［原著論文］

Which is Better for Motivation, Quizlet or Quizizz?

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QuizletとQuizizzではどちらがモチベーション向上に効果的であるか

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Abstract

The purpose of this study was to gain insight about students' motivations on vocabulary study between two educational online applications: Quizlet and Quizizz. Quizlet is known as an effective vocabulary study tool as students can study vocabulary whenever and wherever they desire. Quizizz offers a similar feature in which the instructor provides the quiz set as an assignment, and students can learn vocabulary by playing games whenever and wherever they desire. The students were given the Quizlet study set links or the Quizizz assignment links each week to help them learn new vocabulary. We (teachers) used the full paid versions of both types of software, which provide different types of study activities for the students. We used each software tool for a total of six weeks (3 Quizlet, 3 Quizizz, 3 Quizlet, 3 Quizizz) with first year students at universities in Yamaguchi and Yokohama. The data on their motivation was collected using two surveys (pre-semester and post-semester). This is because we were concerned with students' motivation and willingness to study, not only about the statistical results of vocabulary gains. We also discuss which types of activities when using the software (multiple choice, matching, flashcards) the students preferred. Although there were limited numbers of previous studies addressing multiple-choice vocabulary learning, a few talked about its efficacy. In this paper, after a brief review of the literature, we will present our results.

Key words： online software, computer assisted language learning, Quizizz, Quizlet, Motivation
キーワード：オンラインソフト、コンピュータ支援型言語学習、Quizizz、Quizlet, モチベーション

Background Literature Review

Today's university students are online for hours and hours everyday, either with their smartphones, tablet, or computer. Teachers need to be continually researching to know how best to reach their students, and some activities, if not all, need to involve online tasks. After deciding the desired outcomes for classes and having an idea of what the students should learn from each class, it is then incumbent upon the teacher to find the most effective way to make those outcomes come about.

This year, instead of focusing solely on student gains (achievement), we are interested in the perceptions and feelings of the students. What motivates them? What will get them to study the material outside of class? In particular, what if anything will help them to study English vocabulary outside of class?

University students in Japan spend long hours either commuting to, or staying on their university campus. At times their brain will turn off and lose focus as they drift both physically and mentally from class to class, from room to room, from place to place. First, we should focus a bit on how the brain, and second language acquisition (SLA), works.

Vocabulary Learning

Vocabulary study can be daunting for English language learners. At first, memorizing definitions, spellings, and learning different pronunciations can seem overwhelming. Adding the task of understanding how to use them in a sentence can make it seem as if learning vocabulary is an infinite process. When it comes to language learning and teaching, there are four skills which students need to improve: speaking, listening, reading, and writing; yet vocabulary knowledge plays an important role in acquiring all skills, and achieving successful language input and output become nearly impossible with lack of vocabulary knowledge (Hazar, 2020; Webb & Nation, 2017). Thornbury (2002), on page 13 of his book, cited the linguist David Wilkins, who said "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (Wilkins 1972). Webb and Nation (2017) stated that two factors, repetition and the quality of attention, should take place in order to have meaningful vocabulary learning experiences. It means that when learners give deliberate attention to each encounter of words repeatedly, higher retention likely happens along the way (Webb & Nation, 2017). Gunel and Top (2022) also argue that successful retention of vocabulary seemingly follows when learners enjoy learning, as their motivation is increased.

Mobile Assisted Language Learning

Nowadays the majority of university students carry smartphones, while many students also own tablets or laptop computers. There is a relatively new field of study called Mobile Assisted Language Learning (MALL) which utilizes mobile devices to carry out language learning and teaching, and numerous studies have expressed the effectiveness of MALL (Davie & Hilber, 2015; Gafni et al., 2017; Loewen et al., 2019). According to Loewen et al. (2019), MALL offers flexibility in terms of time and place, ubiquity, convenience of being able to work on different mobile devices, instant information accessibility, and personalized learning tools. There is another area of study, since the early 1980s, which facilitates language teaching using a computer, and this Computer Assisted Language Learning (CALL) has been a popular method of language teaching among educators (Gafni et al., 2017). Although both MALL and CALL utilize technology and internet connectivity most of the time, some advantages mobile devices present can attract language learners over computers. Gafni et al. (2017) note that the favorable points mobile devices provide are their portability, instant access to the screen, and affordability. These are logical aspects as 1) a lot of students are expected to bring some sort of device to the classroom, 2) the current generation wants information at once, and 3) mobile devices are often cheaper than decent laptop computers. Furthermore, the portability of mobile devices also encourages interactive and collaborative work and promotes autonomous learning (Gafni et al., 2017; Loewen et al., 2019). Unlike laptop computers, it is feasible to imagine students holding their mobile devices, sharing their screens, and working together using the applications in real time (Sussex, 2011).

