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Gamifying Vocabulary Study during COVID-19: The Challenges of Implementing a Gamified Program in the Online EAP Context

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Abstract. This qualitative case study responds to a significant gap in the literature in the area of gamification for vocabulary study among international students in higher education. It aims to respond to a call for a more in-depth qualitative analysis of gamification techniques on student learning experiences in comparison to the more commonplace quantitative studies (Chiang, 2020; Koivisto & Hamari, 2019). Additionally, the study focuses on the computer-supported learning context during the COVID-19 pandemic and its potential influences on student engagement with gamified language study. Utilizing the Quizlet (Quizlet, 2022) platform for vocabulary study and Blackboard for collecting digital badges based on vocabulary practice, this study explores the gamification of vocabulary review activities and student experiences and engagement with the program. As a qualitative case study, student activity data from Quizlet was collected as well as qualitative data in the form of individual interviews. Findings show significant challenges to implementing this gamified study program. This paper focuses on online learning fatigue, poor perceptions of class cohesiveness, and difficulties with teambuilding. These findings have implications for how instructors can better support gamification in their language classrooms as well as expanding research into the social and contextual aspects of gamification of the language classroom.

Keywords: *Gamification, Vocabulary, Digital Badges, English for Academic Purposes, Motivation, Engagement, Self-Determination Theory, Computer-supported Collaborative Learning, COVID-19*

Background and Literature Review

While EAP programs typically target all four major skills of language in addition to the specific grammatical and rhetorical styles needed by students, building academic and discipline-specific vocabulary knowledge is a particularly fundamental aspect of being successful in a profession or a field of study. Dang et al. (2017) defined academic vocabulary as having "high frequency, wide range, and even distribution in academic texts but infrequent in other genres" (p. 963). Otto (2021) found that, in highly technical fields such as civil engineering, specialized vocabulary can sometimes make up 30% of portions of texts. While these specialized vocabulary families may not appear with equal regularity, the task of learning these word families is monumental, with Coxhead and Demecheleer (2018) writing, "Anything that can help learners lessen the burden of specialized vocabulary learning is therefore a bonus" (p. 104).

The successful inclusion of vocabulary in EAP courses can be immensely challenging for instructors. Using online language review programs has become a popular way to develop and maintain skills without extensive setup and effort, with a variety of applications available at differing levels of complexity and organization (Chien, 2015; Dizon, 2016). On a more basic level, flashcard review programs, such as Quizlet (Quizlet, 2022), allow users to create digital flashcards with their own custom content and even additional media resources such as sounds and images.

Online and self-directed learning options became even more critical in the context of the COVID-19 pandemic, which moved education of all kinds out of the physical classroom space early in 2020 and required rapid responsiveness from educators (Núñez-Canal et al., 2022) and flexibility from students (Aguilera-Hermida, 2020). Long before COVID-19, efforts were made to create frameworks for online learning theory supported by technology (Kirschner &

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Erkens, 2013; Kreijns et al., 2013). These frameworks recognized that supporting learner engagement online involves challenges that cannot be solved just by translating in-person practices to the online space or simply grouping students together in order to spur collaboration.

Within the past decade, there has been an effort to organize a framework of this online collaboration under the more widespread term *computer-supported collaborative learning* (CSCL) (Kirschner & Erkens, 2013). In this framework, Kirschner and Erkens (2013) theorized that CSCL environments are shaped by the level of learning, unit of learning, and the pedagogical measures chosen by the instructor.

