

[原著論文]

Which is the best online software, Kahoot!, Quizizz, or Quizlet live?

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Kahoot!, Quizizz, Quizlet live: 1 番効果的なオンラインソフトを検証

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Abstract

Which is best, Kahoot, Quizizz, or Quizlet live? The question seems straightforward, and it is easy to find opinions on YouTube. However, after researching the published literature on the topic, we experimented using all three for ourselves, then surveyed students about it. We then combined their results with our results from the teacher perspective. We (an experienced teacher in Yamaguchi, and a new teacher in Tokyo) used the different kinds of software mainly as a tool for checking comprehension at the end of units and for vocabulary acquisition. In an attempt to answer the question of which is best, we used each tool for 4 weeks during the first semester with first and second year students at universities in Yamaguchi and Tokyo. We tried to predict what problems we might encounter as well as avoid mistakes mentioned in the literature by previous researchers. Along the way, we noted problems that arose while using them, and at the end of the semester we surveyed the students about their experience with the different kinds of software. In the survey we asked the students about their perceptions of concentration, engagement, enjoyment, learning, motivation, and satisfaction. We will reflect upon how the results or our survey compare with what the previous literature on the topic says, and hope to use the results in our future classes.

Key words: online software, computer assisted language learning, Kahoot!, Quizizz, Quizlet live

キーワード: オンラインソフトウェア、コンピュータ支援型言語学習、Kahoot!、Quizizz、Quizlet live

1. Background literature review

As a teacher, it is imperative for us to stay on top of technological advances. Our students live in the digital world, and if we can use part of their world to make our lives as teachers easier, we should do it. But where do we start? What technologies should we use? There are so many choices we have, and it's difficult to know which will be effective for us as teachers. That is, which are easy for us to use, yet also effective aids in the classroom?

If you, as a teacher, heard that there is a tool that does amazing things, would you want to use it? If you heard that this tool “can have a positive effect on learning performance, classroom dynamics, students’ and teachers’ attitudes, and students’ anxiety,” is there any way you would *not* try to use it? This quote is the main conclusion reached by Wang and Tahir in their (93-publication study) literature review of Kahoot! (Wang & Tahir 2020). Similar online tools have received similar praise.

In order to improve, students need to study. They can do this on their own or in class. Both would certainly be preferable. As teachers, we want active learning inside our classrooms. How can we get students to be more active in classes? How can we get them to “buy in” to what we’re doing as teachers? These online software tools, with similarities to games, appear to be attractive to students. Thus the students pay more attention, and attempt to win, or to beat their peers. As Butler suggests in his article, with regards to classroom activities, actively participating students will learn more than passive students (Butler, 1992). Prince and other researchers have also noticed that student engagement in lectures will lead to improved understanding and improved academic results (Prince, 2004). It can be hoped, but not assumed, that students, in wanting to do well on the online software activity, will pay better attention to, and thus be more engaged in, lectures.

Student response systems (SRS) were designed to make classes more interactive. Another positive aspect of their use has been creating not only an active classroom, but they also led to improved student performances on exams and helped create more positive views of the class from both students and teachers (Caldwell, 2007). So using SRS in the classroom creates a better atmosphere as perceived by both students and teachers. But which of these SRS are the best to use?

Online software such as Kahoot!, Quizizz, and Quizlet live all combine SRS technology available in schools with the devices (smartphones, etc.) that students carry with them every day. Baker, et al., state that these games have the goal to “increase engagement, motivation, enjoyment, and concentration to improve learning performance and classroom dynamics.” They also stress that boredom—especially in high-technology environments—has decidedly negative effects (Baker, D’Mello, Rodrigo, & Graesser, 2010). So increasing the students’ engagement in the class obviously combats boredom. This, in turn, means fewer negative effects in the classroom. This especially appeals to us, as we both teach students as science (high-technology) universities.