Students can easily take their smartphone and get together in groups standing, while doing so with a laptop would be much more problematic. On the other hand, there are drawbacks to mobile devices we need to keep in mind when implementing MALL in class activities. Disadvantages include screen size, storage, speed, and keypad, which can be the most problematic if a lot of writing is required during the task (Gafni et al., 2017; Sussex, 2011). However, these issues should not conflict with our project as vocabulary development does not require a frequent editing process.

Motivation

Motivation is undoubtedly one of the key elements to achieve many goals, and educators continuously search for different ways to motivate students, because even highly driven students can get disengaged from learning. Weber (2003) described motivation as an energy which encourages people to do and continue particular actions. Dörnyei (2001) suggests that task content which incorporates challenge, novelty, competition, or a lot of students' involvement, can heighten motivation. Furthermore, there are many different motivation theories, and one of the well-known theories among language educators is the self-determination theory, which talks about extrinsic and intrinsic motivations (Dörnyei, 2001). Extrinsic motivation indicates that individuals want to act upon self-esteem and receiving rewards such as good grades and higher ranking; intrinsic motivation is connected with individual needs of satisfaction in autonomy, relatedness, and competency, such as self-efficacy and optimal challenge (Dörnyei, 2001; Ryan & Deci, 2017). Furthermore, collaborative work requires active participation which helps students to exchange their ideas and aids in critical thinking (Erümit & Yilmaz, 2022; Zou et al., 2021), and this collaborative work also includes a feeling of being a part of a team, which increases security and confidence, which in turn leads to higher intrinsic motivation (Funa et al., 2021). However, some research suggests that although extrinsic and intrinsic motivations have distinctive factors, each motivation can share and be affected by the same factors and operate simultaneously (Sansone & Harackiewicz, 2000).

Cognitive Reasons for Using These Software Tools

Some people see vocabulary development and second language learning as an internal cognitive process (Long, 2012). Certainly, everyone is familiar with sitting at a desk and looking through textbooks. Another popular method for decades has involved the use of physical flashcards. Most often an individual has a stack of small cards, with one side having the target vocabulary and the other side having the explanation (either in L1 or in L2). This idea of language learning being an "internal cognitive process" has been extrapolated by some to say that SLA takes part independently of social situations (Gass, 2000). It might be possible to learn important parts of a language in isolation. It might not be necessary to interact with other individuals. Certainly the onset of YouTube, and other online video instruction, will lessen the necessity of physical interaction with others. However most people think that immersion, or massive exposure to the target language cannot be done solely individually, and that interaction in the target language helps facilitate language learning.

So is it necessary to have outside, human exposure for SLA? One idea is that using digital software (games) helps in the form of the feedback that an individual can receive (Long, 2006). As students complete a screen, a level, or a task in the online software, they may receive a score, prize, or some other benefit that is relatively equivalent to the enjoyment they receive when playing online games for fun. As many students enjoy gaming as a hobby or as a lifestyle, it would seem that tapping into this pre-existing activity should help facilitate language acquisition, either consciously or not from the user perspective. It would seem to be tapping into a pre-existing extrinsic motivation schema.

Social Reasons for Using These Software Tools

Many teachers feel that classroom activities, involving both student interaction as well as teacher-led dialogue, can help students acquire the target language. Of course some self-study is required, but this guided interaction with others can be of

some assistance (Lantolf & Thorne, 2006). In support of Krashen's well-known "i + 1" idea, other researchers have delved into the idea that learning conditions greatly improve when learners are doing activities with other students who have a higher level of proficiency in the target language (Lantolf, 2000). With regards to the use of online software tools in the game form, many of these games require the students to use the target language in the classroom as a social activity. In the past, the authors found that students interacted with others to some extent in the target language using Quizlet Live! as a classroom activity (Murrell & Sato, 2023). This Quizlet Live! was a team activity, with three to four players per team. Each group tried to match twelve consecutive words to definitions before the other teams. Teams had to communicate together, as only one player held the correct answer to the task on their smartphone. Other researchers have shown that multiplayer games help to create an environment that supports SLA in a social setting (Thorne et al., 2009). It would seem that our previous activity supports such a finding, that multiplayer games encourage SLA. The two online software systems in the current study, Quizlet and Quizizz, also contain this multiplayer environment.

