong motivation, that contribute to their acquisition of effective communication skills within their field. This highlights the significance of ensuring a shared understanding of

their needs when designing an EAP course aimed at accomplishing EAP learning objectives. Therefore, the present study aimed to address the following research questions in the context of EAP in Iran:

1. What VLSs do Iranian EAP students report using?
2. What are Iranian EAP students' attitudes toward the use of VLSs?

Method

Participants

The participants of this study were drawn from a pool of 4234 undergraduate EAP students majoring in different branches of engineering and medical sciences at 8 Islamic Azad university branches, East Azerbaijan. During the period of investigation, the closure of universities was necessitated by the COVID-19 pandemic, resulting in students engaging in online classrooms. Persian was the formal and instructional language of all the participants. Since the population consisted of members of a Telegram group, a convenience sampling method was used to select participants. 109 males and 129 females whose ages ranged from 20 to 30 participated in this study. The study applied a web-based survey to gather data from Telegram groups. The group had been created as a communication tool where students could be kept updated on the news related to the university. The groups included 4234 members in total out of which 392 students responded to the questionnaire; only 238 students provided the research with qualified responses. Table 2 presents the summary of the students' background.

Table 2
Summary of Student Background

Variables	Category		n
Gender	Male		109
	Female		129
Level	First-year students		33
	Second-year students		43
	Third-year students		74
	Fourth-year students		88
Major	Engineering		118
	Medical sciences		120
GPA		Higher (3.5-5)	186
		Lower (< 3.5)	52

Later, the students with qualified responses were invited to take part in semi-structured interviews. The researcher employed purposeful sampling methodology (Creswell, 2014) to select the students of third and fourth year. In order to ensure validation, the researcher conducted interviews with participants until they reached a point where they had gathered enough data and insights, rather than focusing on the number of participants (Morse, 2015). It is important to avoid having a sample size that is too large as this can hinder the researchers' ability to thoroughly analyze and understand the specifics, which is a key aspect of high-quality qualitative research (Sandelowski, 2006). Twenty (20) students provided the researcher with rich data, including 12 students of medical sciences (7 females and 5 males) and 8 engineering students (5 females and 3 males). The researcher provided an explanation of the study's purpose and rationale to the participants and reassured them that their data would not be shared with any third party.

Instruments

The first phase of data collection focused on distributing a survey extracted from Kulikova's modified VLS questionnaire (2015). It is divided into three categories: strategies used to comprehend new vocabulary (6 items), strategies employed to study new vocabulary (7 items), and strategies implemented for the revision of vocabulary to maintain it in the repertoire (5 items). Prior to distribution, the questionnaire was reviewed and verified by nine reviewers. The questionnaire was assessed using a 5-point Likert scale from always, often, sometimes, rarely, to never. In order to facilitate scoring of the questionnaires, a numerical scale was employed to assign values to each given response. The following scale was utilized: Always=5, Often=4, Sometimes=3, Rarely=2, Never=1.

Semi-structured interviews were employed to carry out the second phase of data collection. A predetermined list of open-ended questions was used as a guide while allowing flexibility to explore additional information (Mackey & Gass, 2005). The interview consisted of six open-ended questions to assess the candidates' understanding, perspective, and experiences toward English vocabulary learning and teaching. The questions were developed based on the existing literature and were thoroughly reviewed and refined by the five experts in the domain of ELT pedagogy and research, who assessed the language, content, and effectiveness of the questions, making modifications as necessary. Interviews were run in Persian and then the translated versions of the interviews were validated by the experts, who confirmed its appropriateness and alignment with the study's objectives.