How do these online tools increase all of these things? The answer should be obvious, but if you look at a traditional classroom, the teacher lectures from the front of the class. Students should listen, but attention can wander. In discussing the benefits of Kahoot!, McLaughlin and Yan said that due to the “game-like student response system,” in addition to the ability of teachers when creating Kahoots! to use video, pictures, music, scoring, and ranking, students pay more attention than they did to traditional lectures (McLaughlin & Yan, 2017). It makes sense that when comparing two rooms, one with a lecturer only, and another with a lecturer using video, pictures, music, scoring, and a game-like system with scoring, the latter room would certainly have more engaged students.

Despite negative views about the use of traditional lecture style teaching in classes with a large number of students, it is unlikely to disappear. The traditional lecture style classrooms normally create a one way and monotone environment which results in students’ attention drifting away from the teacher and the target material. Therefore, we (teachers) have always

tried to create different types of materials to keep students' focus on the class contents. With the help of technology, we can provide a more exciting and fast-paced learning environment since gamification encourages an energetic competitive mind set and increases engagement in the classroom (Baszuk, 2020). However, it is sometimes challenging for teachers to introduce new and original teaching methods as some students resist novel ideas being introduced into their set routines. Student participation in the SRS activities requires passive learners to step out of their "comfort zone" (usually merely sitting and listening), even though some want to stay being passive learners in the traditional lecture style class (Holbrey, 2020).

Although it's difficult to find studies involving all three types of online software, we can find individual studies that show that using technology in the classroom is a positive. A Greek team did a comparative study on this subject matter. They taught the same content in two classes, one experimental group that was actively involved with Kahoot!, while the other class used traditional lecture style teaching only. They had 67 total students, and those taking the final exam in the experimental group scored an average of 8% higher than their counterparts without the benefit of Kahoot! The authors say that using Kahoot! not only improved their understanding, but also raised class participation as well as motivation (Tsihouridis, Vavougiou, & Ioannidis, 2018).

Kahoot!, Quizizz and Quizlet can be used in conjunction with the traditional lecture-style of teaching. Teachers don't need to completely restructure their classes or their teaching methods. Rather, these online software tools can be used in addition, supplementing the more traditional classroom. Lunden also states that online SRS activities can be effectively used in reviewing students' knowledge gained in the traditional classroom settings, but with the added touch of using updated technology (Lunden, 2018). Therefore even passive learners won't need to change their participation habits drastically in order to benefit from the technology.

Within every classroom, even though at many institutions the students are placed in appropriate class levels according to placement test results, there remain large language level gaps among students. It is challenging to keep every students' motivation high, especially those whose language level is lower than the rest of the class. However, according to Batsila, game based learning platforms create safer learning environments to lower their stress level and promote self-esteem as they can participate in the game anonymously (Batsila, 2017). That is, both high level and lower-level students in the same class can participate with less stress and possibly more confidence.

So we expect that students will more actively participate in classes due to this technology being used in the classroom. We wonder which of the three (Kahoot!, Quizizz, Quizlet live) the students will enjoy the most. In their conference paper from the 2017 International Conference on Digital Arts, Media and Technology, Cahiyono and Nokam reported that in their experiment, students felt that they concentrated more during lectures, felt more engaged, and enjoyed the classes more when using Kahoot! rather than when using Quizizz. The students' feelings about perceived learning and motivation were almost the same between the two. (Cahiyono & Nokam, 2017). We will be adding in Quizlet live to the discussion, but it will be interesting to see if our results will mirror these. In any case, it seems that using the technology has a positive effect on students.

It sounds perfect, and that teachers would be negligent if they did not incorporate some of this technology into their classroom. However, we encounter problems any time we introduce something new into the classroom. This "something new" could be a teaching method, a new textbook, or a new online software technology. It helps if the teacher goes into the new situation with eyes wide open, having read about some potential problems—and with ideas about how to overcome them. So trying new things, such as introducing a new online software comprehension tool is important, but some prior knowledge for the teachers will help ensure a positive outcome.

