

Active Learning and Learner Development with Quizlet: An Action Research Project

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Abstract

It is well known that the acquisition of English vocabulary is a crucial challenge for many learners (Beglar and Hunt, 2005), particularly in EFL teaching contexts such as Japan where learner motivation is often low. This study looks indirectly at the effectiveness of Quizlet, aiming specifically to confirm whether the use of Quizlet activities, Quizlet Live in particular, can help students develop positive feelings towards learning English vocabulary. Taking an action research approach, the study looks at students' perceptions of using Quizlet in two action research cycles, as well as their actual use of Quizlet activities. In cycle one, quantitative and qualitative data were collected via mid- and end-of-semester questionnaires and Quizlet usage logs. In cycle two, qualitative data were collected via group interviews and quantitative data were collected via vocabulary quizzes. Results confirmed that Quizlet Live helps students develop positive feelings towards learning English. The data also revealed that students think Match and Flashcards are the most useful Quizlet activities, and making your own study sets and using them actively is the most advisable course of action. Suggestions for future research include investigating how Quizlet Live can be adapted or extended to make it even more collaborative, fun, and effective.

I. Introduction

"Vocabulary acquisition is a crucial, and in some senses, the central component in successful foreign language acquisition" (Beglar and Hunt, 2005, p. 7), yet it is possibly the biggest challenge for many language learners because vocabulary learning is a complex business; knowing a word involves acquiring receptive and productive knowledge of its various aspects including its form, meaning, and use (Nation, 2001, p. 27). Part of the challenge for many EFL learners is finding the motivation and excitement that will help them rise to the challenge of building their knowledge of English. Another part of it is finding the most useful language-learning strategies and tools that will enable them to learn and remember vocabulary effectively and efficiently. A key challenge for us EFL teachers, then, is how we can best help with the cumulative process of language learning, in ways that motivate and engage all students, and enable them to become active, independent learners who feel empowered and equipped to continue learning outside the classroom.

In recent years, given the ubiquity in smartphone ownership amongst university students in Japan (Selwood, 2017), and the large and growing number of online and mobile language-learning tools, we also face the problem of which, if any, online or mobile educational apps to use in class and how to enable our students to use them effectively. As for addressing the problem of which educational apps to use, a large body of empirical evidence suggests that the mobile and web-based learning tool Quizlet can encourage learners to take a more active role in their vocabulary learning, and that it can lead to favorable outcomes such as improvements in students' test scores (Dizon 2016; Lander, 2015; Milliner, 2013). Furthermore, studies suggest that Quizlet is user-friendly and that most learners regard it favorably (Chien 2015; Dizon 2016; Jackson III, 2015; Lander 2016; Lees and Mcnee 2015). In addition, the author's own successful experience of using Quizlet via computer and mobile apps to study for his intermediate and upper-intermediate level foreign (Japanese) language proficiency tests strongly suggests that Quizlet can enable learners to take more control of their vocabulary learning and achieve their language-learning goals.

Publicly launched in 2007, Quizlet is now the world's largest student and teacher online learning community, with over 50 million active learners from 130 countries practicing and mastering more than 140 million study sets on

every possible subject and topic. One relatively new and particularly exciting development is that, after extensive beta-testing by 50,000 teachers and 1,000,000 students, the new in-class team-based learning game Quizlet Live was officially launched in spring 2016 (Bender Koning, 2016). Encouraged by recent reports (e.g. Kurzweil, 2016; Wolff, 2016), which suggest that Quizlet Live can create a very exciting and fun dynamic where active participation and complete engagement permeate the classroom atmosphere, and can be beneficial to students in terms of developing their vocabulary knowledge as well as their teamwork and communication skills, the author decided to trial Quizlet Live and other Quizlet activities with his post-secondary EFL classes beginning in the fall of 2016.

This paper will begin by defining “active learning” and describing where Quizlet Live fits into relevant theories and principles of learning. Next, it will review some key findings from vocabulary acquisition research as well as Quizlet-related classroom research. It will then present and discuss the methods and results from two cycles of the author’s action research, including analyses of quantitative and qualitative data collected by means of mid- and end-of-semester questionnaires as well as Quizlet usage logs and structured interviews. It will be argued that Quizlet Live in particular is a useful tool for doing review of key vocabulary in an exciting way in the classroom, and Quizlet in general can help students build up their vocabulary knowledge and develop their autonomy as learners. The paper will conclude with suggestions for future research.

II. Literature Review

Defining Active Learning

Eison (2005) wrote that active learning:

refers not to merely one thing, but rather to all instructional strategies that involve students in doing things and thinking about the things they are doing. Active learning embraces a wide range of instructional activities that students can do either individually or in groups. Further, these activities can be done either during class time or at home. These two dimensions provide teachers with a large mix of different instructional possibilities to choose from. (quoted in Isbell, 2005, p. 4)

Let us consider one other definition. According to Japan’s Ministry of Education, Culture, Sports, Science and Technology’s (MEXT) glossary, active learning is a collective term for teaching and learning methods which incorporate active participation of students in a study process, rather than simply having students be lectured unilaterally by a teacher. It includes various kinds of activities such as discovery learning, problem-solving learning, experiential learning, collaborative learning, group discussions and debate.

These definitions make it clear that “active learning” is a wide-ranging term that includes many and various kinds of instructional activities. Importantly, these activities must involve students in actively doing things and thinking about the things they are doing, either individually or in groups, either in class or at home. Let us now look at what is arguably a prime example of an “active learning” activity: Quizlet Live.

Where Quizlet Live Fits into Theories and Principles of Learning

Quizlet Live is essentially a collaborative matching game. It is fundamentally different from other Quizlet activities in that it requires students to work together in teams that race each other to correctly match a Quizlet set's terms and definitions. As it involves matching, it fits nicely into the lowest level of Bloom's Taxonomy (see Figure 1), which was created in order to promote higher forms of thinking in education. Our goal as educators is to help students move up the taxonomy to higher-level thinking skills such as evaluation and creation.