Instruments Validity

To assess the construct validity and measurement models, Confirmatory Factor Analysis (CFA) was performed using LISREL software with maximum likelihood estimation. For the CFA analysis, multiple indicators were employed to demonstrate the strength of fit, specifically Chi-square degrees of freedom ratio ($\chi 2$/df), comparative fit index (CFI), Normed Fit Index (NFI), Goodness of Fit Index (GFI), and Incremental Fit Index (IFI), root-mean-square error of approximation (RMSEA) and Standardized root-mean-square residual (SRMR). Hooper et al. (2008) propose recommendations for evaluating model fit in SEM using CFI, NFI, GFI, and IFI. They suggest that a CFI value of 0.90 is acceptable, while values above 0.95 indicate excellent fit. The $\chi 2$ should be statistically non-significant (p > .01). The $\chi 2$ depends on the sample size and increases with increasing sample size and a fixed number of degrees of freedom.

The scale for VLSs with 18 items consists of 4 factors via a 5-point scale. The CFA was performed to determine the structure of the model. The measurement model was identified with a sufficient model fit (x^2= 465.744, df= 248, x^2/df= 1.878, p= .007, CFI= 0.920, NFI= 0.930, GFI= 0.890, IFI= 0.860, SRMR= .053, and RMSEA= 0.071). Factor loading of all 18 items was higher than 0.40.

Procedure

Data collection focused on distributing the surveys on VLSs to elicit participants' responses online. The questionnaire was designed in Google Format and the link was sent to the Telegram group in December 2021. The students were notified that the questionnaire was for research purposes and would remain confidential. They were also assured that their responses to the questionnaire would not impact their grades in any way. To prevent biased responses, the participants were not required to provide their names on the questionnaire. One month after the electronic distribution of the questionnaires among the EAP learners, who were subscribers of a Telegram group, the researcher received 238 qualified responses.

Once the data was collected, the researcher launched the second phase of the study. Each participant was interviewed separately and asked a series of questions regarding the significance of acquiring EAP vocabulary, their preferred approach to learning vocabulary, their opinions on vocabulary learning techniques, the impact of different education platforms on vocabulary teaching and learning, their thoughts on the methods used by EAP teachers in teaching vocabulary, and suggestions for enhancing the quality of EAP courses. The interviews were conducted in Persian through video calls

in WhatsApp for 25-30 minutes. During the interview, participants were first engaged in friendly conversation to create a relaxed and comfortable environment. They were then asked to honestly share their true thoughts and feelings in response to each question. The participants were informed that they had the freedom to expand on their opinions, and if they had difficulty expressing themselves, the researcher offered some choices and alternative options. Interview recordings were transcribed word-for-word (verbatim) and were translated into English by two experts to maintain the accuracy and integrity of the participants' perspectives. Finally, 20 responses were collected until the point of saturation was reached.

Data Analysis

The SPSS26 software was used to examine the statistical data. The reliability of the VLS questionnaire was checked by Cronbach's alpha (Table 2).

Table 3
Results of the Reliability Test

VLSs	Cronbach's alpha ($\alpha>0.8$)	n	Items
Meaning of a new word	.81	238	6
Study New Vocabulary	.82	238	7
New Vocabulary Part of Repertoire	.84	238	5
Total	.82	238	18

As shown in Table (3), the Cronbach's alpha coefficient for vocabulary learning strategies is greater than 0.8 signifying that each structure is reliable.

Then, thematic analysis was employed to align with our objective of conducting qualitative part of the study. Thematic analysis is an advanced qualitative technique that promotes precision, consistency, and thoroughness by documenting, organizing, and presenting methodological and analytical information. Through this approach, readers can assess the credibility and reliability of the research process (Nowell et al., 2017). In order to examine the research question 3, Braun and Clarke's (2006) six-step method for thematic analysis was employed. This approach involves becoming acquainted with the data, creating initial codes, identifying themes, reviewing themes, defining and labeling themes, and composing the final report. Tracy's (2010) markers were applied to enhance rigor in the qualitative portion. Firstly, the chosen topic holds significance due to the existing lack of effective ways for students, teachers, and materials to address specialized vocabulary. Secondly, to establish trustworthiness, the findings were shared

with participants to obtain their endorsement of the data's authenticity and transparency. Lastly, in order to enhance credibility, the data gathered from in-depth interviews, precise transcriptions were made, and the data was rechecked with the interviewees.