The Idea of Learning through Digital Games in General

People, and students in general, enjoy playing games. Integral in this are three components: rules-based in nature, competition, and reward systems. These three components help students to become more emotionally attached as well as more highly motivated (Connolly et al., 2011; Papastergiou, 2009). It is difficult to give a physical reward to the students, in terms of a trophy, candy, or sticker. Bonus points could be attached to it, but that could lead to both positive and negative repercussions. Positive, in that students would be happy when they received the bonus points. However, some students that do not receive the bonus points, but thought they should, or could have, may feel some negative feelings toward the entire process. So we thought it better to just use the built-in reward systems that each software contains. This means that some students "win" the game on the day of the class activity. Others may benefit by getting to "level up," (a facet in Quizizz when a student gets a certain number of questions correct consecutively). Students also could do activities on their own, and in such cases they could beat their previous scores or better their previous times.

Both native speakers and second language learners require exposure to new words numerous times and in different contexts in order to fully acquire them as usable vocabulary (Huckin & Coady, 1999). In fact, more than half of all acquired words are attained not from direct explicit introduction, but rather through these incidental interactions (Nagy & Anderson, 1984). Reading and listening are main sources, yet other interactions can be gained through online software.

Questions that We Wanted Answered

1. Which did students think was more helpful for learning English vocabulary, Quizizz or Quizlet?
2. Which software did students enjoy using more, Quizizz or Quizlet?
3. Which type of question did students find most helpful in learning vocabulary: multiple choice, true-false, or fill in the blank?
4. What devices do students choose to study with, and why?

Ethical Considerations

We obtained informed consent from all participants in the study; all participants chose to participate in the study after reading the description of the study and reaffirmed their consent by choosing to submit their responses at the end of the survey.

The Present Study

Aims

The main purpose of this current study was to try to ascertain the best motivational tool for vocabulary learning students. We viewed this study as an extension of the research we performed last year (Murrell & Sato 2023). We reviewed the literature on Student Response System (SRS) activities and vocabulary acquisition even more extensively and thought about the process of the research. Instead of pre- and post- vocabulary tests in order to measure actual gains, we decided that we wanted to focus on the students' opinions and forgo tests to track actual individual gains.

Participants

The students who participated in the study were all first-year university students at universities in Yokohama and in Yamaguchi. There were 186 in total at the start, with some dropping out of both institutions. At the end of the semester, we had a total of 175 eligible students participate in the study.

Methodology

We needed questions for students, both pre-and post-semester of instruction. We knew that in order to avoid confusion, the survey questions should be in Japanese, or both English and Japanese. We then looked at our semester schedules and decided to work on a twelve week schedule. The semester had fifteen or sixteen meetings, including speaking and written exams. We decided to do three weeks of Quizlet, then three weeks of Quizizz, then another three weeks of Quizlet, and three more of Quizizz. We each went through twelve units of respective textbooks, so each week was the equivalent of one unit. The sign up process for Quizlet is more extensive than Quizizz, and was more easily completed during the relaxed 'Orientation' during the initial class meeting with students. If we had started with Quizizz, and then attempted to have students sign up for Quizlet during week four, it potentially could have taken much more class time than is usually devoted to using the software in class.

Next, we had to create six Quizlet activities and six Quizizz activities for our classes. Quizlet is most easily used by teachers uploading excel files with one column of words and another of definitions. When playing the Quizlet Live! version, students see a word and four possible definitions (or more if playing the team game). However, for Quizlet individual study, and for Quizizz preparation, in order to make multiple-choice style study quizzes the teachers had to make each individual question with the proper word and definition along with a few distractor answers. We also made True/False and fill-in-the-blank types of questions.

In the first class, after initial orientation activities, we had the students take the pre-semester survey about if they play games on their phones, and if they had used online software for vocabulary learning in the past, and how they feel about vocabulary study in general. After that we conducted classes in the usual fashion, with the SRS activity at the end of classes in the form of both a vocabulary builder and comprehension check, alternating three weeks of Quizlet with three weeks of Quizizz twice for a total of twelve weeks. In the final class of the semester we had the students take the post-semester survey about the two different types of activities and their reactions to them.