Wang and Tahir (2020) also organized a list of potential problems that teachers might encounter when using the technology. This can help serve as a “do not do” list of things for teachers when first embarking on using the technology. One thing that was listed as a possible weak point of using the technology is that, due to speed being important, some students will guess or enter a response without thinking. As Holbrey indicates, some professional development is necessary to boost teacher’s confidence or skills to use technologies, especially when they encounter problems (Holbrey, 2020). It is unlikely that all students will refrain from guessing. As long as speed in answering is rewarded, some students will inevitably guess the answer rather than slowly read and analyze all of the possibilities.

2. Questions we wanted answered:

1. Which of the three (Kahoots!, Quizizz, Quizlet live) is the easiest to use for teachers?
2. Which of the three (Kahoots!, Quizizz, Quizlet live) is the easiest to use for students?
3. Which of the three do students feel is the most effective learning tool?
4. From the teacher perspective, which seems the best?
5. Which of the three do students enjoy the most?

3. Procedure

Before the start of the academic school year, both teachers (Professor Murrell and Ms. Sato) reviewed the literature on all three SNS online activities. We took notes on how to create and implement each one, what students needed to do, possible outcomes, and potential problems. We also created the ‘ending’ or ‘after’ survey to give to the students. We decided to give it to the students all in Japanese, in order to remove any potential misunderstandings (See Appendix 1).

We looked at our semester schedules, and decided to work on a 12-week schedule. The semester had 15 or 16 meetings, but those included speaking tests, written tests and final exams. So we divided it into 12 weeks, and each type of activity would get 4 weeks, or a third of the semester total.

After that, we created four types of each “quiz” for our classes. That is, for example, for Oral Communication 1, Professor Murrell created a Kahoot! for the first 4 units, 4 Quizizz for the next 4 units, and 4 Quizlet live for the last 4 units.

Next, we conducted classes in our usual fashion, and at the end of each class session, as a comprehension check, we employed the online SRS activities. At the start of each ‘new’ activity we added in learning time for students to register and access each new activity for the initial time. We tried to provide feedback and advice to each other during the process. Ms. Sato did the 3,3,3,1,1,1 approach, doing Kahoot! for 3 times and then moving on to Quizizz. As she did Quizizz earlier than Professor Murrell did, she provided a bit of insight about using both the ‘teacher paced’ and ‘student paced’ options. Professor Murrell had done Quizlet live before, and tried to help Ms. Sato realize that the registration for students was more time consuming, especially after they were grouped into teams. Ms. Sato then refreshed the students’ minds on each activity by doing each style one more time.

Both Kahoot! and Quizizz are comprehension quizzes that the teachers have prepared in advance. Usually the teacher creates a quiz of about 5 questions, mostly multiple choice, but some True/False are interspersed. In Kahoots! the teacher can insert pictures, gifs or short videos to supplement each question. In Quizizz, pictures are possible but not videos. However, in Quizizz, one more type of question is often employed, where students must type in the correctly spelled answer in addition to multiple choice (and True/False in the paid version Professor Murrell used). In both Kahoots! and Quizizz the teacher chooses a quiz, and students see the game code or QR code to put into their browser. The purpose for the students in both

Kahoot! and Quizizz is for the individual student to get correct answers as quickly as possible. In Quizlet live, the purpose is for the team (of three to four students sitting together) to get 12 consecutive correct answers. If they get an incorrect answer, they must start over again from zero.

There are a few other differences from the student perspective between the types of software in how they are used (how the game is played). When using Kahoot!, the teacher projects the question and answers on a screen, and students choose their corresponding answer on their own device. After the time period has finished, the teacher presses “next” to show the correct answer, can stop and discuss if there are problems, and then goes to the next screen showing current scores. Then to the next comprehension question, repeating the process. When using Quizizz, the projector isn’t necessary as students see the questions and answers on their own device. Also, the question order differs for each student, making it difficult for students to cheat off of each other. Students all go at their own pace, and the teacher can see real-time scoring, which is constantly changing.