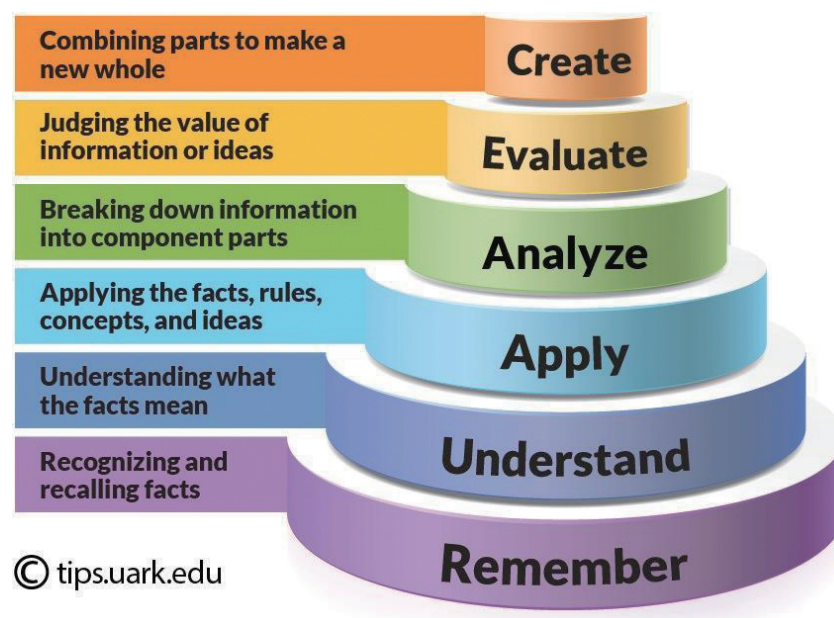


Figure 1. "Bloom's Taxonomy", updated by University of Arkansas, 2017 (<https://tips.uark.edu/using-blooms-taxonomy/>). In the public domain.

Before students can move up to higher-level thinking skills in English, they must first become familiar with basic vocabulary and grammar. Because Quizlet Live can create opportunities for students to collaboratively practice various aspects of word knowledge including meaning (e.g. word and meaning matching), form (e.g. see the written form and hear the spoken form) and use (e.g. sentence completion), it is arguably a springboard that can build foundational language skills, as well as teamwork and communication skills, setting up useful conditions for language-learning and the development of higher-level thinking skills. Furthermore, because Quizlet makes it easy for users to collaboratively *create*, *edit*, *evaluate*, and *interact* with class sets of word cards that can then be used together as a group, it is a springboard that can quickly catapult learners to the highest levels of Bloom's taxonomy.

Let us now consider what Nation (2013) has persuasively argued is the most important job of the English teacher: Planning a well-balanced language course. Where does Quizlet Live fit into a well-balanced course? Planning a balance of learning opportunities involves applying Nation's (2007) principle of "the four strands", which says that a well-balanced language course consists of four equal strands: (1) meaning-focused input, (2) meaning-focused output, (3) language-focused learning, and (4) fluency development. The most important planning that we can do is to make sure that each of these strands gets a roughly equal amount of time (i.e. about one quarter of the time) in the total course. Because it involves deliberate attention to language features, Quizlet Live is a good example of an activity in the language-focused learning strand.

The language-focused learning strand also involves the deliberate learning of language-learning strategies, a good example of which is learning new vocabulary, phrases and sentences using word cards. According to Nation (2013, p.

11), the second most important job of the English teacher is to train the learners in the use of effective language-learning strategies, to help them become autonomous learners who can manage their own learning independently and effectively. The vocabulary learning strategy of using word cards is especially valuable, which is precisely why Quizlet is such a useful learning tool.

Deliberate Vocabulary Learning with Word Cards and Games

Nation (2008, pp. 105-106) points out that there are various ways of doing deliberate vocabulary learning, for example, using a vocabulary notebook and studying words in a dictionary, but the activity that can most effectively apply the findings of well over 100 years of research on deliberate vocabulary learning is using word cards. Plenty of very good research on using the word card strategy has shown that large numbers of words can be learned in a very short time and what has been learned can be remembered for a very long time (Nation, 2001, pp. 296-316). In other words, research strongly suggests that it is well worth spending time in training students to use the word card strategy. In his book, Nation (2008, pp. 107-110) describes in detail the most important parts of the word card strategy: (1) choosing what words and phrases to put on the cards, (2) going through the cards, (3) repeatedly coming back to the cards, and (4) motivating students to use and keep using the strategy. He also provides an outline syllabus for training learners to use word cards. Smartphones and electronic flashcards were not yet widespread at the time he published his book, so he recommended a number of steps on how to organize and carry out such learning, involving making some packs of small cards using ordinary paper, and repeatedly studying the cards at increasingly spaced intervals of time.

Although such well-researched guidelines seem very useful, three problems have been pointed out by Browne and Culligan (2008, p. 8-9): (1) “keeping track of the correct time intervals for the review of hundreds of physical cards proved to be too cumbersome and demanding for most learners”, (2) “the physical process of reading thousands of cards to eliminate the known words and concentrate on the unknown words is time-consuming and tedious”, and (3) how to motivate students to use them and keep using them. Browne and Culligan argued that many of the weaknesses inherent in using paper cards can be eliminated by using electronic applications. Furthermore, considering that there is a rich EFL/ESL classroom tradition of using games with a communicative purpose to increase and sustain learner motivation (e.g. Ersoz 2000; Uberman 1998) as well as lower the learner’s affective filter (e.g. Krashen, 1985), games should be used together with flashcards as a way of motivating students to use and keep using the flashcards. In addition, Eskey (1988) has pointed out that it is not just the size of the vocabulary, but the ability to rapidly and accurately decode language is also very important to any kind of reading and especially important for second-language readers. So it is extremely important to use games and activities that encourage and develop the automatic process of word recognition. Warrington (2006) describes a number of such activities including reading aloud, extensive reading, and word and definition matching.

One good example of a definition matching activity that encourages and develops the automatic process of word recognition is the Quizlet Live game. In Quizlet Live, as described above, teammates work together to match the terms with the definitions faster than the other teams. Race-based games inherently rewards speed and encourage rapid recall, but can lead students to act without thinking since they want to win the race as quickly as possible. This sort of snap decision making is not what teachers want to encourage and research has shown that it doesn't help them learn (Boaler 2014). To help alleviate this problem, Quizlet Live’s design team decided to reward accuracy over speed (Bender Koning 2016). If students just answer quickly instead of thinking about it, and if they get a wrong answer, their team’s progress gets reset. In other words, not thinking or communicating with the team has real consequences for their ability to win. In this way, thinking and communicating with the team is encouraged and rewarded. Speed is also rewarded, but because accuracy is such a critical factor in the success of the team, it can be said that accuracy is rewarded over speed, thus encouraging accurate and rapid recognition of language as well as teamwork and communication.

Match and Quizlet Live are particularly well designed to support the development of automaticity of vocabulary

knowledge, but Quizlet offers a number of other activities and features that make it a very effective, easy-to-use, and useful learning tool. To illustrate the effectiveness of some of these other activities and features, let us consider several classroom studies that have been conducted using Quizlet in English as a foreign language (EFL) teaching contexts.

