Perceptions of University Students on Using Quizlet in Self-Study

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Abstract - After the COVID-19 outbreak, the method of self-study using technological devices and the Internet truly took off. The creation of learning tools has helped people actively learn and review what they know. Quizlet has helped a lot of students reach their educational goals. The research aims to find out how students feel about utilizing Quizlet for independent study. Both quantitative and qualitative methods are used to find out how often students use Quizlet, how happy they are with the service, and what its benefits and drawbacks are for students. 159 students took part in the study, which processed data via questionnaires and semi-structured interviews. The results show that students use Quizlet for self-study usually for 2-3 hours per week. Also, the rating of student satisfaction is fairly favorable. The flashcard function attracts the greatest attention and delight because it efficiently aids pupils in topic review. While some students are dissatisfied with several elements like Match, as well as some typos and definition problems, as well as odd pronunciation, others favor Quizlet because of its efficiency and ease. It is predicted that students will favor Quizlet as a practical tool to organize prior knowledge and aid in long-term memory. Quizlet's developers can also add new features to make it a better learning tool.

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1. Introduction

The COVID-19 pandemic disrupted traditional schooling. Notwithstanding the closure of the actual school buildings, instruction was still expected to go on. Due to this disturbance, a variety of educational methods were developed, including classroom video conferences and packets sent home Nowadays, the majority of students own a smartphone, which can be employed at our institutions as a learning tool. Older teaching techniques need to be reassessed because today's pupils want to be independent and not be confined to a classroom. Students today need an educational experience that is both effective and enriching, with a strong emphasis on the student-centered approach. [1]

Even for students who are most suited to learning, the method of imparting knowledge can enhance the learning process. Learning should be intuitive, but for many students, it is not. In the current study, we examine how students react when a for-profit computer-based learning application (app), Quizlet, is used in a higher education health science environment for a cohort of international students [2]. In 2005, Andrew Sutherland created Quizlet, which is now available in a wide range of languages including English, Chinese, Russian, French, Vietnamese, and other languages and utilized in over 130 countries, with 500 million study sets and about 60 million monthly users [3]. According to research and analysis conducted by numerous experts and educators, Quizlet, a powerful online learning tool, is one of the most innovative tools for self-study learners [4], [5], [6]. There is no denying how effective Quizlet is for self-study [7]. Quizlet is very effective in learning vocabulary, according to previous studies. So, the hypothesis is raised: how do students feel when using Quizlet for self-study?

Quizlet features include Flashcard, Learn, Match, and Test.

The first feature is the Flashcard. Students review terms and questions using flashcards just as they would use a standard flashcard tool such as Easy Notecards.

The second feature is Learn where students answer questions of increasing difficulty. This method of learning helps students master everything there is to know by creating a zcustomized study plan based on regularity.

The third feature is Match and, in this game, students use a stopwatch to match terms and definitions as quickly as possible.

The last feature is the Test where students answer different types of questions.

Quizlet has developed an AI-powered Smart Classifier for Learning, launched in 2020, which has dramatically improved its patented technology since it was introduced and is now considered one of the upcoming great things. in Fast Company technology thanks to its cutting-edge advancements and potential to impact students and society at large. Smart Grading also increases learning completion and retention rates. In talking to its users, Quizlet found that the feature helped students test themselves beyond memorizing word-for-word, focusing more on the concepts themselves, rather than the wording or spelling... In the description on the Quizlet homepage, they committed: "Our promise is that we will continue to use emerging technology to make a positive impact on student learning and develop better, richer, and more delightful study tools."

Teachers and students have frequently used Quizlet in their learning processes due to its exceptional features that allow students to use it as a self-learning tool. To determine how frequently and how satisfied Quizlet was with their language learning from prior studies, the usefulness of utilizing Quizlet to selfvocabulary was specifically study assessed. Additionally, several advantages and disadvantages will be examined for improved use. So how will students feel about applying Quizlet's features in selfstudy? The following questions were the focus of the study:

- 1. How often do university students use Quizlet for self-study?
- 2. How pleased are university students with utilizing Quizlet for independent study?
- 3. What benefits and drawbacks come with university students using Quizlet for self-study?
- 4. Do students agree that Quizlet helps them improve what they have learned?