Quizlet live can be done either individually or team-based. We decided to use the team-based option in order to truly provide something different from Kahoot! and Quizizz. In the Quizlet software, teachers upload a list of vocabulary with definitions. Students have access to this, and can use it for vocabulary study outside of the classroom. During a Quizlet live session, students look to the main screen to see the game code or QR code to enter the game. After all students have entered, the teacher presses ‘start,’ and students are randomly assigned into teams (with animal names). Students must then gather with their teammates in order to proceed. As the game starts, each team goes at their own pace, attempting to select the proper definition to a word. The teams have 3 or 4 players, and each player sees a different set of 3 or 4 definitions (from the unit words) on their screen, but only one student has the correct definition answer, and only that student can select it. The team must work together to find the student whose device has the correct answer to the current word. The first team to get 12 correct answers in a row wins.

After doing each type of quiz 4 times, we then gave our students time in class to do the survey. Many students were talking during this time, which we took as a positive aspect. We believe they were assisting each other in remembering the activities. We provided visual clues to help recall which name went to which activity.

Ms. Sato had decided to use the games for the vocabulary reviews before the weekly TOEIC vocabulary quiz. At the beginning of the semester, the students were given the vocabulary lists and instructed to learn the English definitions. During the class, the students completed a matching vocabulary and definitions exercise on the overhead slide and then used our chosen online software.

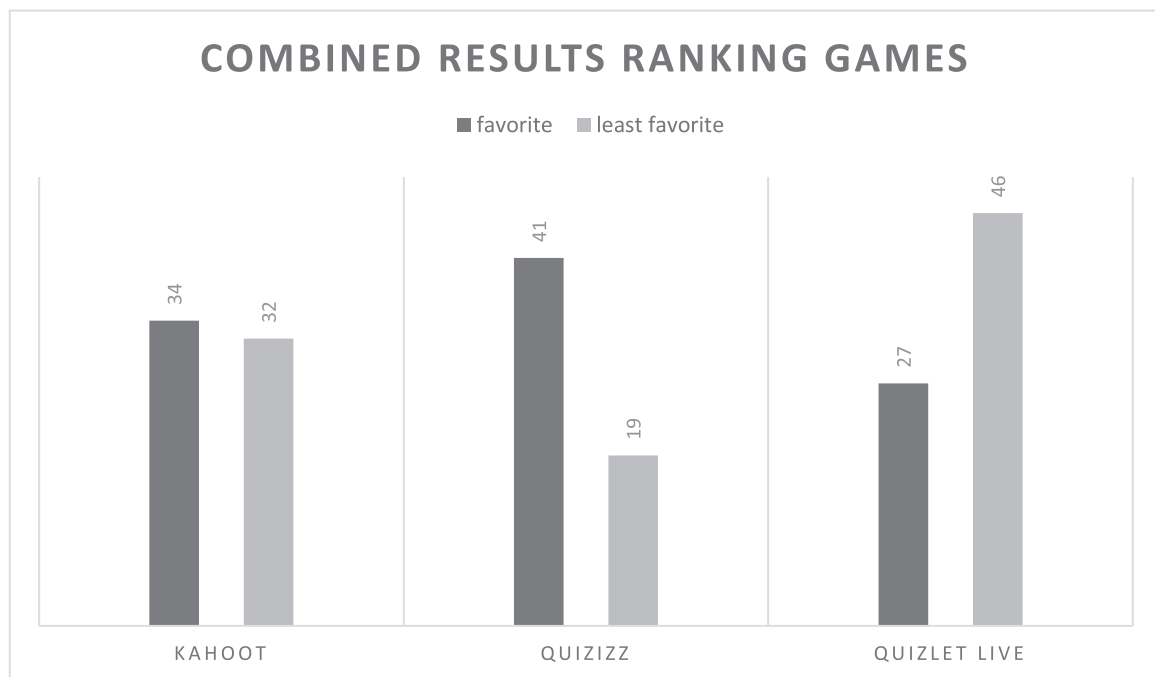
4a. Results

When answering the survey questions, in the combined results, 69% of the students responded that using games in the classroom was useful, and another 25% said that it was somewhat useful. In the next question, about how fun the games were, 58% responded “a lot of fun,” while another 37% responded with “fun.” So 95% thought they were either fun or a lot of fun.