Narrowing their view within this framework, Kreijns et al. (2013) focused on the social collaborative nature of CSCL learning environments. Like Kirschner and Erkens (2013), Kreijns et al. (2013) found that attempts to build collaborative social behavior in the CSCL environment had not resulted in the kind of success as hoped by many. Simply putting learners into groups was not resulting in robust collaboration. Kreijns et al. (2013) concluded that for collaboration and teamwork to be successful, support for *sociability*, *social presence* and the creation of a *sound social space* need to be supported through opportunities for social interaction. In this model, sociability is the ability for the CSCL environment to facilitate social interactions and relationship development between group members. Social presence is the technical ability of the environment to allow group members to seem real to each other, as well as instructors' actions that allow students to get impressions of each other as individuals. Finally, the creation of a sound social space is one which has "strong relationships, group cohesiveness, trust and respect, feelings of belonging, satisfaction, and a sense of community" (Kreijns et al., 2013, p. 234). Motivation and engagement in higher education has also become an area of increased study (Astin, 1984; Finn & Zimmer, 2012; Reschly & Christenson, 2012; Skinner & Pitzer, 2012). As COVID-19 forced learning to become remote, students "checked out" of technology-mediated learning due to online learning fatigue (Bailenson, 2021; Gordon, 2020; Hartshorn & McMurry, 2020). One approach to enhancing engagement with online platforms of all kinds is the use of gamification. In short, gamification is "the use of game design elements in non-game contexts," like leaderboards, badges and levels added to non-game activities in order to enhance enjoyment of, or engagement in, the activity. Gamification's benefits have been well studied in the field of higher education (Bovermann et al., 2018; Dichev & Dicheva, 2017; Dicheva et al., 2019). In the field of language learning, however, research into gamification has been less common.

There is a wide variety of psychological models that are referenced to understand motivation in gamification, but a common theory being utilized in gamification research recently (e.g., Bovermann et al., 2018; Hamari & Koivisto, 2015; Sailer et al., 2017; Seaborn & Fels, 2015) is Self-determination Theory (Deci & Ryan, 2000; Ryan & Deci, 2000) and its view of motivation as a need for competence, autonomy and relatedness. Ryan et al. (2006) found that autonomy is supported, and motivation is enhanced when players feel that they are free to pursue goals without feeling excessively restricted by outside forces as well as when "rewards are structured so as to provide feedback rather than to control the player's behavior" (p. 3). Competence, the feature that Ryan et al. (2006) found most impactful in game environments, involves being optimally challenged during an activity as well as receiving feedback that develops a sense of achievement and the sense that they have the capability to complete the task at hand. Finally, the concept of relatedness in games is based on interactions with others (including non-player characters) and often direct comparisons of skills or positions to others, an activity that dovetails with feelings of competence in relation to others. While autonomy and competence are regularly present features in games, relatedness is more variable dependent on the format of the game or gamification being experienced (Ryan et al., 2006).

While the dissertation that preceded this article (Johnson, 2022) had a number of findings, this article focuses on specific challenges to implementing a gamified study program. The challenges are online learning fatigue, perceptions of poor class cohesiveness, and difficulties with team building. This study was conducted during the Covid-19 pandemic and the findings should be interpreted within this context.

Methodology

This qualitative case study took place within EAP courses at the English Language Institute (ELI) at a Midwestern University. The ELI houses the Intensive English Program (IEP) and offers a fairly traditional model of EAP programming in the US higher education context. The IEP was organized into 5 levels based on English proficiency, and there were 111 students spread over the 9 IEP sections where the Quizlet and digital badge program was implemented. Of

these, 11 students (representing 9.9% of the total students enrolled) agreed to participate in interviews about their experiences during the semester in which data was collected. The participants span a range of ages (18-42) and student status (beginning undergraduates to Ph.D. Students), and the countries of origin and first languages are fairly representative of the IEP's typical student demographic. First languages included Chinese, Arabic, Vietnamese, Russian, Czech, and Burmese.

The badges for the study were based on the findings of McDaniel and Fanfarelli (2016), who argued that good badge design must consider the behaviors that the designer wishes to reinforce via the incentives of the badges as well as the type of psychology likely to be experienced by the users. In the case of this study, the goal was to promote repeated engagement with the vocabulary chosen by participants over time, a necessary condition to building vocabulary knowledge (Ma, 2009; Nation, 2001). This included the learner making form- meaning connections (Laufer & Goldstein, 2004) through the creation of word sets and practice with flashcards as well as receiving repeated exposure and feedback via formative self- assessment practices like the Quizlet test function (Duque Micán & Cuesta Medina, 2015; Karpicke & Roediger III, 2007). This application of digital badges represented a "goal-setting" function (McDaniel & Fanfarelli, 2016) that intended to reinforce desired behavior by aligning the completion requirements for badges with those behaviors. For more information on designing digital badges and the badges used in this study, see McDaniel & Fanfarelli (2016) and Johnson (2022), respectively.