EFL Classroom Research Using Quizlet

There is a large and growing body of classroom research evidence suggesting that Quizlet is an effective learning tool which receives a widely favorable reception in many and various EFL classroom contexts. In a Japanese university EFL teaching context, for example, Milliner (2013) used Quizlet as a tool to help business students improve their Test of English for International Communication (TOEIC) scores. After initial training and set up, students spent 10~15 minutes of class time interacting with Quizlet each class over a period of 20 weeks, during which they were particularly encouraged to review previous card sets and complete short self-tests that provide immediate feedback. After this 20-weeks, they took a TOEIC test and the average TOEIC score for the whole group ($N = 42$) had increased by 13% compared to their previous year's scores. In addition, Nation's Vocabulary Size Test was administered as a pre- and post-test, and results showed an 8% increase in average score on the post-test. Furthermore, results of an end-of-semester questionnaire indicated an overall positive response to using Quizlet. For example, 64% of students agreed or strongly agreed that Quizlet was a good way to learn vocabulary, and 68% felt it was a good way to study for the TOEIC test. Interestingly, 57% indicated that they generally use Quizlet on their smartphones.

In a more recent study, in an Emirati university EFL teaching context, Jackson III (2015) surveyed the top performing students on a computer-generated language test regarding their use of two mobile learning tools they had used to study: Quizlet and Educreations (a video-creation software program). While a variety of exam preparation methods such as worksheets and in-class speaking activities were offered to students, the majority (59%) of respondents ($N = 27$) indicated that bilingual (Arabic/English) Quizlet activities were their preferred method of exam preparation. Furthermore, a majority (51.8%) responded that the best exercise to help them learn new vocabulary was using bilingual Quizlet study sets. Additionally, when respondents were asked what they liked best about Quizlet, the top 3 responses were: receiving immediate feedback after each study session (29.6%), seeing first language (Arabic) translations for English vocabulary items (25.9%), and playing the games (25.9%). Jackson III's study thus illustrates why Quizlet is a widely-preferred learning tool that can facilitate and support the use of multiple languages in various ways throughout the learning process. His study concluded that "...a student's L1 can be an invaluable resource in both vocabulary acquisition and second language learning", and "[i]n this age of digital natives, paper notecards cannot compete with Quizlet's digital ones that offer immediate feedback and audio reinforcement in L1 and L2 (ibid., p. 10).

Even more recently, in his Japanese university EFL teaching context, Dizon (2016) used Quizlet with a small class of high-level English learners to study Coxhead's Academic Word List and found that, through administering Schmitt, Schmitt, and Clapham's (2001) Vocabulary Levels Test as a pre- and post-test, the post-test result showed that students made significant gains: the average score increased by more than 3 points. Moreover, drawing on Davis' (1989) technology acceptance model (TAM), which aims to measure a user's behavioral intention to use a given technology according to the two primary factors of perceived usefulness and perceived ease of use, the researcher created and administered a Likert-style questionnaire and found that students' responses indicated high levels of agreement in terms of all three key constructs: perceived usefulness, perceived ease of use, and intention to use Quizlet in the future. Interestingly, a majority (66%) of learners in Dizon's study indicated a preference for using Quizlet via smartphone rather than PC, which is similar to the result reported by Milliner (ibid.). Dizon also found that a majority of his students spent a considerable amount of time (between 20 and 60 minutes) using Quizlet outside class each week, which is similar to the result reported by Jackson III (ibid.).

In another recent study in a Japanese university EFL teaching context, Wolff (2016) focused on trialling the newly developed team-based Quizlet Live classroom game with several of his 3rd-year engineering English classes, and

received the following very positive feedback from students (N = 96) on several Likert-style questionnaire items:

95% of his students agreed or strongly agreed that the game helped them memorize the technical vocabulary, 94% of them said that it helped them get a better score on their "Program-wide Test on Reading" (a department-administered technical vocabulary test), and 94% responded that it made the classroom learning atmosphere more exciting. Furthermore, 75% of his students said it motivated them to study English harder in the future, 93% said they enjoyed learning English with their mobile device, and in a final separate item asking students to share their overall satisfaction with Quizlet Live, on a scale from 1 to 10, where 1 was "no good" and 10 was "Grrreat!", 84% of them gave Quizlet Live a score of 8, 9 or 10. Wolff concludes his paper by summarizing and confirming the beneficial effect that Quizlet Live can have on students in terms of enhancing their vocabulary skills, their teamwork and communication skills, as well as their motivation to study autonomously and participate actively in class. He also points out that the fun, interactive nature of the Quizlet Live experience "appears to have the spillover effect of creating a positive attitude shift among many students that they can be successful in their language learning and not view it as such a daunting task" (p. 27). He concludes by emphasizing that:

[i]t has been a real thrill to see my university students use this new game because they truly love it! I can honestly say I have never seen this same degree of excitement for a classroom language game during my entire quarter-century of teaching Japanese learners of English." (Wolff, 2016, p. 27)

The findings from the studies reviewed above strongly support the use of Quizlet in the EFL classroom, thus encouraging the author of the present study to see if he could achieve similarly encouraging results in his Japanese university EFL teaching contexts. Wolff's findings were particularly positive, so there was a need to confirm, with quantitative as well as qualitative data, that Quizlet Live can indeed produce such positive results, and how students actually use Quizlet. The following initial research questions (RQs) were therefore formulated:

RQ1: *How do my students feel about using Quizlet Live?*

RQ2: *What evidence is there that students are using Quizlet actively?*

III. Method

Action research approach

An action research approach was chosen because the author wanted to address the problematic issues of inefficiency and lack of excitement that characterize many deliberate vocabulary learning activities. As Wallace (1998) suggests, "most problems benefit from being aired or discussed in some controlled or structured way; ... action research is a form of structured reflection" that is "very problem-focused in its approach and very practical in its intended outcomes" (ibid: 15). As Burn's (2010: 2) explains,

[t]he central idea of the action part of AR is to intervene in a deliberate way in the problematic situation in order to bring about changes and, even better, improvements in practice. Importantly, the improvements that happen in AR are ones based on information (or to use the research term, data) that an action researcher collects systematically.

The AR cycle adopted in this study consists of four broad steps – those of planning, acting, observing and reflecting – represented in a cycle as shown in Figure 2.