2. Methodology

Overall, the methods of this comprehensive study participant aimed to provide valuable feedback on the use of Quizlet for self-study, drawing from a diverse pool from a private university and utilizing a set of research tools, which are detailed in the content below.

2.1. Participants

A private university in Vietnam had 134 participants overall (50.7% men, 47.0% women, and 2.2% LGBT). Their ages were 18 to 22 (92.5%), 23 to 30 (6.7%), and 30 to 40 (0.7%) and all had experience using Quizlet to learn vocabulary. Of 134 participants, an interview with a semi-structured format was randomly chosen for 25 students.

Table 1. Results of frequency analysis on sex

	Frequenc y Percentag e		Valid Percentag e	Cumulativ e Percentage
Male	68	50.7	50.7	50.7
Female	63	47.0	47.0	97.8
LGBT	3	2.2	2.2	100.0
Total	134	100.0	100.0	

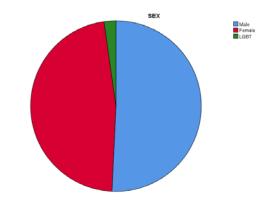
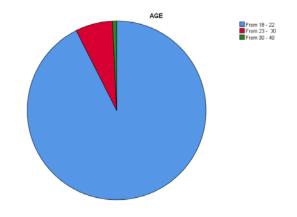


Table 2. Results of frequency analysis of age

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
From 18 - 22	124	92.5	92.5	92.5
From 23 - 30	9	6.7	6.7	99.3
From 30 - 40	1	.7	.7	100.0
Total	134	100.0	100.0	



2.2. Research Tools

The study was designed to obtain student feedback on the use of Quizlet for self-study; hence, a 25-item survey was utilized, of which 20 were based on a 5-point Likert scale for quantitative methods, and eight-item methods were used to test the frequency of participants using Quizlet as a quantitative method. In order to get their perspectives on the advantages and disadvantages of utilizing Quizlet, open-ended questions were also used.

2.3. The Gathering and Analysis of Data

Before collecting data for analysis, multiple colleagues verified and adjusted the questions for accuracy. 150 students at a private university were emailed the survey using Google Forms. There were 138 replies in total, which is 92% of the original count. To ensure the reliability of the questionnaire, the study was conducted using Statistics version 25 of the Statistical Package for Social Sciences (IBM SPSS). The findings indicate that the quantitative variables' Cronbach's alpha value is 0.891, which shows that the questionnaire is reliable and serves the research well.

3. Results

As discussed in the previous section, we will use both descriptive statistics and regression analysis to achieve our research goal, that is, to explore how attitudes about using Quizlet functions are while also clarifying gender differences in the use of these Quizlet functions.

3.1. Result of the Questionnaires

Findings from data research on how frequently people use Quizlet to learn vocabulary show that each component, including flashcards, learn, test, and match, displays material created by students. In terms of frequency, there are five categories: never, rarely, occasionally, frequently, and always. Table 1 shows that students use Quizlet on average (M = 3.58; SD = 1.159) for self-study.

In particular, students pay a lot of attention to using the three features: Flashcards, Learn, and Test. Meanwhile, the Match feature is somewhat more limited.

Table 3. Average rating for Quizlet features' frequency

	N	Mean	Std. Deviation
Flashcards	134	3.91	1.065
Learn	134	3.76	1.063
Test	134	3.57	1.185
Match	134	3.09	1.323
Valid N (listwise)	134	3.5825	1.159

As can be seen from Table 3, most students find Quizlet to be a common tool for self-study. The biggest percentage of students 38.1% reported using Quizlet's features for self-study. Also, only a small percentage of students use this app for self-study constantly or never. Meanwhile, a small number of students never or always use this app for self-study (16.4% and 5.2%, respectively). Among the features of Quizlet, flashcards, learn and match, it is most notable because students use them occasionally while students pay the most attention to the flashcard feature, with 38.1% of students considering this a frequently used feature. Interestingly, the match feature fell out of favor as a third of students 16.4% and 17.2%, respectively never or infrequently used it for self-study.