When implementing Quizlet, the students were encouraged to study the set on their own throughout the week. They could do this with different methods on the website, including flashcards, matching, or 'learn,' but eventually they were asked to do the 'test' function as well. This provides them with a benchmark of how well they know the material. Then during class time, students worked in random teams in the Quizlet Live! function. Students were assigned a team with two or three other students, sat together and tried to win as previously described. In Quizizz, teachers can have students answer the questions one by one (teacher-paced) or all on their own (student-paced). For the teacher-paced version, all students proceed with each question, one by one. The ongoing results are updated after each question, and only after all students

finish one question do students continue on to the next question. When we implemented the student-paced version, we showed the ongoing results on the class monitor. Students received the questions in random order, so the results shown on the monitor were after each individual student completed the entire set. At times both teachers, additionally, posted the same Quizizz quiz as an optional homework after completing it as an in-class activity. As this was not mandatory for students, it did not show up on the Learning Management System as homework.

Results
Multiple Choice Questions Sections

Pre-semester survey results

Pre-semester survey results revealed that 15% of the total participants had used Quizlet, and one student from each school had used Quizizz prior to entering universities. Furthermore, 86% selected vocabulary study to be 'tedious', 'not interesting', 'difficult', and/or 'can't memorize.'

Post-semester survey results

When answering the survey questions, in the combined results, 57% of the students said that they opened the online application once per week, and another 23% said that they opened it up twice per week. An additional 13% said they used it three times per week, and just under two percent said they used it four times. The same just under two percent said they used it five times per week, and just over two percent said they used it six or more times per week. When these results are looked at separately by teacher, 64% of Professor Murrell's students said they used the online application one time during the week, 21% said twice, and 10% said three times. The other answers were all less than 3% for each. Among Ms. Sato's students, for the first question, 28% said they used it one time per week, and 34% said they used it twice. In addition, another 28% said they used it three times per week. One of her students said they used it four times per week, and one other said five times.

Regarding time spent studying per session, when the results are looked at collectively, 42% said that they used it for six to ten minutes. 33% said that they used it for one to five minutes, and 10% said they used it from eleven to fifteen minutes. Just less than 2% said they used it from sixteen to twenty minutes, and a little less than 5% said they used it more than twenty minutes. 8% said they never opened it at all. Respectively, 40% of Professor Murrell's students said they used it for six to ten minutes. 34% said they used it for one to five minutes. 10% said eleven to fifteen minutes, 1% said sixteen to twenty minutes, 6% said more than twenty minutes, and 9% said they never opened it at all. In response to this question, 53% of Ms. Sato's students said they used it for six to ten minutes, and 31% said they used it for one to five minutes. 9% said they used it eleven to fifteen minutes, she had one student say sixteen to twenty minutes, and only one of her students said they never opened it at all.

Looking at combined results for the question about how they accessed the websites, 61% said that they used only their smartphone. Just over 24% said they used mostly their smartphone, and about 12% said with both smartphone and computer. Those answering either only or mostly with a PC comprised only around 2%. In Professor Murrell's class 69% said only with their smartphone. An additional 20% said mostly with their smartphone, and 9% said with both smartphone and computer. There were three combined answers for only or mostly with a PC. In comparison, only 28% of Ms. Sato's students said that they accessed the applications with only their smartphone. 44% said mostly with their smartphone, and 22% said both with smartphone and computer. She had one student each respond either mostly or solely with a PC.

Regarding which application the students felt was more helpful for learning vocabulary, the combined results show that just under 60% say that Quizizz is better, while just over 40% replied with Quizlet. For Professor Murrell's students, when asked which application the students felt was more helpful for learning vocabulary, 65% said Quizizz and 35% said Quizlet. For Ms. Sato's students, 37% said Quizizz was more helpful for learning vocabulary, and 63% said Quizlet.

For question seven, about choosing up to two (of five) factors to support their choice of preferred vocabulary learning

software, combined results were that 79% of students chose because it was "fun." 44% chose "ease of use," and 27% "because it was helpful." A combined 25% of the students chose "because it felt like I was studying," and only about 5% chose "because I could do it." For this question, 81% of Professor Murrell's class chose "fun." 42% selected "ease of use," and 28% chose "because it was helpful." Just under 23% chose "because it felt like I was studying," and only about 4% chose "because I could do it." For Ms. Sato's students, 72% of them chose "fun," and 50% chose "ease of use" as their reasons to support which software was more helpful in learning vocabulary. 34% of her students selected "because it felt like I was studying," 25% "because it was helpful," and only 6% chose "because I could do it."