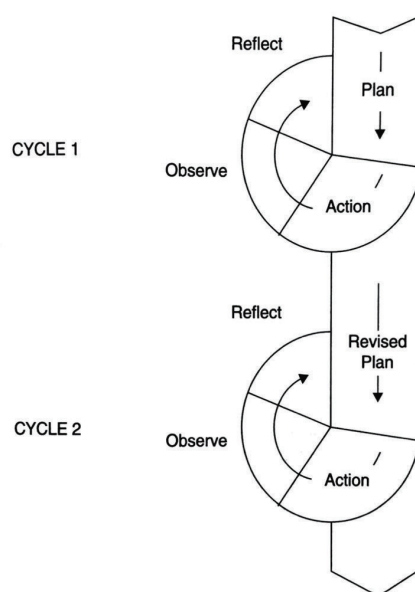


Figure 2. Cyclical AR model based on Kemmis and McTaggart (1988).

Participants and Teaching Contexts

1st and 2nd year students in compulsory 15-week courses in various departments (Engineering, English, Science, Physiotherapy, Occupational Therapy and Human Welfare) in three universities and one 8-week nursing college in Japan; there was a wide range of ability levels within the classes, with most students appearing to be lower-intermediate level. 7 classes participated in the first cycle of action research in Fall Semester, 2016, and 2 classes participated in the second cycle in Spring, 2017. The average class size was 26 students; the total number of students was 226.

Procedure

During the 1st class of the 2016 fall semester, students were:

1. introduced to Quizlet as a tool to help them practice and learn new vocabulary
2. required to create a free Quizlet account, join our class on Quizlet using an automatic join link, and download the Quizlet app into their smartphones
3. shown how to navigate the site, using their PCs and smartphones, and how to use basic functions such as create and edit their own sets of new word cards, auto-define their terms, and add images to their word cards.

In subsequent classes, the teacher regularly used Quizlet Flashcards to present key vocabulary and expressions. Students were given some in-class time to practice and review these important language items using Quizlet Live game and other Quizlet activities, about 15~20 minutes per class. They were provided with Quizlet sets of vocabulary and phrase cards for relevant units of their textbook (for example, see Figure 3), and encouraged to create and edit their own new study sets, using the new words and expressions they had encountered in the textbook, and review these on a regular basis.



Figure 3. A bilingual Quizlet word card (screenshot showing both sides of the card)

They were particularly encouraged to see how the language is written and hear how it is pronounced, using the customizable, audio-enabled Flashcards and Test study activities to review and test themselves. They were assigned 10-15 minutes of homework of various Quizlet activities, mostly Flashcards, Test, and Match, and they were informed that their use of Quizlet would be tracked via Quizlet's "Class Progress" and "studied" pages which allows the teacher to see at a glance which activities had been completed and how many times each activity was completed, by which students each class. They were also given a step-by-step walkthrough of how to use an adapted version of Nation's (2008, pp. 105-110) word card strategy and encouraged to use this strategy for self-study and to prepare for their end-of-semester tests. In addition, they were told that bonus points would be added to the homework grade (up to 5% extra credit) for those extra-active students who completed extra Quizlet activities.

Data Collection and Analysis

In the 1st cycle of action research in fall 2016, students were given a course-improvement questionnaire (Appendix A) that included several 4-point Likert-scale items (adapted from Wolff (2016)), ranging from strongly disagree to strongly agree, asking about their views toward using Quizlet Live. These quantitative data were collected using a Google Form at the end of the 8th class. Students were also given an open-ended questionnaire item (Appendix B) asking them to write freely about their opinions and impressions of the course. These qualitative data were collected at mid- and end-of-semester, using either a Google Form (for classes that were in a computer room) or on a sheet of paper (for classes that were in a regular classroom). All questionnaire instructions and items were written in the students' first language (Japanese) and conducted anonymously. In addition, Quizlet usage data were collected automatically in Quizlet user logs throughout the course.

Upon observing and reflecting on the results of cycle one (reported in the next section), it was decided to proceed to cycle two in spring 2017, following the same procedure as in cycle one but focusing on just two classes of students (N = 42) and providing more class time and ongoing guidance using Quizlet. It was also decided to formulate and focus on the following new RQs:

RQ3: *Which Quizlet activities or functions do my students think are the most useful?*

RQ4: *What problems, if any, do my students have with using Quizlet?*

RQ5: *What advice would my students give to new student users of Quizlet?*

RQ6: *Did the use of Quizlet help students improve their English abilities?*

To answer RQs 3 to 5, qualitative data was collected by conducting structured interviews as small group tasks in class. Following Burns (2010, p. 74-75), interviews can very usefully double as classroom tasks, and can be far less time consuming to conduct in this way. Students were asked to form groups of 3 or 4 and were given a sheet of paper with a set of open-ended questions (in Japanese) related to using Quizlet (Appendix C). They were tasked with interviewing each other in either Japanese or English. One student was asked to volunteer to be the group's note-taker. After about 10 minutes of interviewing each other and noting down their responses, all group members were asked to turn on their computers and login to Quizlet, except the note-taker who was asked to access a shared Google Document and input her/his group's responses to each question. The shared document was then shared with the class so that everyone could learn from their classmates' responses. To answer RQ6, it was decided to look at the classes' average scores on vocabulary quizzes given during term one.

IV. Results and Discussion

Action Research Cycle One

In this section, the results of each action research cycle will be presented and discussed in turn.

RQ1 asked “How do my students feel about using Quizlet Live?”. Figure 4 shows that the vast majority of these students agreed or strongly agreed with each of the given statements. 86% of students felt that Quizlet Live helped them learn new English words.