Table 4. Students regularly use Quizlet's features.

Frequency	Never	Seldom	Sometimes	Often	Always
Flashcard	4.5%	5.2%	18.7%	38.1	33.6%
Learn	3.7%	8.2%	23.9%	36.6 %	27.6%
Test	6.0%	14.2%	22.4%	32. 1 %	25.4 %
Match	16.4 %	17.2%	23.9%	26.1 %	16.4%

The results from Table 4 show that, on average, users spend 2–3 hours per week using Quizlet's features. It's interesting to see that students devote 2 to 3 hours a week to using the flashcard tool. Also, a small percentage of students (19.8%) spend less than 1 hour per week, while a small percentage (16.4%) spend more than 4 hours per week self-studying on Quizlet. In this instance, the majority of participants (30.6%) did not enjoy the Match tool and spent the least amount of time using it.

Table 5. Percentage of weekly time spent by students using Quizlet features.

Features	Less than 1 hour	1-2 hours	2-3 hours	3-4 hours	Over 4 hours
Flashcard	13.4%	16.4%	26.9%	24.6%	18.7%
Learn	11.2%	25.4%	25.4%	21.6%	16.4%
Test	23.9%	17.9%	18.7%	22.4%	17.2%
Match	30.6%	23.1%	16.4%	16.4%	13.4%

The data is looked at using a 5-point Likert scale, where 1 means very low satisfaction, 2 means not satisfied, 3 means average, 4 means satisfied, and 5 means very satisfied. According to the data in Table 6, students gave Quizlet a high rating for helping them acquire vocabulary (M = 3.785, SD = 1.11). Specifically, students liked the most popular featuressuch as Flashcards, Learn, and Test because users were very satisfied with these functions. (M = 4.04, SD = 1,007; M = 3.87, SD = 1.058, and M = 3.74, SD = 1,206, respectively). In contrast, students did not appreciate the match feature (M = 3.49, SD = 1.206) because they were not really satisfied with it.

Table 6. Students' satisfaction with Quizlet use and features

Descriptive Statistics					
	N	Mean	Std. Deviation		
SAT1	134	4.04	1.007		
SAT2	134	3.87	1.058		
SAT3	134	3.74	1.169		
SAT4	134	3.49	1.206		
Valid N (listwise)	134	3.785	1.11		

Specifically, by gender, there is not much difference, their mean frequency of use is 3.5588 and 3.5913. This proves that both men and women are interested in self-study on Quizlet. Based on Levene's Test, the result is 0.02 (<0.05) which means that there is a difference in the variance between the two sexes. We consider the T-Test Sig. (2-tailed) value to be 0.836 (> 0.05). It may be claimed that there is not a statistically significant difference between how often the two categories of male and female students use Quizlet.

When analyzing the frequency of using Quizlet in the self-study of students in two gender groups, the Bonferroni method was used when Sig. (Test of Homogeneity of Variances) = 0.169 > 0.05 and a statistically insignificant difference when Sig. (ANOVA) = 0.43 > 0.05.

From that, we can conclude that there is no difference in the frequency of using Quizlet between the two groups of male and female students. Both of these gender groups are equally concerned.

Table 7. Differences in the average frequency of Quizlet use between male and female students.