When combined, around 69% responded that Quizizz was superior, or more fun, than Quizlet. Accordingly, 31% of the total students said that they felt Quizlet was better. In addition, 74% of Professor Murrell's students said that they felt Quizizz was better, and only 26% chose Quizlet for this question. 47% of Ms. Sato's students said that Quizizz was better, and 53% said they felt that Quizlet was better.

When asked which one the students would want to use in the future, the percentage of the combined students was right around 67% said they would rather use Quizizz. Thus, around 33% said they would rather use Quizlet. Similarly, in Professor Murrell's class, 73% of the students said they would prefer to use Quizizz in the future, and only 27% said they wanted to use Quizlet. In Ms. Sato's class, on the other hand, only 42% of the students said they would prefer to use Quizizz, and 58% of the students said they wanted to use Quizlet in the future.

Regarding what the students felt was the most effective question style for learning vocabulary, 81% said that Multiple Choice was preferred. About 11% felt that Fill-in-the-blank was best, and 8% felt that True/False was the best. For this question, 79% of Professor Murrell's students answered Multiple Choice. 10% chose Fill-in-the-blank as the best, and around 9% said True/False questions were best for learning vocabulary. Ms. Sato's students also felt that multiple choice was the most helpful for learning vocabulary, as 88% of them chose that answer. 9% said Fill-in-the-blank, and True/False got 3% of the vote in her class.

Student Comments Section

When giving reasons for their choices in answering questions, the students' answers were quite varied. For their responses to the first question of "why did you choose those answers for questions 1&2" (#1 was "how many times a week did you use the software?" and #2 was "how long was each session?"), many students said "because it was homework," "I did not have much free time," and "it is my duty."

For the question about "why did you use that device to access the software" most answers dealt with the ease of use. "I could do it immediately," "it was simple to use," and "because I always have my smartphone" were all common reasons given. A few students said "at school I used my smartphone, but at home I used my computer." When we closely look at the comments from those who chose "only computer (tablet)" or "mainly computer (tablet)", their reasons included a size of display, battery life, and about getting typing practice.

When asked to give their reason why they felt their choice was better (more interesting), most comments fell into one of three categories: it was fun, it was interesting, or it was fun (or easy) to study. A few students who selected Quizizz said they chose it because of the "fun avatar." In addition, one-fifth of Ms. Sato's students mentioned that they enjoyed team competition in Quizlet Live!, and a couple of them noted that the team competition time was a great opportunity to get to know each other.

Conclusions

The fact that only 9.2% of the students did not attempt the homework was a bit surprising. It was encouraging to see that over 43% of the students said that they used the application more than once per week. As language teachers, we know that language learning is a process. As educators, we know that many students will procrastinate and attempt to do homework at

the last possible moment, all at once.

Students in both classes were given the option to "study" the Quizlet sets that appear in Quizlet Live! on their own. The students were not informed that they would be playing Quizlet Live!, so that was not part of any motivation to access and use the software.

About one-third of the respondents said that they used it for 1-5 minutes per session, and another 42% used it from 6-10 minutes. In the comments, the attitudes of the responders were divided. It seems that many of them were explaining why they spent so much time using it, in a positive way ("because it was fun," and "because it was homework"). Others were explaining that they were busy and had little time, and thus in a kind of negative way, saying they were not able to do more ("because I was busy").

Regarding how they use the software, students have used their computers in classes before, but very rarely. Almost always they use smartphones. Frankly, it was surprising to even find that 2% of the students said they only or mostly use a PC. Part of the reason we use these easy-access online software systems is because students generally use mostly their smartphones in their daily lives.