In Quizlet, participant interactions with the program, the frequency of their review sessions over time, the number/type of digital badges attained, and student performance in self-testing were monitored. Based on these activities, digital badges were awarded through Blackboard Achievements and recorded on a shared, view-only "medal count" Google Docs spreadsheet unique to each class section. This data collection allowed for an overall picture of user behavior, and the shared Google Docs spreadsheet more easily allowed users to see the badges earned by others. Additionally, participants were assigned to teams of 3-4 students, and the combined totals of their medals were recorded. This resulted in a hybrid individual/team competition game structure. Updates on medal counts were provided to each class regularly.

Challenges

The context of the study was challenging for both instructors and students as remote teaching and learning during the pandemic dragged on. Gamification has been seen as a way to spur and support learner motivation, but the broader realities of this case study put these views to the test. The overall interpretation of the findings is that the gamification of the Quizlet program was not found to be engaging in the COVID-19, CSCL context. While participation rates in optional gamified activities are difficult to find in the existing literature, de-Marcos et al. (2014) recorded a substantial engagement rate of roughly 20%. Of the 111 potential student participants in this study, only 3 engaged with Quizlet to a meaningful degree (2.7%), demonstrating a substantial amount of amotivation across the IEP sections in terms of interest and participation (Ryan & Deci, 2000). Some potential reasons for this lack of participation are explored below.

Technology and Online Learning Fatigue

Notably, all of the students interviewed expressed a desire to return to in-person instruction. For some of the students, the use of the technology platforms for the online semester was seen as lacking the engagement and interaction that they had hoped for in terms of language development. One student, Liang, was looking forward to an in-person semester without the technology:

> When the pandemic is over, we come into the class, I mean the offline class, and yeah we're coming to the class and we don't use this technology. So I think we are not interested in this technology [laughs]. Yeah, we don't want to use it because by this technology we don't need to talk a lot, so it won't help us a lot with our listening and speaking (Liang, student interview, 10/11/21).

Not all views on the use of technology were negative, however. For Josef, another student, the extended use of classroom technology had actually made him feel more comfortable with it, to the point that he wanted to use it as a standard tool:

> With the technology…for me it was about confidence. I just feel much more confident to use it. Much more confident to actually go in front of the camera. Like a year ago, when we were not using Zoom, like I would be so afraid to use it, even to just talk to people. Okay, but now, I feel good every class that it's actually nice… So, actually, in this way it just becomes standard. Regular. A standard useful tool that doesn't get bored [sic] at all (Josef, student interview, 10/20/21).

While Josef preferred in-person meetings for typical class sessions, he saw the potential for continued use of online platforms in certain situations. Additionally for Josef, who described himself as an introverted person, the online format made him feel less anxious about speaking with others, a phenomenon found in other comparative research into language learners communicating in online and face-to-face spaces (Rodrigues & Vethamani, 2015; Yaniafari & Rihardini, 2021).

Multiple instructors echoed student desires to return to in-person instruction. Instructors Lauren and Stephanie additionally believed that that the Quizlet program would have been better received by the students in a less technology-heavy, in-person environment as shown in Lauren's comment:

> So until we go back face to face, the students are inundated with tech. So, I think if it were a face-to-face class and you went in and said "hey, I've got this tech tool to help you with vocabulary, have you used Quizlet? Well, great! You can practice your vocab." And I think they would be like "cool! I'll get on my phone, [dah dah dah]." But because they have, like, Teams, Blackboard, now they're going to switch to Canvas…One thing we've been talking about at the IEP is "how do we lower their tech burden?" (Lauren, instructor interview, 8/2/21)

Working also in the higher-education EAP setting, Hartshorn and McMurry (2020) and Oliveira et al. (2021) found mixed reactions to the use of online learning. For instructors, the additional use of technology was seen as more helpful for instruction than was perceived by the learners. For students, the online medium of instruction was overwhelmingly seen as a hindrance to their language learning efforts. Largely due to a combination of frustration with the technology used for instruction and the social isolation due to COVID-19 lockdowns and travel restrictions, students perceived that they were getting significantly less time and exposure to others to practice their English skills in a communicative capacity (Hartshorn & McMurry, 2020).