FRE	N	Mean	Sig. (Independent sample T-test)	Sig. (2-tailed) Equal variances not assumed	Sig. (Test of Homogeneity of Variances)	Sig. (ANOVA)
Gender			.002	.836		
Male	68	3.5588				
Female	63	3.5913				
Age					.169	.430
From 18 - 22	124	3.5625				
From 23 - 30	9	3.6111				
From 30 - 40	1	4.7500				

The average score of 2.98 hours for male students shows that they use Quizlet in a moderate way. Meanwhile, the group of female students also seemed to use Quizlet, with a similar average score of 2.93 with Two Sig values (Independent sample T-test is 0.000 < 0.05) and Sig. (2-tailed) at 0.825, the difference is not significant. When analyzing the difference in mean hours of Quizlet usage between

male and female students, Sig. (Test of Homogeneity of Variances) = 0.633 > 0.05, with a statistically insignificant difference when Sig. (ANOVA) = 0.239 > 0.05. From this, we can conclude that there is not much difference in the average number of hours using Quizlet between the two groups of male and female students. Both gender groups have similar levels of use.

Table 8. Differences in average hours of Quizlet usage between male and female students.

нои	N	Mean	Sig. (Independen t sample T- test)	Sig. (2-tailed) Equal variances not assumed	Sig. (Test of Homogeneity of Variances)	Sig. (ANOVA)
Gender			.000	.825		
Male	68	2.9779				
Female	63	2.9325				
Age					.633	.239
From 18 - 22	124	2.9435				
From 23 - 30	9	2.6667				
From 30 - 40	1	4.7500				

The next issue to discuss is whether there is a difference in satisfaction levels between two groups of male and female students in self-study on the Quizlet application. There is not too much difference between these two sex groups when their mean level of harmonics is 3.66 and 3.94. This proves that both men and women are satisfied with using Quizlet for self-study. With Levene's Test result of 0.034 (<0.05), it means that there is a difference between the variance between the two sexes. We consider the T-Test Sig value. (2-tailed) Equal variances not assumed are 0.089 (> 0.05), it can be claimed that

there is not a statistically significant difference between the satisfaction levels of the two groups of students—male and female with their use of Quizlet. When analyzing the satisfaction level of using Quizlet in self-study of students of two gender groups, the Bonferroni method was used by Sig. (Test of Homogeneity of Variances) = 0.679 > 0.05, with the statistically insignificant difference when Sig. (ANOVA) = 0.43 > 0.05. From that, we can conclude that there is no difference in satisfaction level when using Quizlet for self-study between two groups of male and female students.

Table 9. The difference between satisfaction levels when using Quizlet between male and female students.

SAT	N	Mean	Sig. (Independ ent sample T-test)	Sig. (2-tailed) Equal variances not assumed	Sig. (Test of Homogeneity of Variances)	Sig. (ANOVA)
Gender			.034	.089		
Male	68	3.6581				
Female	63	3.9365				
Age					.679	.430
From 18 - 22	124	3.7863				
From 23 - 30	9	3.9167				
From 30 - 40	1	2.5000				

By gender, the mean score of consent for the use of Quizlet features to improve the quality of male students' self-study was 3.62, which indicates a high level of agreement. Meanwhile, the group of female students also seems to use Quizlet, with a slightly better average score of 3.96. This preliminary study shows that both male and female students have a high degree of agreement. Two sig values (independent sample T-test) are 0.092 > 0.05 and sig (tailed) equal variances are not assumed. At 0.051 (> 0.05), it can be seen that the difference is not significant.

When analyzing the level of agreement using Quizlet features to improve the quality of self-study among male and female students, Sig. (Test of Homogeneity of Variances) = 0.572 > 0.05, with a statistically insignificant difference when Sig. (ANOVA) = 0.961 > 0.05. From that, we can conclude that there is not much difference in the degree of agreement to use the features of Quizlet to improve the quality of self-study between male and female students. Both gender groups have similar levels of agreement.

Table 10. The difference between the level of agreement to use the features of the Quizlet to improve the quality of self-study between male and female students.

IMP	N	Mean	Sig. (Independe nt sample T-test)	Sig. (2-tailed) Equal variances not assumed	Sig. (Test of Homogeneity of Variances)	Sig. (ANOVA)
Gender			.092	.051		
Male	68	3.62				
Female	63	3.96				
Age					.572	.961
From 18 - 22	124	3.77				
From 23 - 30	9	3.83				
From 30 - 40	1	4.00				

3.2. Results and Discussion

3.2.1. Advantages of Using Quizlet to Self-Study.

Based on the analysis of the interviews, in addition to the fact that it is quick and free, Quizlet was deemed by 85% of the participants to be a suitable tool for self-study. Students favor apps or tools that allow them to quickly access their features without having to pay for them.