When these results are looked at separately by teacher, 58% of Ms. Sato’s students said using the games was “useful,” and another 31% said it was “somewhat useful.” The remaining 11% said that the games were either “not much useful” or “not useful.” 80% of Professor Murrell’s students said they were “useful,” while the remaining 20% said “somewhat useful.” None of his students had a negative reaction to using the games. 42% of Ms. Sato’s students said that the games were “a lot of fun,” and 49% said “fun.” The remaining 9% said either “not much fun” or “not fun.” 75% of Professor Murrell’s students

rated the games as “a lot of fun,” and the remaining 25% said they were “fun.” Similarly, none of his students had any negative reaction regarding having fun with the software.

When asked which game was their favorite, in the combined results, 41% said Quizizz, and 34% said Kahoots!, while only 27% said Quizlet Live. Asked which game was their least favorite, and 46% said Quizlet Live, 32% said Kahoot! and 19% said Quizizz.



When looked at separately by teacher, 62% of Ms. Sato’s students rated Quizizz as their favorite game of the three, and 0% of her students said Quizizz was their least favorite. This is in contrast to Professor Murrell’s students, 20% of whom said it was their favorite, while 38% of them said it was their least favorite. Ms. Sato’s students overall preferred Quizizz, while Professor Murrell’s students liked Quizizz the least of the three types. His results somewhat confirm the earlier study of Cahiyo and Nokam, who found that students liked Kahoot! more than Quizizz.

When asked which game they would like to play next, in the combined results 37% said Quizizz, while an identical 30% said Kahoot! or Quizlet Live. Overall 91% said that they wanted to continue to play games in the next semester. 92% said that they had not played these games before in the classroom setting.

When looked at separately by teacher, 58% of Ms Sato’s students said they’d like to play Quizizz next. 20% said Quizlet Live, and only 16% of Ms. Sato’s students said they’d like to play Kahoot! next. On the other hand, only 17% of Professor Murrell’s students said they’d like to play Quizizz next, while 41% said Quizlet Live and 43% said Kahoot!.

In Ms Sato’s classes, results were only completed from the second unit of Kahoot games because, due to unfamiliarity with the software, a lot of students could not finish answering the questions when it was attempted in the first week. This was due to lack of experience learning vocabulary definitions in English, and on some occasions, they had chosen wrong definitions.

Ms. Sato initially had planned to conduct the project with five different classes throughout the semester; however, due to

unforeseen circumstances it was getting difficult to carry on with playing the games every class, and she was able to continue with only two second year classes. Although the other classes enjoyed playing games occasionally, only the data from the two classes was used to analyze the results.

4b. Results– Student comments section

Most of the reasons that the students gave for their responses to the first question, of “why did you choose that answer for #1” (#1 was “how helpful were the online games?”) were “It was fun,” “it was helpful for remembering words,” and “I’m not good at English but the games were fun.”

For the question about “Why are online games fun?” most of the students’ answers fell into either “it was fun to compete with classmates” or “In the game I could make a mistake and learn with no penalty.” Regarding “competing,” it seems that students enjoyed both competing against each other and together with classmates during team play.

Looking at the first choice for the question about why did you rank the three games in that order, those who said that Kahoot! was their favorite had comments such as “It was easy to see and understand, and simple to press the correct answer quickly,” or “The questions weren’t too difficult, and it was fun and easy to understand.” For those that ranked Quizizz #1, they said things like “Going at my pace was fun,” and “It was easy to understand.” For those that ranked Quizlet Live first, they had comments such as “It was fun to do team play,” and “It was exciting to play and have fun with friends.”

Looking at reasons why students chose Kahoot! as their least favorite game, they gave such reasons as “It was fun, just not as fun as the others,” and “I couldn’t read the question fast and answer fast.” For students choosing Quizizz as their least favorite, they gave reasons such as “Going at my own pace wasn’t fun (sic) as the whole class together,” and “Needing to input the correct spelling myself was too difficult.” Those that chose Quizlet live as their least favorite gave such reasons as “It was fun to play with friends, but the difference in level was too great, and we couldn’t win,” and “Everyone on the team didn’t give the same effort.”