Results
Addressing Research Question1

The initial question posed in the study aimed to identify the specific vocabulary learning strategies that are commonly used by Iranian EAP students, with the goal of gaining insight into their approaches to vocabulary learning and potentially informing future teaching methods or interventions. The study aimed to investigate three distinct categories of VLS: strategies for understanding new vocabulary, strategies for studying and committing new vocabulary to memory, and strategies for revising and retaining previously learned vocabulary. A frequency report of the means was performed to examine the first research question (Table2).

Table 4
Descriptive Statistics of Variables

VLSs	Mean	Std. Deviation
Getting the meaning of new vocabulary	2.2406	.27350
Studying new Vocabulary	3.0232	.64662
Making new vocabulary part of the repertoire	3.2208	.46407

According to the results of Table3, strategies for "making new vocabulary part of the repertoire" were the most common VLS used by the students. They used strategies for "getting the meaning of a new word" less frequently. The following tables present the frequency of individual VLSs use among the participants.

Table 5
Frequency of Using Strategies to Get the Meaning of New Vocabulary

VLS1 *(to get the meaning of new vocabulary)*		Frequency	Percent	Valid percent	Cumulative percent
I search for it in Google to find the meaning in different dictionaries.	Sometimes	16	6.7	6.7	6.7
	Often	111	46.6	46.6	53.3

	Always	111	46.6	46.6	100.0
I ask my friends via whatsApp group or other social media devices to translate it.	Never	90	37.8	37.8	37.8
	Rarely	102	42.9	42.9	80.7
	Sometimes	46	19.3	19.3	100.0
I guess meaning from the context.	Never	100	42.0	42.0	42.0
	Rarely	92.0	38.7	38.7	80.7
	Sometimes	38	16.0	16.0	96.6
	Often	8	6.7	6.7	100.0
I ask the teacher to translate it.	Never	39	16.4	16.4	16.4
	Rarely	111	46.7	46.7	63.0
	Sometimes	81	34.0	34.0	97.1
	Often	7	5.8	5.8	100.0
I look it up in a bilingual dictionary.	Never	137	57.6	57.6	57.6
	Rarely	83	34.8	34.8	92.4
	Sometimes	18	7.5	7.5	100.0
I look it up in a monolingual dictionary.	Never	213	89.5	89.5	89.5
	Rarely	17	7.1	7.1	96.6
	Sometimes	8	3.3	3.3	100.0

According to the table, the participants search on Google the most whereas they utilize other strategies less to learn the meaning of a new word.

Table 6
Frequency of Using Strategies to Study the Vocabulary

VLS2 (to study the vocabulary)	Frequency		Percent	Valid percent	Cumulative percent
Translating the new word into Persian in the course book	Rarely	16	6.7	6.7	6.7
	Sometimes	27	11.3	11.3	18
	Often	88	36.9	36.9	55.0
	Always	107	45.0	45.0	100
	Never	9	3.7	3.7	3.7