"I often use Quizlet to self-study my specialized knowledge. I am the type of person who is quite lazy in creating information and knowledge, so using Quizlet to reconstruct knowledge and reconstruct that information and knowledge continuously, thereby helping the brain to remember information and knowledge in an easier and longer-lasting way". (Participant X).

In addition, 20 out of 25 students agree that Quizlet helps them retain knowledge longer because it is categorized and systematized according to different topics, or students are free to add any additional words they study and confirm their memory of them.

"I usually use the traditional method for self-study; however, when I know the flashcard feature, I often use this feature more for self-study later". (Participant C)

The strength of Quizlet is that Quizlet gives us the ability to understand deeply, along with a lot of side information, which helps us in reconstructing knowledge, helping to firmly grasp knowledge from root to tip.

"In addition, I also use Quizlet to create many questions for my friends to review". (Participant C).

The users of Quizlet were informed and reminded of the sets they were working on, according to half of the participants. They appreciate this feature because users can stay on track to get the best results.

"Quizlet sends me notifications to prompt me to return when I occasionally neglect to review. For a student who is indolent like me, it is useful. I ended up becoming his devoted friend as a result..." (Participant L).

3.2.2. Disadvantages of Using Quizlet to Self-Study.

Quizlet provides a lot of advantages, but it also has some drawbacks. The findings showed that every participant was able to spot mistakes or errors on Quizlet. They chose it since it was free and allowed users to independently create and share any study set without restriction or review. Quizlet also tends to make students a little more passive during the learning process.

"I am aware that Quizlet has a drawback in that it can occasionally make users' brains sluggish, which makes it difficult for users to find information and forces them to rely on the information provided by Quizlet. There, tricking us into believing that what we have learned thus far is sufficient, slowly creating knowledge gaps that we are unaware of". (Participant U).

The results of the surveys show that students often and positively rate Quizletuesd for studying and reviewing. This result is in line with [8], [9], who found that students choose Quizlet as a study tool due to its practicality and potency.

First and foremost, according to the research results, the frequency of using Quizlet for self-study is normal. Participants spend more time on the flashcards, learn, and test features compared to the match features because these features help themrestructure their knowledge in a meaningful waythereby helping the brain remember information and knowledge more easily and for longer. In particular, the most notable is the test based on the students' perceptions of using Quizlet.

In addition, 2 to 3 hours weekly on average are reported to be spent using Quizlet features, and students also spend the majority of their time using Learn, Flashcards, and Test. Meanwhile, the match feature is somewhat more limited.

According to the analysis results, students feel quite contented with the features of Quizlet, which is also consistent with Prayogi and Wulandari (2021). Also, they showed that the flashcards, learn, and test features were used more often than the Match feature, which took a long time to make and did not fit with what Sangtupim and Mongkolhutthi (2019) had found. Furthermore, students reported that many typos and user definitions could be self-created and shared without review or censorship. In addition, the accompanying pronunciation on Quizlet is not appreciated due to the unnatural sound of the speaker.

4. Conclusion

Students' awareness of using Quizlet for self-study is important in identifying a tool to support learners and improve their ability to acquire and retain knowledge.

Quizlet has become a favored option in students' learning processes since they are happy with its features and routinely spend a set amount of time utilizing them. The results of this study demonstrate the value of Quizlet for self-study and that there is not too much difference in the use of Quizlet between male and female students. Moreover, teachers can use Quizlet as a teaching aid, and students will use Quizlet to systematize, review, and self-update their knowledge. Besides that, students can also use Quizlet to review and self-study together. Also, Quizlet's developers can discover a way to update its features to deliver on their promises of being more precise and enjoyable to use.

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