In the end, a total of 173 students completed the post survey. In regard to the question asking which software was more useful in terms of learning vocabulary, 60% of the students selected Quizizz. Nearly two-thirds of Professor Murrell's students felt that Quizizz was more helpful for them than Quizlet. Based on the numbers alone it is hard to draw a conclusion from this. When the reasons are analyzed, we see reasons like "it was fun" and "it was easy to use" given as the most popular reasons. Quizlet Live!, which was played a few times, can be difficult to implement: getting the teams together without any student allowing their phone to slip into "sleep" mode takes a lot of effort, preparation and coordination. Quizizz is much easier to use, comparatively. On the contrary, nearly two-thirds of Ms. Sato's students found Quizlet to be a more useful tool than Quizizz. Among them one-third felt that they had gained vocabulary skill by using Quizlet. Furthermore, as Ms. Sato's classes were much smaller than Professor Murrell's classes, implementation of Quizlet Live! was not an issue; therefore, Quizlet Live! was carried out during the Quizlet weeks.

It would also appear that Ms. Sato's students noticed and appreciated the social interaction that is afforded by Quizlet Live! Quizizz may have chances to interact, but it is not in the cooperative fashion that Quizlet Live! requires.

Discussion

We should start by pointing out that in previous research, Professor Murrell's class preferred Quizlet Live!, and Ms. Sato's students preferred Quizizz (Murrell & Sato, 2023). In our attempts to be fair and unbiased, is it possible that we spent more time on the "other" software? Did we unintentionally "push" the one that our previous students did not prefer? We hope not, but the fact that in both cases our students "reversed course" should at least be noted.

We should also note that in a survey of this type, when asking for students' opinions and hoping that they answer honestly, it can never be assumed that 100% of the respondents are actually answering honestly. Therefore, could it be true that nearly 91% of the students did the homework most of the time? It is difficult to interpret. We asked "How many times a week did you use the application?" with responses starting at 1. We did not give "0" as an option, nor "0-1." Perhaps we should have also asked "How many times did you use the application in total during the semester?" It is highly probable that not all 91% of the students actually opened the application every week.

Perhaps twenty or thirty years ago students would have accessed such online software with a PC for the most part. However, in the 2020s, basically every university student carries their smartphone with them all day every day. Some may have a tablet, notebook PC or desktop PC, but the vast majority are seen using their smartphones for the majority of their time at university. Clearly some tasks (writing essays and reports) are more suitably performed with a PC, but we were not surprised at all to see the overwhelming majority use their smartphones for these activities.

When using Quizlet individually, students were able to quickly start using the software, and continue at their own pace. When implementing Quizlet Live!, students grew to understand that they would need to gather in groups. Initially they

looked for student names on the board and tried to gather with people they recognized. Eventually students caught on to look to the blackboard, to where the teacher had posted locations of each team. Students could gather in teams more quickly as the semester went on, but it was never smooth. Is there a way around this? Other than letting students know in advance that they will need to gather in teams, and to look to the board for team locations, it is difficult. It is not possible to assign teams in advance (which probably would not work all the time due to student absences). In order to speed up the Quizlet Live! process, Ms. Sato often started the game before all teams were gathered together. It is not shown in any part of the results, but some of Professor Murrell's students who were forced together in Quizlet Live! (teams) would sit together (freely, by choice) in class the following week. This was an observation by Professor Murrell that occurred at least three times.

In Professor Murrell's classes, both software activities increased the overall noise volume in the class. During the Quizizz activity, usually half a dozen students would get excited and give yelps of joy or sadness depending on their success. Many of them would be watching the class monitor, as that is where the leaderboard was posted. In the student-paced version that was done throughout the semester in Professor Murrell's class, the leaderboard changes as more students finish. Students were anxious to see if they would remain at the top, or if they would be bumped down. The ending winner would usually give a fist pump, but rarely emote vocally.

During the Quizlet Live! activity in Professor Murrell's classes, students were a bit timid on the first day of using it, but very quickly the atmosphere got louder. It is hard to judge if the volume increased when actual friends were placed in the same team. The class sizes are around forty students, and in teams of three or four, it is possible to get friends in the same team. However, this was during the first semester of their first year at university, so in almost all cases the students had not known each other for very long. In every case, the winning teams in Professor Murrell's classes gave shouts of joy with some form of gesture or high-fiving their teammates (80% of the students are male). Given these outward expressions of joy, it might be thought that students preferred Quizlet, including the Quizlet Live! activity, but ⅔ preferred Quizizz. It might be difficult to say that one activity is more intrinsically (or extrinsically) motivating than the other. Students like to see the monitor, to see their username as #1 on the board in Quizizz, but they also like it when their team wins in Quizlet. Do they want to impress their friends? Or do they want it solely for their own individual satisfaction?