Repeating them silently	Rarely	20	8.4	8.4	12.2
	Sometimes	78	32.8	32.8	45.0
	Often	67	28.1	28.1	86.8
	Always	65	26.9	26.9	100.0
Repeating them aloud	Never	10	4.2	4.2	4.2
	Rarely	25	14.7	14.7	18.9
	Sometimes	69	30.25	30.25	49.1
	Often	69	29.0	29.0	78.1
	Always	52	21.8	21.8	100
Writing them repeatedly	Never	66	27.7	27.7	27.7
	Rarely	64	27.0	27.0	54.6
	Sometimes	55	23.1	23.1	77.7
	Often	35	14.7	14.7	92.4
	Always	18	7.5	7.5	100.0
Connecting the word to its synonyms/antonyms	Never	11	4.6	4.6	4.6
	Rarely	80	33.6	33.6	38.2
	Sometimes	69	29.0	29.0	67.2
	Often	43	18.0	18.0	84.4
	Always	35	14.7	14.7	100.0
Writing example sentences for the new words	Never	97	40.8	40.8	40.8
	Rarely	94	39.5	39.5	80.3
	Sometimes	24	10.0	10.0	90.3
	Often	11	4.6	4.6	95.0
	Always	12	5.0	5.0	100.0
Reviewing the newly learned terms with classmates	Never	64	26.9	26.9	26.9
	Rarely	85	35.7	35.7	62.6
	Sometimes	48	20.1	20.1	82.7
	Often	28	11.7	11.7	94.5
	Always	13	5.4	5.4	100.0

As seen in Table 6, translating the new word into Persian in the course book and repeating the words silently or aloud are widely utilized by the participants whereas others are less frequently used. Table 7 illustrates the frequency of strategy use.

Table 7

Frequency of Using Strategies to Make the New Vocabulary Part of the Repertoire

VLS3 (to make the new vocabulary part of the repertoire)	Frequency		Percent	Valid percent	Cumulative percent
Keeping lists of learned words and revising them regularly	Never	128	53.8	53.8	53.8
	Rarely	43	18.0	18.0	71.8
	Sometimes	32	13.4	13.4	85.3
	Often	20	8.4	8.4	93.7
	Always	15	6.3	6.3	100.0
Keeping a vocabulary notebook and reviewing continuously	Rarely	10	4.2	4.2	4.2
	Sometimes	22	9.2	9.2	13.4
	Often	64	26.8	26.8	40.3
	Always	142	59.7	59.7	100.0
Making vocabulary cards and studying them now and then	Never	11	4.6	4.6	4.6
	Rarely	15	6.3	6.3	10.9
	Sometimes	43	18.0	18.0	29.0
	Often	86	36.1	36.1	65.1
	Always	83	34.8	34.8	100.0
Writing new words on flashcards and hanging them on the wall	Never	21	8.8	8.8	8.8
	Rarely	27	11.3	11.3	20.2
	Sometimes	63	26.5	26.5	46.7
	Often	64	26.8	26.8	73.5
	Always	63	26.4	26.4	100.0
Using newly learned words as much as possible in writing	Never	78	32.8	32.8	32.8
	Rarely	66	27.7	27.7	60.5
	Sometimes	54	22.6	22.6	82.8
	Often	26	10.9	10.9	94.1
	Always	14	5.9	5.9	100.0

Table 7 indicates that Iranian EAP students frequently keep a vocabulary notebook and review it continuously, create vocabulary flashcards and revisiting them periodically, and write new words on flashcards and hang them on the wall to make the new vocabulary part of their repertoire whereas others are not popular.

Addressing Research Question2

The second question addressed the respondents' attitudes toward the use of VLSs. Using semi-structured interviews, the researcher applied a qualitative method to probe into attitudes of undergraduate EAP learners in Iranian context. Analyzing, categorizing, and organizing the data through coding yielded drawbacks and gaps in teaching/learning vocabulary. According to the students, the gaps mostly root in teaching techniques, teachers' insufficient preparation to implement EAP courses, and inadequacy of the materials. However, learners also play a role in inefficient learning of vocabulary. Analysis of the learners' attitudes is reported as the following:

THEME 1: TEACHERS

Subtheme 1: VLS neglect by teachers

The participants identified several issues related to the significant role of teachers in facilitating vocabulary learning and language proficiency. One subtheme that emerged was the neglect of VLSs by educators. All of the respondents agreed that EAP teachers do not instruct vocabulary learning strategies. They also confessed to not being explicitly aware of the strategies. The participants believed that teachers themselves are not aware of VLSs. However, they expressed that if teachers informed them about these techniques, they would be able to learn more difficult words easily and achieve more linguistic and academic success. The participants acknowledged that EAP teachers do apply certain types of Vocabulary Teaching Strategies (VTSs), but there is a need for a wider range of teaching methods in the classroom.