Asked about the format, as Class-paced, as Individual-paced, or as a Team game, students that said they enjoyed the Class-paced game gave reasons such as “Doing it as a class was most fun,” and “It was difficult to finish in the top 3, but I could do it, and that was fun.” For those who liked the Individual-paced game, they gave reasons such as “It’s easier to do it on my own,” and “Some people would rather not play team games.” Those that liked the Team game gave reasons such as “I could participate aggressively as a team,” and “When we do it together as a team, others will help when I don’t know the meaning of a vocabulary word.”

5. Conclusions

Overall we were pleased with the results. Taken together, we feel that all of the online software tools had pros and cons that were appreciated by the students. All three groups had support for their use amongst our students.

Clearly it is impossible to please everyone. Everyone’s tastes are different. Some students really liked playing the individual game, while others liked the group games. Some liked playing to win, while others just enjoyed the process of playing. Some students didn’t like the pressure of a time element, while others did. As each type of game got votes for both best and worst game, it seems impossible to choose one that will satisfy everyone.

However, when analyzing the answers to the survey according to which teacher was teaching, there was a surprising difference in the groups of students' preferences. We wonder what the factors were that caused such a difference in the student perception of the activities.

11% of Ms. Sato's students felt that using the online software was "not much useful" or "not useful." None of Professor Murrell's students felt that way. Was there something that she did, some way in which she presented things that was off-putting for some students? If so, they didn't comment on that in the comments section.

Clearly many students (especially from Ms. Sato's classes) preferred Quizizz, and many of their comments focused on the pace of the game. Kahoot! (as we employed it) is teacher-paced. The class goes from one question to the next depending on the teacher. Quizizz was mostly used in the 'student-paced' mode. Comments from those students supporting Quizizz really appreciated being able to go at their own speed. Quizlet live is group-paced, and at times students also have no control over the pace. Giving students autonomy in the speed of the activity seems to be well-received. There is the option to give Kahoot! and Quizizz as homework, but we didn't do that. We felt it was too big of a variable, and also difficult to monitor the results.

While Professor Murrell's students clearly liked Kahoot! and Quizlet live more than Quizizz, Ms. Sato's students clearly preferred Quizizz. Regardless of the reasons leading to these preferences, the facts (results of the surveys) speak for themselves. It would be best for Professor Murrell to continue employing Kahoot! and Quizlet live in his classes. It would be best for Ms. Sato to continue to use Quizizz in hers.

There were some students that didn't like playing team games. However, these students seemed to be in the minority. From the teacher perspective, Quizlet live clearly produced the most energetic and lively atmosphere inside the classroom. Students were up, moving around and talking. We received more than a few comments stating that Quizlet live seemed the most academic, that it seemed to be the one where they were conscious of learning vocabulary.

From a teacher standpoint, Professor Murrell found that Quizlet live was the easiest to make. This was merely inputting words and definitions. Implementing the game of Quizlet live in the classroom was actually the hardest, because it created two big problems. First, in a class of 40 students, some will register quickly, and others slowly. Most use the QR code, and are more likely to stand up and walk to the front of the class to focus their cameras on the QR code than they are to stay seated and login from a URL. In Quizlet live, students must continually refresh their phones, because if it goes into 'sleep' mode, they are out of the game. Second, when the random groups (teams) are assigned, those 3 or 4 students must get together. It's easiest if the teacher knows the student listed first in each group and can say "Ok, all the Penguin group should gather at Student X's area," and have Student X raise their hand. But this too can be time-consuming, and if the teacher doesn't know the first student for some reason, it can cause further delays in starting the actual 'game' part of Quizlet live.