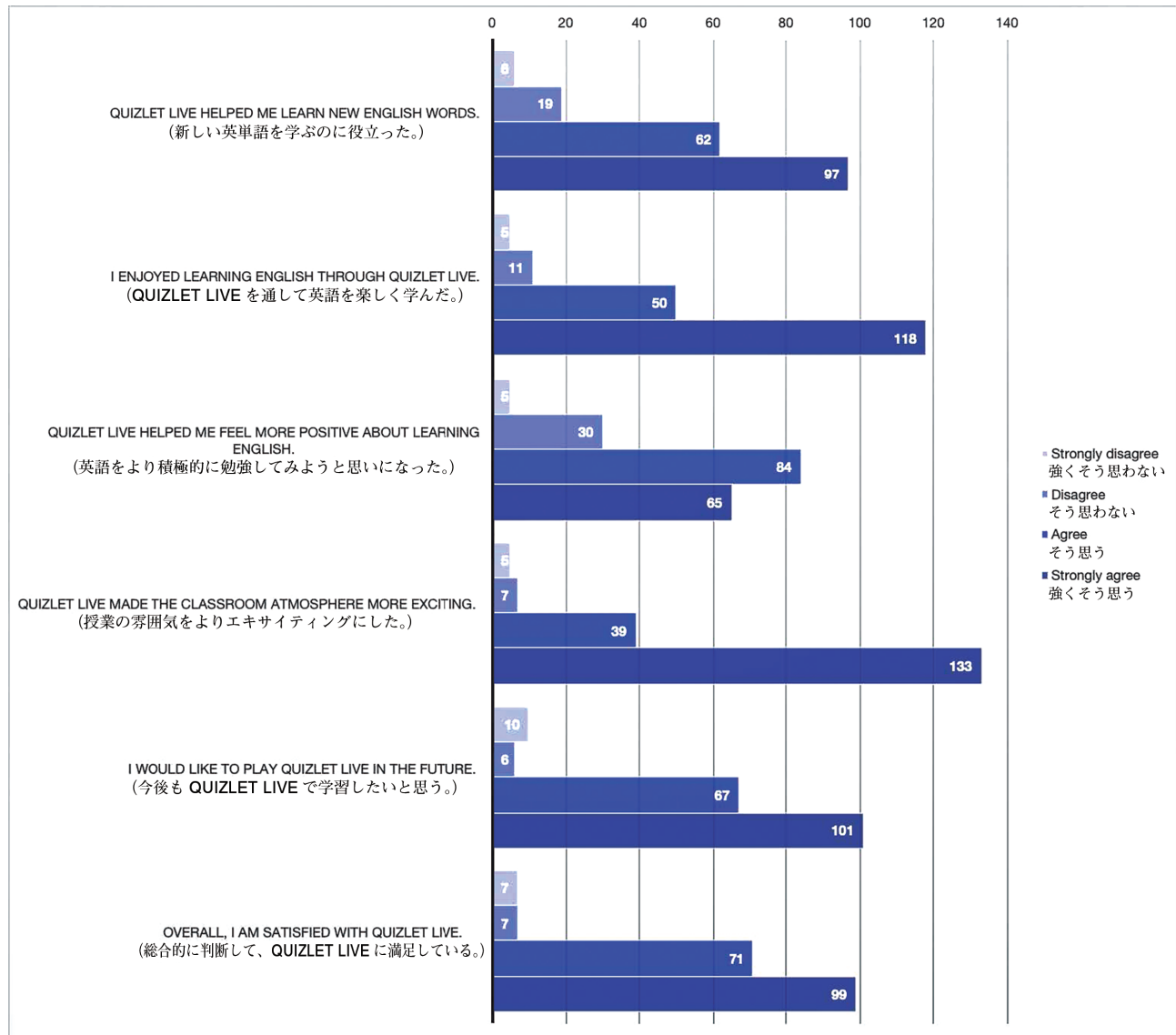


Figure 4. Quizlet Live Student Survey Data (N = 184)

91% of them responded that they enjoyed learning English through Quizlet Live. 81% felt that it helped them feel more positive about learning English. 93% agreed or strongly agreed that Quizlet Live made the classroom atmosphere more exciting, 91% of them indicated that they would like to use it again in the future, and 92% felt overall satisfied with Quizlet Live. These results are closely in line with Wolff’s (2016) findings that Quizlet Live created extraordinarily high levels of positivity, enjoyment, excitement, satisfaction and hopes for future use among his students.

The qualitative responses also showed that many students felt very positive about using Quizlet, especially Quizlet Live. Figure 5 shows a comparison of the total numbers of favorable and unfavorable Quizlet-related comments

received, with the number of Quizlet-specific and Quizlet Live-specific comments separated. This chart shows that favorable comments (96) highly outnumbered unfavorable ones (6), and that half (48) of the total number of favorable Quizlet-related comments received were specifically regarding Quizlet Live.