Subtheme 2: Teachers' disregard for technology

The results on students' views on the role of technology and the Internet in virtual learning platforms during the Covid-19 pandemic revealed several key findings. Firstly, students highlighted the effectiveness of technology in studying and learning EAP vocabulary. They emphasized the importance of teachers utilizing technological tools, such as Google, to enhance vocabulary learning and make it a more enjoyable and effective experience. Secondly, participants expressed their expectations for the comprehensive use of technology in the educational system, not only during times of crisis but at all times. They stressed that in the age of widespread internet and technology use, it is necessary for the educational system to take advantage of the abundant potentials of the internet for better learning. Thirdly, students commented on the lack of IT knowledge among some EAP teachers. They found it strange that some teachers preferred traditional face-to-face classes

and were initially reluctant to embrace online teaching during the pandemic. However, the situation improved over time as teachers and students adapted to the use of technology, with some even preferring virtual classes over face-to-face ones. Furthermore, students recognized the benefits of virtual classes, including time savings, efficient resource management, and the ability to review educational materials multiple times. They appreciated the convenience of attending classes from any location without the hassle of heavy traffic. However, students also acknowledged that pure online classes are unlikely to fully replace traditional face-to-face classes. They advocated for a combination of online and in-person learning environments to achieve optimal results, especially when it comes to mastering challenging and specialized vocabulary.

Subtheme3: Insufficient concern for needs analysis

Results indicate that EAP learners have a lack of satisfaction with vocabulary instruction in the program. They believe that teachers use limited and outdated methods and do not employ specific methodologies for teaching challenging terminologies. The students express a need for additional resources and the use of technology in their education. They also advocate for teachers who are proficient in teaching discipline-specific language and vocabulary. The findings suggest that EAP instruction should address students' speaking needs through discussion-based teaching methods and incorporate writing tasks that focus on specialized vocabulary. The participants emphasize the importance of including authentic writing exercises and providing instruction on writing rules and principles. Overall, the results highlight the need for more attention to students' needs and the incorporation of technology and effective teaching methods in EAP instruction.

Subtheme 4: Displeasure with methodology

The respondents expressed their dissatisfaction with the teaching methods used in online classrooms. They believed that the techniques used to teach vocabulary were boring and demotivating, and lacked sufficient practice and repetition. Both language and content teachers were criticized for using the same ineffective methods and lacking a strong understanding of specialized vocabulary. The students felt that additional training is necessary for teachers to effectively teach technical vocabulary and meet the expectations of EAP students.

THEME 2: MATERIALS

The disadvantages of EAP teaching/learning are closely tied to the choice and structure of instructional materials. Teachers use available materials to conduct EAP classes, but ultimately it is the teacher who selects the materials. EAP materials often focus on reading and technical vocabulary, which can be monotonous and demotivating for students. Students wish for more variety in activities and tasks, including incentive materials and homework. It is the responsibility of the teacher to carefully review and choose the most suitable materials that can meet the diverse needs of the students. The expertise, skills, and experience of EAP teachers are crucial in selecting and using these materials effectively.

THEME3: STUDENTS

The interview revealed that EAP students believe VLSs are not explicitly taught to them. However, if given the opportunity, they would use VLSs to improve their vocabulary. Some students lack interest and motivation in English, focusing only on passing exams without caring about acquiring EAP vocabulary. Participants emphasize the importance of motivation and express boredom with current teaching methods and materials. They desire more engaging and motivating classes that stimulate their interest and enthusiasm. EAP learners expect teachers to address not only academic aspects but also psychological factors that affect the learning process. Some students lack innate motivation and acknowledge that responsibility for learning lies with them. They believe that developing comprehensive English language skills is crucial for achieving educational and professional goals.