Professor Murrell found both Kahoot! and Quizizz to be nearly identical to create in terms of time and effort. It is similar to most test-making, with the problem, the answer, and usually (for multiple-choice answers) "distractors" as well. Both software products make it fairly easy to both choose and insert media into the questions, although Kahoot! allows for a bit more variety. Implementing both games in Professor Murrell's classes wasn't too much of a challenge. Students could login to Kahoot! from the QR code, and got used to logging in to Quizizz from the URL. With Kahoot!, however, in the narrow and long classroom shape, many students in the back couldn't see the answer choices on the monitor. Gradually they would stand at the sides or find empty seats towards the front of the class when playing Kahoot!

Ms. Sato learned that Quizizz offered the most features to use in the free version and was the friendliest to the creators

and players. Quizizz lets the instructors choose a type of game from 5 choices, able to insert up to ten images a day from its selection, can choose an optimal section to add answer explanations, as well as font colors, time limits, and points. Kahoot! and Quizlet live offer some of the same features, but some are not included in the free version. Implementing Quizizz in the classroom was easy; all you have to do is instruct the students to go to a URL and type in a code to enter the game. In the beginning, the students were using their computers to play the game but most of them gradually shifted to using their smartphones. While the students played the individual-paced Quizizz intensely and stared at the phone screen until they finished the game, they occasionally looked up to peek at their ranking as their rank and class accuracy were broadcast throughout the game. Another point to mention is that Quizizz does not provide upbeat music but only provides basic gaming sounds. It seemed like the students were comfortable with the simple background sounds to concentrate on answering the questions rather than with the bouncy rushing sounds of Kahoot! and Quizlet live.

Ms. Sato found Kahoot! games were also simple to create and administrate in the classroom. Kahoot! offers a colorful visual background and music which draws attention from players. However, there were more than a few occasions when some students had to ask other students to read out what was written on the slides. As a result, it was not easy for some students to focus on answering the questions. As the majority of her students expressed, Ms. Sato also felt that Quizlet live was the least favorite to carry out in the classroom. It was easy to create the games but the free version only gives you a choice of team play. A lot of students displayed uneasiness to move around and sit with unfamiliar faces even though they were not complete strangers to each other. As Professor Murrell mentioned, the “sleep mode” on Quizlet live caused some students to be kicked out of the game that made them feel excluded and resentful. The only way to bring them back in the game is to form *new* groups that require *all* students to move around and keep their phone awake. This inevitably led to other students being kicked out of the game. It seemed like 100% participation was almost impossible to implement in Quizlet live.

In summation, regarding our initial five questions that we hoped to answer, we felt that probably Quizlet live was the easiest to create, but the other two were easier to implement in the classroom. The same can be said for our second question about which is easiest to use for the students: Quizlet live can be troublesome, with students’ phones not being refreshed, or with difficulties in finding your team. The other two were nearly identical in use. For our third question, about which do the students feel is the most effective learning tool, based on their comments we would have to say that Quizlet live felt the most academic for them. Similar conclusions are drawn from the teacher perspective. When Quizlet live was being used in the classroom, students were talking to each other about which answers were correct, and what was the meaning of some words. It seems that in Quizlet live the important emphasis is on getting the correct answers. In Kahoot! and Quizizz, speed has more emphasis, and led to more instantaneous guessing by students. The last question, about which of the three the students enjoyed the most, was impossible to answer. All three types got votes for favorite of the three and for least favorite of the three.

6. Discussion

Professor Murrell initially wondered what other activities are out there waiting to be used (taken advantage of). There are many others out there, some of which include assignment creation as well as a Learning Management System (ZenGengo is one such). However, most of these that include an LMS are not free. Kahoot!, Quizizz and Quizlet live are all free for the teacher and students to use. These three all provided positive energy in the classroom. There’s no question that the students enjoyed it and maybe even looked forward to it.