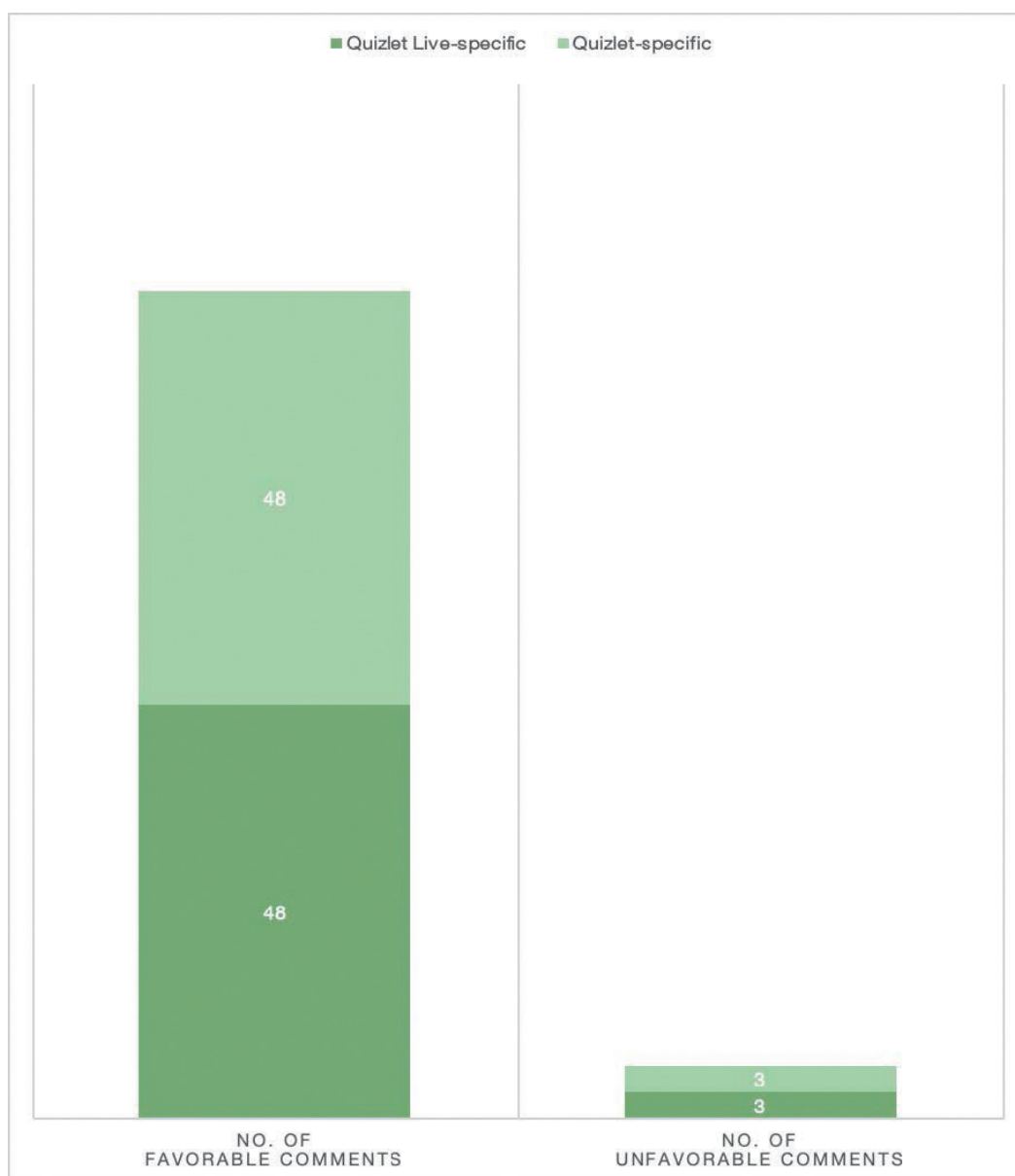


Figure 5. Comparing numbers of favorable and unfavorable Quizlet-related comments

Here are a few examples of the many Quizlet Live-specific comments (original responses that were received in Japanese have been translated into English by the author).

❖ (on active participation and teamwork): “Because [Quizlet Live] is a team battle, I feel a sense of responsibility, and I think that I can participate more actively in class.”

「チーム戦なので責任感をもって行うので、より積極的に授業に参加できていると思います。」

❖ “I think that the method of using smartphones and game format that everyone can enjoy was useful for participating in classes.”

「スマホを使った方法や皆でできるゲーム形式が楽しく授業の参加に役立ったと思う。」

❖ It's fun to work on things like Quizlet Live that everyone tackles together. I am not good at English, but I want to do it while having fun.

「Quizletのliveのようにみんなで取り組むのが楽しい。英語は苦手だが、楽しみながらやっていきたい。」

❖ (on social motivation): “Quizlet.live is so fun. If I do not prepare for it, I will become a nuisance to my friends, so I think I have to prepare well.”

「Quizlet.liveがとても楽しいです。予習しないと友達の迷惑になるので、しっかり予習しなければと思います。」

❖ “It was really fun to take classes using Quizlet.live. Classes using mobile phones and the net were very innovative and I felt the trend of the times. The classes were active and enjoyable overall.”

「Quizlet.liveでとても楽しく授業を受けられました。携帯やネットを使った授業はとても画期的で時代の流れを感じました。全体的にアクティブで楽しい授業でした。」

❖ I feel that I can enjoy learning English words. I am looking forward to doing Quizlet Live in class.

「楽しんで英単語を覚えることができていると感じている。授業内でQuizlet Liveを行うことが楽しみとなっている。」

❖ “Quizlet.Live makes us very excited. So, I want to continue Quizlet.Live forever!!”

These quotations illustrate some of the main benefits that Quizlet Live brings in to the classroom: active participation where everyone is engaged and working together as a team to tackle the matching task at hand; social motivation where learners feel a sense of responsibility to prepare for the game and not let their teammates down; the creation of a fun and exciting classroom atmosphere in which learners find it easy to learn and remember new words and expressions.

Here are some examples of the few unfavorable comments, and it is important to note that none of these responses had to do with the design of Quizlet Live, but rather all of them had to do with issues related to limitations of smartphone technology:

⇒ “Operating my smartphone was sometimes difficult.”

「スマートフォン操作が難しい時があった。」

⇒ “Using personal smartphones, I thought that the connection was unstable and it was difficult. Also, device-dependent aspects, such as differences in model, data usage/restrictions, and access speed, were large, and I think that desktop computers have less such differences and are more stable.”

「個人のスマートフォンを使うと、接続が不安定でやりにくいとあった。また、機種やデータの使用量、アクセスの速度の違いなど機器に左右される面大きく、デスクトップパソコンのほうがそのような差が少なく安定していると思う。」

⇒ Quizlet is very good. However, because conditions, such as communication speeds, vary due to [smartphone] communication restrictions, I felt Quizlet Live was difficult.

「Quizletはとても良い。しかし、通信制限などにより通信速度が異なるため、Quizlet Liveは難しいと感じた。」

These responses indicate that it is essential for teachers to bear in mind and comply with what Stockwell and Hubbard (2013, p. 9) have described as one of the emerging key principles of Mobile-assisted Language Learning (MALL): “strive to maintain equity”. We need to be sensitive to important issues such as whether the learner has a mobile device, what device the learner has in terms of compatibility and functionality, how consistent device connectivity is, and what the expense is for using that device for the planned operation. If an inequity is apparent, reasonably equivalent non-mobile alternatives should be available. Alternatively, one possible solution is that, if students feel that some aspect of their personal mobile device is deficient or inequitable, they can be encouraged to pair up and share a mobile device with a classmate. This solution has seemed to satisfactorily solve or alleviate the issue of mobile device inequities or deficiencies.

RQ2 asked “*What evidence is there that these students are using Quizlet actively?*”. To answer this question, the author looked at each student’s “studied” page to view their history of completed activities and to tally up the total number of times each activity had been completed by each student. In this way, the author was able to get an overall picture of how active each student was, and which activities proved to be the most popular among these students. Figure 6 shows that Match was by far the most popular activity, having been completed almost 7000 times by all classes in total, and Flashcards was by far the next most popular activity, having been completed more than 1600 times by all classes in total.

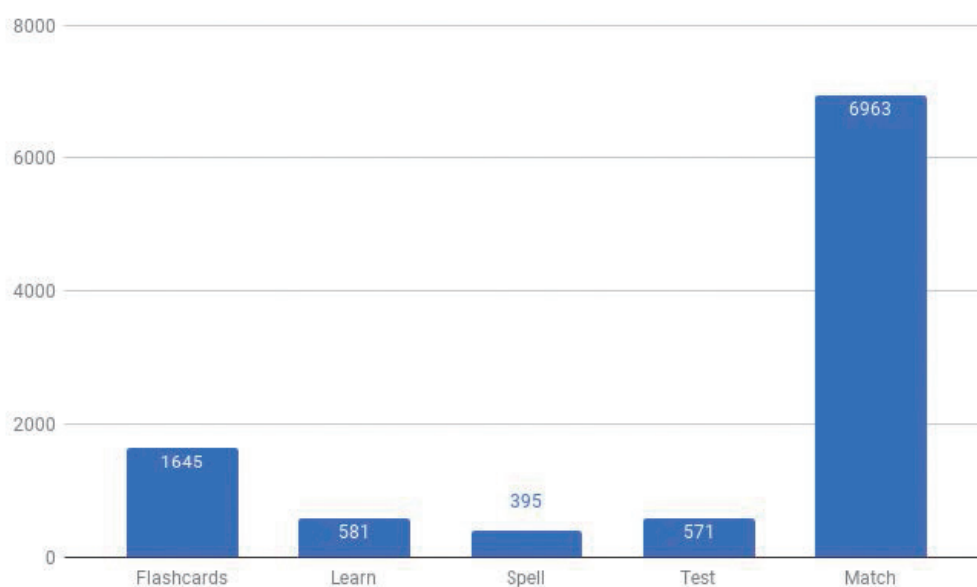


Figure 6. Total numbers of each Quizlet activity completed according to data from Quizlet usage logs.