Discussion

Based on the analysis of the quantitative data, it was found that the category of "making the new vocabulary part of the repertoire" is popular among Iranian EAP students. This means when they are exposed to a new word, they are seriously concerned with making the new vocabulary part of their repertoire. However, the category of getting the meaning of the new word is not commonly utilized. In other words, Iranian EAP students may not be taking advantage of a variety of vocabulary learning strategies to understand the meaning when they encounter new words.

The analysis of the data on the use of individual vocabulary learning strategies also indicated that cognitive strategies like 'searching Google to find the meaning in different dictionaries' and 'translating the new word into Persian in the course book', and memorization strategies like 'repeating the

vocabulary', 'repeating them aloud', 'keeping a vocabulary notebook and review continuously', 'making vocabulary cards and study them now and then', and 'writing new words of flash cards and hanging on the wall' are frequently applied. However, the cognitive strategies of 'using bilingual and monolingual dictionaries', 'writing example sentences for the new words', and 'using newly learned words as much as possible in writing', memorization strategies of 'connecting the word to its synonyms/antonym', 'keeping lists of learned words and revising them regularly', and the social-cognitive strategy of 'reviewing the newly learned terms with classmates' were identified as the less frequently used strategies.

Like the study by Amirian and Heshmatifar (2013) and Seddigh and Shokrpur (2012), the results of this study revealed that the participants didn't use social strategies as a frequent practice. Our results are also in line with the study by Soodmand Afshar et al. (2014) who reported 'repeating the new word orally several times' and 'studying the spelling of the new word and writing new English words several times' as the frequent strategies used by the EAP learners, but 'the use of monolingual dictionary' was applied the least to determine the meaning of new vocabulary. Hashemi and Hadavi (2015) also identified dictionary strategy as one of the less popular strategies among EFL learners. Our research findings align with those of Soodmand Afshar (2010), who reported that EAP students tend to utilize the strategy of writing new vocabulary words in a notebook less frequently. Despite this, it remains one of the most effective methods for enhancing vocabulary retention and knowledge depth. Contrary to our findings, Amirian and Heshmatifar (2013) reported that the most commonly used strategies for learning new vocabulary were dictionary use and guessing from context. Similarly, Seddigh and Shokrpur (2012) found that guessing and dictionary strategies were frequently utilized by learners. In addition, both Asgari and Mustapha (2011) and Hamzah et al. (2009) identified the use of monolingual dictionaries as a popular strategy among English learners, which differs from the results of our study.

Regarding RQ2, the analysis of the interviews resulted in teacher-related, materials-related, and student-related concepts. According to the respondents' attitudes, teachers should train VLSs to help the students with sorts of strategies to develop their vocabulary. This finding is similar to the study by Ostovar-Namaghi et al. (2021) who suggested that Iranian EAP learners employ a limited set of strategies to acquire vocabulary. Therefore, it is evident that there is a requirement for instruction and guidance on vocabulary learning strategies. Strategy training acts like a teaching technique

that should be viewed and integrated into classrooms as an essential part of the in-class routines (Rashtchi & Rezvani, 2011). The study by Daflizar et al. (2022) has found notable associations between the employment of language learning strategies and self-perceptions of skills among self-directed learners. As Brown (2000) states, the most successful learners of language are those who understand their abilities and capabilities well and who autonomously take the control of their learning. Along the same line, Shi (2017) asserted that utilizing language learning strategies in an active manner can enable learners to take more control over their own learning process. By employing effective strategies, learners can improve their language skills, increase confidence, and enhance motivation while studying a new language.