Perceptions of Class Community and Cohesiveness

Nearly all of the students interviewed reported that the online nature of the IEP courses they attended negatively affected their ability to get to know their classmates and develop the types of relationships that were typical for them in an in-person English class. Many of the students, like Lien, reported having only surface-level interactions with their fellow students:

> Yeah, with the others, I just know, because sometimes we in the group, so we just know, we know the name of each other. Not really clearly. Usually because we have to do our work, so not really…It is more difficult for me like because I am the outgoing person, so I want to make friends directly. I want to go shopping with them or talk directly or chat with them at that time, at the same time, not via Facebook or messenger. Some problem I can ask them in my class, but I need to chat on the message, but it does not keep the relationship like between all students. Between us (Lien, student interview, 10/29/21).

The differences seen by Lien have been shown to be common to other remote learning environments during the COVID-19 pandemic. To different degrees, online learning has been seen as lacking the depth, interactivity, and spontaneity of in-person interactions (Gordon, 2020; Kostaki, 2021; Nadler, 2020). Despite collaborating on work during and outside of class time, the depth of sociability and interaction between the students rarely extended beyond class tasks as required to build a sound social space (Kreijns et al., 2013). The instructors felt similarly despite their efforts to create a sense of community in their classrooms under extraordinary circumstances.

Instructor Nicholas echoed Student Lien's perceptions about the lack of developing complex relationships over the course of the semester. For Nicholas, reflecting on his pedagogical choices allowed him to see how implementing group activities affected the class community:

> I kind of imposed community, and it was done strategically. So if I know that two students speak the same language, and they're both equally strong, or equally weak or whatever, I'm not going to likely put those two together in the same group. So, then I'd change, so "you've been with this group, and now you're going to be with this group." So the changing introduces, keeps the community shallow rather than keeping a deeper bond. It keeps it more shallow. I never thought about it like that before until I just said that, but it does keep it more shallow. But it also keeps English being spoken in the classroom… So, I did that a couple of times and I think that helped. But in general, there's not cohesion that we would get when they're physically in class for 4 hours a week, 8 hours a week (Nicholas, instructor interview, 11/3/21).

As realized in the moment by Nicholas, the desire to create community was challenged by the pedagogical goals of the course. The desire to create community was reported by the other instructors as well, but as Kreijns et al. (2013) argued, it is often the case that instructor attempts to impose community or group learners together are made to address cognitive, on-task pedagogical goals rather than to develop a community social space.

Building Teams

Part of the gamification of the Quizlet program revolved around competing via a shared leaderboard of medals for the students both as individuals and as members of a team. Given the difficulties posed to developing relationships and communication as previously outlined, the process of forming teams was also impacted. For some of the highest-performing members of the study, teamwork with others was not identified as being particularly motivating, so little effort was put into organizing with others. When asked about joining a team instead of participating individually, Student Anna replied, "Yeah, good question. I get it. So, I don't know exactly. [laughs] It's a good question. Hmmm... Because it depends on the people. Someone likes to work together with a team, but some people, like… Some people like just individual program [sic]. For example, for me, I liked exactly this program" (Anna, student interview, 8/20/21). Anna, who had competed only as an individual, preferred that for herself.

When originally discussing her perceived complexity of earning some of the medals, Student Thiri thought that the most difficult aspect of the process might actually be the teamwork component, stating, "working with the team might be difficult, I think." Later in the interview, Thiri expanded on this difficulty:

> Thiri: I don't know how to communicate with my team. So there should be a kind of channel so that we can motivate each other to go on Quizlet, but currently after IEP classes we have no communication in proper channels, so…
> Peter: Right, right… Because you're on the zoom or video call, right? So when class is finished it's finished [makes cut-off motion with hand].
> Thiri: Yes, exactly. (Thiri, student interview, 10/13/21)

For Thiri, the lack of what she perceived as a "proper" channel of communication after class time was a limitation of the online format as well. As Kreijns et al. (2013) theorized, instructional design in online learning environments often fails to accommodate anything outside of on-task interaction, limiting the scope for collaboration on anything else, as described by multiple students.