Why was Match so popular? It is not surprising that Match was completed so many times. One likely reason is that Match takes advantage of smartphone touchscreen technology; it is quick and easy for students to touch their screen and match the terms and definitions in each set. Another likely reason is that the design of the game is fun and competitive. A timer keeps track of how long it takes the student to match them all, and if they pick the wrong match extra time will be added, thus encouraging rapid responses and automaticity while at the same time encouraging accurate responses. Furthermore, Match scores are recorded in a leaderboard list where the student is shown how his/her score compares with his/her classmates' scores, thus encouraging and motivating the student to try again to see if he/she can beat his/her own personal record and the personal records of his/her classmates higher up on the list. Encouragingly, when a student's score is beaten by another student, the student whose score was beaten receives an email from Quizlet informing them that they have been bumped down the match score list and encouraging them to get back into the game.

What other evidence is there that these students are using Quizlet actively? It is gratifying to note that by looking at each students' usage logs, the author discovered that, some students were extra actively using Quizlet, for example, by creating many of their own study sets not only for English but also for other subjects including French, Chinese, German, pathology, physiology, and occupational therapy. It is also encouraging to note that some students had completed nearly every activity for nearly every given study set in our course.

It must also be noted, however, that the student study data revealed that there were many students who were not active users at all, and many other students could be described as somewhat or moderately active. These findings are not surprising though, especially because Quizlet was mainly used as a supplementary study tool in this study, in addition to the other homework and textbook related activities that students were expected to complete.

Reflections on Cycle One

In their responses to the survey, some students wrote that they would prefer to use Quizlet Live on desktop computers instead of using smartphones, as this eliminates the issue of some students having smartphone-related limitations or issues. Desktop computers also have the benefit of a bigger screen. The main drawback of using desktops, however, is that it is not feasible to randomize and shuffle the teams in Quizlet Live. When using mobile devices, it is feasible to randomize teams and get students to move around the classroom to team up with random classmates. Assigning random teams is one of the key design principles of Quizlet Live, and some students noted specifically that they would prefer to be put in random teams.

The data presented and discussed above suggests that the students in this study found Quizlet live, Match and Flashcards to be the most enjoyable and useful of all Quizlet activities overall. In their responses to the open-ended item, many students commented on how useful Quizlet was. Also, the data clearly show that some students were much more active users than others and some students were not active at all, thus suggesting a need for more thorough introductory in-class demonstrations and ongoing guidance on how to use Quizlet. More time devoted to such learner training appeared to be well justified. Hubbard (2013) has pointed out that "[w]hat really matters is how *learners* use [the technology]. (...) teachers, researchers, and developers can—and should—provide significantly more guidance in how to use it well" (p. 175). With this need in mind, the author made a revised plan to provide more introductory in-class demonstrations and ongoing guidance in cycle two, focusing on the four new RQs and the collection and analysis of qualitative data.

Action Research Cycle Two

RQ3 asked *What Quizlet activities or features do my students think are the most useful?* Table 1 shows that the top three most useful activities as reported in the group interviews were Match, Flashcards, and Quizlet Live, respectively. Other useful activities or features included your own study sets, the Test activity, the fact that the Quizlet app can be used on computer (web-based) or smartphone (mobile), and making a class and sharing study sets together.

Frequency	Quizlet Activity or Feature
7	Match (マッチ)
6	Flashcards (カード)
4	Quizlet Live (クイズレットライブ)
3	Your own study sets (あなたの学習セット)
2	Test (テスト)
2	Can use on computer or smartphone (パソコンでも携帯でも使うことができる)
1	Make a class and share together (クラスを作ってみんなで共有することができる)
1	Studying starred items separately (星をつけたら後から分かる機能)

Table 1. The most useful Quizlet activities or features as reported in the interviews (N = 42).

Again, unsurprisingly, Match was the most popular activity, likely because it is quickest and easiest activity, it takes advantage of touchscreen technology, and it has an element of competition to it. The next most popular activities were Flashcards (6 responses), Quizlet Live (4 responses), your own study sets (3 responses), and Test (2 responses).

RQ4 asked *What problems or difficulties, if any, do my students have with using Quizlet?* The most frequent answer that came from the interviews was “nothing”, with four groups reporting that they had no problems using Quizlet. Two of the groups answered that they had problems with login difficulties, specifically, they found it difficult to use the Google account login. One group reported that initial settings were difficult. Another group said that the auto-define function was not available when using the mobile app (Quizlet has recently added this function to the mobile app, so this is no longer a problem).

The fact that the most frequent answer was no problems implies that many students found Quizlet easy to use. Indeed, lots of evidence of ease of use came directly from the open-ended questionnaire responses. Here are two of the many specific comments suggesting that Quizlet was useful and easy to use (student names are pseudonyms):

❖ Quizlet was nice and easy to use. (Student S)

(Quizletは使いやすくて良かった。)

❖ I was able to learn very happily using Quizlet and other tools. (Student T)

(Quizletなどを使ってとても楽しく学習できた。)

RQ5 asked *What advice would my students give to new student users of Quizlet?* The group interview data provided a variety of useful answers to this question, a few examples of which are as follows:

❖ It is convenient to download the iPhone application (Group 1)

(iphoneにアプリをダウンロードしたら便利)

❖ Please take advantage of free time and study happily! You can also use it for other subjects too. (Group 6)

(空き時間を利用して楽しく覚えてください!他の教科の記録物もできます。)

- ❖ Depending on the function of Quizlet, it is good to use a personal computer and a smartphone according to one's needs. (Group 3)
(Quizletの機能によって、パソコンとスマートフォンで使い分けるのが良い)
- ❖ Doing the initial settings is difficult by yourself [so do it together with a classmate].
(初期設定は1人では難しい。)(Group 9)
- ❖ Because it has functions such as auto-define making it easy to create word cards, it is recommended that you make your own word cards and use them. (Group 11)
(自動定義など楽に単語カードを作ることができる機能が備わっているので自分の単語帳を作って学習することをお勧めします。)
- ❖ Make your own learning sets and actively use them! (Group 8)
(ご自分の学習セットを作って、それを積極的に使う)
- ❖ You should make your own word cards (learning sets). (Group 4)
(自分の単語カード(学習セット)を作るべき。)

These last three points illustrate the most frequent and arguably the most useful piece of advice given: students should make their own Quizlet sets and actively use them.