Some of Ms. Sato's students mentioned the social aspect of working with Quizlet Live! Keep in mind that all participants were freshmen who spent their high school years in the midst of COVID-19. As the social distance restriction was strongly encouraged, a lot of students were isolated and highly likely had few opportunities to do collaborative work during that time. Although her students were hesitant to speak to each other during the first few Quizlet Live! sessions, it was only a matter of time before all students became energetic and determined to win the games. Conversely, on the first day of implementing Quizizz in her class, Ms. Sato chose a "student-paced" session because it allowed students to check all definitions on the answer choice. It was hard to evaluate whether the extremely quiet classroom was due to boredom, disappointment, or that students were reviewing all definitions, but her students seemed visibly confused and not enjoying it much. Although there were uncertainties, she decided to use the "instructor-paced" session from that point forward. To her satisfaction, her students appeared to take joy in playing "instructor-paced" sessions.

The most interesting result to go over is that while 79% of the students included "fun" as one of the reasons to choose a helpful software for vocabulary learning, the other 21% of the students did not select "fun" as a reason. As we try to find motivating factors for students' autonomy to learn vocabulary, we wonder if intrinsic motivation (inner goal) drove them to find the particular software to meet their ultimate learning goals. Among those who did not include "fun", 81% selected Quizlet as the more useful tool. More curious results were seen in the next questions, "which they liked better" and "which to be recommended for vocabulary study". While those students chose Quizlet as a vocabulary study tool, some switched to Quizizz when it came to their liking because it was entertaining, but switched back again to Quizlet to recommend for vocabulary study. The results from Ms. Sato's students appeared transparent; all students, who did not select "fun" as a reason, chose Quizlet as the more useful tool as well as the tool to be recommended for vocabulary study. Similarly with Professor Murrell's class statistics, 19% of his students did not choose "fun" as one of the reasons. Of these, 66% chose

Quizlet as the more useful tool, and 34% chose Quizizz. However, when asked "which they liked better," 59% of these (who did not include "fun" in reasons for choosing helpful software) chose Quizizz. So perhaps with their reasoning analytical minds they judge Quizlet to be more academic, but Quizizz appealed to their emotional side and was more entertaining.

Finally, in regard to types of questions to study vocabulary, 81% selected the multiple-choice question type as the most helpful. As we neglected in not asking for further details on this matter, we can only speculate a few possible reasons behind this result. We can only hypothesize here. One reason could be "similarity," due to the fact that this type of question was the most commonly used form in class vocabulary quizzes. A second reason might be "familiarity," as this type of question is common among the entrance exam, and students had trained with this learning method for a long time. A third reason could be "posteriority." Even though English is compulsory, English study is not on the top priority list for a lot of students. As we have seen approximately 14% of students stated they were too busy to use the software or did not like studying English, choosing the multiple-choice question seems reasonable when it provides the simplest and quickest mode of learning vocabulary.

In the end, the answer to which online tool more motivated learners was not the simple one. The conclusion that we could extract from the data was that it all depends on the circumstances: class dynamics, language proficiency level, major, previous English education, and goals. It was certain that motivation in the learners from both institutions was enhanced by the nature of competition and challenges of the games. Active participation in playing competitive games was also likely a large part of their motivation factor. It is possible that the novelty element to Quizizz was more attractive to Professor Murrell's students, and the collaborative work of Quizlet (which led to autonomy) appealed to Ms. Sato's students. The split in majority opinion between the two institutions' students makes generalizations difficult.

References

Connolly, T. M., Stansfield, M., & Hainey, T. (2011). An alternate reality game for language learning: ARGuing for multilingual motivation. *Computers & Education, 57(1)*, 1389-1415. https://doi.org/10.1016/j.compedu.2011.01.009

Davie, N., & Hilber, T. (2015). Mobile-assisted Language Learning: Student Attitudes to using Smartphones to learn English Vocabulary. *ResearchGate*. https://www.researchgate.net/publication/270550041_Mobile-assisted_Language_Learning_Student_Attitudes_to_using_Smartphones_to_learn_English_Vocabulary

Dörnyei, Z. (2001). *Motivational Strategies in the language classroom*. Cambridge University Press.