Some of Ms. Sato’s students didn’t feel that using the online software tools was useful. Why could this be? Are they very serious students that had difficulty participating? From the teacher perspective, the online software was used to test general

comprehension of the unit content in an engaging contemporary manner. If the students didn't find the online quizzes useful, does that mean that we failed those students in the 11%? Both teachers work at science universities, where the vast majority of students list "playing online games" as their hobby (as opposed to the vast majority of humanities-oriented university students that respond "listening to music"). So it is unlikely that they (in general) are unfamiliar with, or dislike, playing games. The class atmosphere in Ms. Sato's classes was very different among the two classes: one was a very quiet class with all male students and the other a very lively class with 30% female and 70% male students. It was not surprising to see the positive comments from the latter class because there was a feeling of great anticipation before the game and a lot of students were completely engrossed playing the games. On the other hand, sometimes it was hard to interpret how the all-male class was accepting the online games because the students were generally quiet and did not often show any reactions during the games. It was certainly a relief to receive positive feedback from the quiet class, but there is speculation to wonder if these differences may be caused by the diversity of the classrooms.

One other point worth reiterating is about guessing. As the semester went on, probably 10% of Professor Murrell's students would very quickly guess during Kahoot or Quizizz. They were interested in being the fastest to answer rather than taking time to get the correct answer. In Quizlet live, this rarely (if ever) happened, as the team penalty was to go back and restart from zero. Thus students took their time and made sure verbally about answers often during Quizlet live, but rarely (if ever) with the other two.

The atmosphere of the classrooms is completely different when using Quizlet live. Students are standing and talking, gesturing and helping each other. As teachers, we know that "active learning" is a powerful reality. When hearing the students say answers aloud, as well as sharing information about their opinions on both what is a good and bad choice of answer, we teachers realize that some type of learning is probably occurring.

Quizizz was the only one to provide students some form of continuity. Students could get bonus points for getting a few answers in a row. Also, some students were able to create avatars. They seemed to associate themselves with these avatars, and making a connection in this way seemed to be powerful. Perhaps allowing students more time to create avatars might help them enjoy Quizizz more in Professor Murrell's classes.

Ms. Sato underestimated how competitive her students would be and was amazed at how many of them were keen to win or bring their scores up. Another unanticipated response was that some students wished to see all definitions from answer choices. As Quizizz provides such additional features, Kahoot! or Quizlet live did not. This response indicated that some students did utilize the games as educational aids.

Perhaps it would have been advisable to include a survey question asking which either "felt the most academic" or which "was the best educational tool." Based on some of the students' comments, they seemed to enjoy the Quizlet live team atmosphere, but also felt that they were learning the words. Sometimes they learned them on their own, but also in the Quizlet live situation, other team members would help them with the vocabulary that they didn't understand.

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Appendix 1 The 'after' survey for students

クラスで使用したオンラインのゲームについてのアンケート

1. オンラインのゲームを使用して単語などの確認をしましたが、役に立ちましたか。

役に立った

少し役にたった

あまり役に立たなかった

役に立たなかった

2. 1で選んだ理由を教えてください

3. オンラインのゲームは全体的に楽しかったですか。

とても楽しかった

楽しかった

あまり楽しくなかった

楽しくなかった

4. 3で選んだ理由を教えてください。

5. Kahoot, Quizizz, Quizletの3種類を使いました。気に入った順番を教えてください。(1が一番気に入ったにしてください)

Kahoot 1 2 3

Quizizz 1 2 3

Quizlet Live 1 2 3

6. 5で選んだ1番と3番の理由を教えてください。

7. Kahoot, Quizizz, Quizletの3種類を使いました。使いやすかった順番を教えてください。

(1が1番使いやすかったにしてください)

Kahoot 1 2 3

Quizizz 1 2 3

Quizlet Live 1 2 3

8. クラス全体のゲーム、個々でするゲーム、チームでするゲームがありましたが、気に入った順番を教えてください。

(1が一番気に入ったにしてください)

クラス全体 1 2 3

個人 1 2 3

チーム 1 2 3

9. 8でつけた順番の理由を教えてください。

10. 次回のクラスで使用するとしたら、どれを選びますか。

Kahoot

Quizizz

Quizlet Live

11. 来学期も同じゲームをしたいですか。

はい

いいえ

12. 11の理由を教えてください。

13. 他の科目で似たようなオンラインゲームのクイズをしたことがありますか。

はい

いいえ

14. 13で「はい」を選んだ場合、どの科目か、どのゲームをしたかを教えてください。