RQ6 asked *Did Quizlet help students improve their English abilities?*

To answer this question, students' in-class weekly quiz scores during term one were collected and analyzed. Table 2 shows the results of these formative assessments.

Table 2. Students quiz scores in June and July ($N = 42$)

Quiz 1 <i>M (SD)</i>	Quiz 2 <i>M (SD)</i>	Quiz 3 <i>M (SD)</i>	Quiz 4 <i>M (SD)</i>	Quiz 5 <i>M (SD)</i>
17 (2.1)	17 (1.8)	17 (1.8)	16 (3.1)	17 (1.6)

Note: Maximum possible score on each quiz was 18 points.

These quizzes were aimed at testing the language covered in the textbook. All students took the same quizzes. Five quizzes were given throughout the term, approximately once every week. The high average scores shown in the table above might be taken as admittedly frugal evidence for the students' very good progress in English. Although it is difficult to conclude that there were any significant improvements in learning outcomes, based on these results, it is determined by the author that the learning activities used have great potential to improve students' English proficiency.

Reflections on Cycle Two

On reflection, the group interviews would likely have resulted in a more robust dataset had each group been asked to brainstorm and give their top three or four answers for each question instead of just one or two responses per question per group. It was reassuring to see that there were not many problems reported by students. The main problems concerned login difficulties and initial settings. It is therefore advisable for students to work in pairs or groups when setting up their Quizlet accounts initially, so they can support each other through any technical difficulties.

Limitations of this study include the lack of a control group, lack of a pre- and post-test design, and lack of standardized measures of language proficiency (e.g. TOEIC).

V. Conclusion

This study has looked indirectly at how Quizlet can enable active participation and learning inside and beyond the classroom. It has been argued that Quizlet Live in particular is an effective and useful tool for creating exciting and engaging opportunities for learning to occur, and Quizlet in general can help students build vocabulary knowledge and develop learner autonomy. Although it cannot be said that games are always better and easier to cope with for everyone, an overwhelming majority of students in this study found Quizlet Live helpful, exciting and enjoyable. This study has contributed to the large and growing body of empirical evidence suggesting that most students feel positively towards Quizlet and regard it as a very useful and easy-to-use tool worth using again in the future.

Suggestions for future research include investigating how Quizlet Live can be adapted or extended to make it even more collaborative, fun, and effective. The use of a control and experimental group design with pre- and post-tests and questionnaires could further reveal how effective Quizlet is. Conducting interviews as small group tasks where each group is encouraged to give their top three, four or more answers to each question would likely produce a richer qualitative dataset. Using a set of learner training principles and techniques (Hubbard, 2004), it would be fruitful to develop technical and strategic training materials, focusing on training students to create, share, and use Quizlet sets together as a learner community, for example, to help with their enjoyment of reading graded readers. How can Quizlet be used to drive student success across a curriculum (for an inspiring example of how Quizlet helped a school achieve 27% over the district average, see Snead, 2017)?

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Appendices

Appendix A-1

Closed-ended questionnaire items (Original Version in Japanese)

「授業改善のためのアンケート」

このアンケートは、授業改善の向上を図る目的で実施するものです。あなたの回答は大変貴重であり、今後の授業のあり方に反映させていただきます。回答内容があなたの成績評価に影響することは全くありませんので、出来る限り率直に、真剣に答えて下さい。ご協力をよろしくお願いします。質問の回答は4段階（1全くそう思わない～4強くそう思う）評価で、評価してください。

Quizlet Live についての質問

1	新しい英単語を学ぶのに役立った。	1	2	3	4
2	授業の雰囲気をよりエキサイティングにした。	1	2	3	4
3	英語をより積極的に勉強してみようと思いになった。	1	2	3	4
4	Quizlet Live を通して英語を楽しく学んだ。	1	2	3	4
5	今後も Quizlet Live で学習したいと思う。	1	2	3	4
6	総合的に判断して、Quizlet Live に満足している	1	2	3	4

Appendix A-2

Closed-ended questionnaire items (Translated Version in English)

Course-Improvement Questionnaire

Please rank the following statements from 1 *strongly disagree* to 4 *strongly agree*.

Questions About Quizlet Live

1	Quizlet Live helped me learn new English words.	1	2	3	4
2	I enjoyed learning English through Quizlet Live.	1	2	3	4
3	Quizlet Live helped me feel more positive about learning English.	1	2	3	4
4	Quizlet Live made the classroom atmosphere more exciting.	1	2	3	4
5	I would like to play Quizlet Live in the future.	1	2	3	4
6	Overall, I am satisfied with Quizlet Live.	1	2	3	4

Appendix B-1

Open-ended mid-semester and end-of-semester questionnaire items (Original Versions in Japanese)

「授業改善のためのアンケート」（学期途中）

自由記述

この授業に対する意見・要望などを自由に記述してください。

--

ご協力ありがとうございました。

「授業改善のためのアンケート」(学期の終わり)

自由記述

自由記述は枠内に収まる範囲で自由に記述して下さい。

授業に関する具体的な気付きや、改善すべき点、取り入れてみたいこと、意見や感想、この授業で印象に残った点などについて、あなた独自の視点で、担当教員へのメッセージを記入してください。

ご協力ありがとうございました。

Appendix B-2

Open-ended questionnaire item (Translated Version in English)

Course Improvement Questionnaire (mid-semester)

Free description

Please feel free to describe your opinions of and requests for this class.

Thank you very much for your cooperation.

Course Improvement Questionnaire (end-of-semester)

Free description

Please feel free to write your specific impressions and opinions, suggestions for improvements, things that you want to add, what left a lasting impression in this class, and, from your perspective, write a brief message to the teacher.

Thank you very much for your cooperation.

Appendix C

The set of open-ended interview questions (original in Japanese)

1. Which Quizlet function or activity do you think is the most useful?
(どの Quizlet の機能又はアクティビティが最も役に立つと思いますか?)
2. *What problems or difficulties do you have when using Quizlet?*
(Quizlet を使う時何か難しいことはありますか?)
3. *What advice would you give to new student users of Quizlet?*
(Quizlet の使用に関して新しい学生にどんなアドバイスをしますか?)