Erümit, S. F., & Yılmaz, T. (2022). Gamification design in education: What might give a sense of play and learning? *Technology, Knowledge, and Learning, 27*(4), 1039–1061. https://doi.org/10.1007/s10758-022-09604-y

Funa, A., Gabay, R. a. E., & Ricafort, J. D. (2021). Gamification in Genetics: Effects of gamified instructional materials on the STEM students' intrinsic motivation. *Jurnal Pendidikan IPA Indonesia, 10*(4), 462–473. https://doi.org/10.15294/jpii.v10i4.32143

Gafni, R., Achituv, D. B., & Rahmani, G. (2017). Learning foreign languages using mobile applications. *Journal of Information Technology Education, 16*, 301–317. https://doi.org/10.28945/3855

Gass, S. (2000). Changing views of language learning. In H. Trappes Lomax (Ed.), Change and continuity in applied linguistics: *Selected papers from the annual meeting of the British association of applied linguistics Edinburgh* (pp. 51-67). Edinburgh, UK: BAAL.

Gunel, E., & Top, E. (2022). Effects of educational video games on English vocabulary learning and retention. *International Journal of Technology in Education, 5*(2), 333–350. https://doi.org/10.46328/ijte.225

Hazar, E. (2020). Use of Digital Games in Teaching Vocabulary to Young Learners. *Educatia 21 Journal, 19*, 98–104. https://doi.org/10.24193/ed21.2020.19.12

Huckin, T. and Coady, J. (1999). Incidental Vocabulary Acquisition in a Second Language. *Studies in Second Language Acquisition, 21(2)*, 181-193. http://dx.doi.org/10.1017/S0272263199002028

Lantolf, J.P. (2000). *Sociocultural theory and second language learning.* Oxford, UK: Oxford University Press.

Lantold, J. P., & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development.* Oxford, UK: Oxford University Press.

Loewen, S., Crowther, D., Isbell, D. R., Kim, K. M., Maloney, J., Miller, Z. F., & Rawal, H. (2019). Mobile-assisted language learning: A Duolingo case study. *ReCALL, 31*(3), 293–311. https://doi.org/10.1017/s0958344019000065

Long, M. H. (2006). Recasts in SLA: The story so far. In M. H. Long (Ed.), *Problems in SLA* (pp. 75-116). Mahwah, NH: Lawrence Erlbaum Associates.

Long, M. H. (2012). Current trends in SLA research and directions for future development. *Canadian Journal of Applied Linguistics, 35(2),* 135-152.

Murrell, H. and Sato, T. (2023). Which is the best online software, Kahoot!, Quizizz, or Quizlet Live? *Bulletin of Sanyo-Onoda City University, 6,* 11-22.

Nagy, W.E. and Anderson, R.C. (1984). How Many Words Are There in Printed School English. *Reading Research Quarterly, 19(3),* 304-330. http://dx.doi.org/10.2307/747823

Papastergiou, M. (2009). Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & Education, 52(1),* 1-12. https://doi.org/10.1016/j.compedu.2008.06.004

Ryan, R. M., & Deci, E. L. (2017). *Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness.* Guilford Publications.

Sansone, C., & Harackiewicz, J. M. (2000). Controversies and New Directions - Is it Deja Vu All over Again? In *Intrinsic and extrinsic motivation* (pp. 443–453). Academic Press.

Sussex, R. (2011). Text input and editing as a bottleneck in mobile devices for language learning. In *IGI Global eBooks* (pp. 220–234). https://doi.org/10.4018/978-1-61350-065-1.ch011

Thorne, S.L., Black, R. W., & Sykes, J. M. (2009). Second language use, socialization, and learning in Internet interest communities and online gaming. *Modern Language Journal, 93,* 802-821. https://doi.org/10.1111/j.1540-4781.2009.00974.x

Thornbury, S. (2002). *How to teach vocabulary.* Pearson Education Limited.

Webb, S., & Nation, P. (2017). *How Vocabulary is Learned.* Oxford.

Weber, K. (2003). The relationship of interest to internal and external motivation. *Communication Research Reports, 20(4),* 376–383. https://doi.org/10.1080/08824090309388837

Wilkins, David A. (1972). *Linguistics in Language Teaching.* Cambridge, MA: MIT Press.

Zou, D., Zhang, R., Xie, H., & Wang, F. L. (2021). Digital game-based learning of information literacy: Effects of gameplay modes on university students' learning performance, motivation, self-efficacy and flow experiences. *Australasian Journal of Educational Technology, 37*(2), 152–170. https://doi.org/10.14742/ajet.6682