As the respondents argued that EAP teachers adopt only a few certain traditional practices to deal with vocabulary, the teachers need to use a variety of techniques to teach academic vocabulary. Tamimi Sa'd et al. (2018) have reported similar findings so that their participants asserted their teachers utilize certain types of VTSs. Teachers should not only teach the students the way to learn the vocabulary, but also they should use various types of VTSs for effective management of vocabulary instruction. In addition to a large number of VTSs, the students call for a variety of tasks and exercises to enhance other skills. This means their needs should be a concern. Since creating educational programs that cater to the needs and desires of various stakeholders is a fundamental principle of EAP, their needs have to be analyzed, and time and resource constraints have to be considered (Ranjbar & Soodmand Afshar, 2021). Zand-Moghaddam et al. (2018) also found that the four skills do not draw suitable attention in EAP courses.

The respondents' comments highlight the effectiveness of IT in studying and learning vocabulary. Such effectiveness is supported by scholars of any field of study. A need has risen for online teaching due to the Covid-19 pandemic, leading to a revolution across global education systems (Al-khresheh, 2021). Apart from the circumstances caused by the pandemic, EAP teachers should notice that their task is not only to teach EAP but also they deal with the web generation. Hence, EAP instructors have to use contemporary technological tools, such as blogs or other digital platforms, to deliver instructional content or materials and improve EAP programs (Asoodar et al., 2016, & Keshtiarast et al., 2021) since today's generation achieves learning goals the best through technology.

The attitudes ended with some psychological variables of the learners themselves of which motivation was identified as the most significant construct. They suppose learning English is difficult, learning of EAP vocabulary is tough, comprehending of the technical texts with harsh terminologies is exhausting, and

they just want to pass final exams. Therefore, EAP learners need to be stimulated by motivation. This is in line with the findings of Ostovar-Namaghi (2021) who concluded that how to pass the tests rather than improving language skills is the biggest concern among EAP students. Hence, students need help with perceiving more motives for learning vocabulary. Similarly, Sharker (2018) asserted that some specific methods of teaching can significantly affect student motivation within the classroom. However, the student is responsible for her/his learning and learning and needs to be more active and initiative to succeed in learning a language (van Lier, 2008). Interest as a powerful motivational process is essential to academic success. It energizes learning and guides academic and career pathways (Harackiewicz et al., 2016).

The present study explored Iranian EAP students' profiles and attitudes regarding academic vocabulary learning. After obtaining and documenting quantitative findings, the qualitative data was subjected to analysis to identify pertinent themes. Subsequently, a comparison was made between the findings derived from the quantitative and qualitative analyses in order to detect instances of convergence or divergence. It was found that the results obtained from both methods exhibited alignment. Drawing upon the observed convergence, the qualitative findings enriched the quantitative section as the participants apply only a few strategies to learn vocabulary. Asgari and Mustapha (2011) argued that the learners are responsible for finding effective methods to facilitate vocabulary learning and the majority of language learners are not familiar with VLSs. Therefore, it is crucial for educators to understand the importance or value of these strategies, offer a range of strategies, and educate their students on how to implement them (Oxford, 2003). Doing so can help learners identify the strategies that align with their individual learning styles and enable them to use these techniques effectively. Therefore, EAP learners need a consciousness of VLS which may boost acquiring academic vocabulary. Also, they can benefit from becoming independent and autonomous learners and taking responsibility for their learning as a result of training strategies in the classrooms (Shi, 2017).

However, the study exhibited certain limitations. Firstly, the sample utilized in this study was derived from a confined population, raising concerns about the generalizability of the findings. Furthermore, the study failed to account for the participants' overall English learning experience, which may have influenced their usage of vocabulary learning strategies. Prior research by Siriwan (2007) and Boonkongsaen (2013) suggests that students with greater experience are more inclined to employ VLS more frequently compared to those with lesser experience. Nevertheless, the research has the

potential to contribute practical recommendations for EAP teachers and curriculum designers. The findings can inform the selection and implementation of VLSs, teaching materials, and learning technologies, ultimately enhancing the effectiveness of EAP instruction.

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