Instructors also recognized the difficulty in encouraging students to join teams and compete. In the summer, Instructors Stephanie and Lauren had been optimistic about the ability of teams to drive participation in the students. As Lauren remarked, "we have students that are just highly competitive, so if you can get into that, like, "hey we're going to be on teams." So, I'm going to split the class and we have two teams and we'll see the team has the most, like you're working alone, but you're also working as a team. I think if they can work together you'd see more buy-in, too" (Lauren, instructor interview, 8/2/21). Toward the end of the Fall semester, Lauren and Stephanie were disappointed to

see that so few students had competed, with Lauren remarking, "I personally thought the team part would work, but I was wrong about that, too!" (Lauren, instructor interview, 11/5/21). For both of them, many of their expectations for student participation had to be scaled back for the Fall semester as it became clear to them that students were becoming overwhelmed with the online learning.

For Instructor Charlotte, the primary factor that prevented team formation was the size of her class. Having experience with smaller class sizes, the large class size impeded the natural grouping of students she was used to:

> So I think, had the class been actually split the way it was originally intended, I think we would have been able to see this. Little groups of community forming. But with 16 of them it just didn't work…I tried to divide them based on how I thought they would work well together as well, and they have done group things before, but they're not motivated to work together like this. And sometimes classes are like that, but I really do feel like the bigger the class, the less collaborative they become (Charlotte, instructor interview, 11/11/21).

Ultimately, despite instructor hopes that the team aspect of gamification would motivate some of the learners in their classroom, students made very limited efforts to find teammates over the course of the semester, instead displaying widespread amotivation across all IEP sections (Ryan & Deci, 2000).

Discussion

While the technology used to mediate online instruction may have had some generally negative effects on student engagement with the gamified Quizlet activity, the most significant finding regarding the context in relation to the gamification process were perceptions of the new social environment caused by Covid-19. Using a CSCL social framework (Kreijns et al., 2013) for analysis, the data from the students and instructors indicate significant issues with creating an environment conducive to social interaction. With limited abilities to socialize, be present in the classroom, and create a social space, collaborative work and team-based learning activities may suffer.

According to Kreijns et al. (2013), "… the *sociability* of a CSCL environment is its potential to encourage socioemotional interaction. The tangible (i.e., the physical and technological) elements that determine the sociability of the CSCL environment do not by themselves influence the quality, content, and intensity of the socioemotional interaction, but these elements can be designed in such a way that it becomes more likely that they can exert that influence" (p. 231). One of the major hurdles to sociability cited by students, instructors and the IEP administrator was the lack of class time due to the scheduling challenges brought on by the COVID-19 pandemic and the need to teach synchronously to students in locations around the globe. This restriction, in turn, led to significantly fewer opportunities for students to do anything beyond on-task activities during this class time together.

As Kreijns et al. (2013) propose, on-task collaboration does not necessarily lead to social interaction or the development of the social relationships that are needed to underpin teamwork in the classroom. Kirschner and Erkens (2013) state that it is easy for instructors to assume that simply putting students together in groups would help build student social relations. All of the instructors interviewed mentioned building group work time into their synchronous courses whenever possible, but, as sensed by Instructor Nicholas, these strictly on-task efforts largely developed only shallow relationships. As he said, he "kept the community shallow rather than keeping a deeper bond…But it also keeps English being spoken in the classroom" (Nicholas, instructor interview, 11/3/21). In this example, the pedagogical need to keep students focused on cognitive, on-task activities applied restrictions on off-task, relational activities. This perception was confirmed by numerous students. As Lien mentioned, "… I just know, because sometimes we [sic] in the group, so we just know, we know the name of each other. Not really clearly. Usually because we have to do our work, so not really" (Lien, student interview, 10/29/21). Her statement was echoed by numerous other students who felt that the classroom time was too limited or too "precious" (Ben, student interview, 10/15/21) to spend on anything beyond the learning objectives for the course. This reality of time limitations therefore likely compromised the ability for instructors in the IEP to provide for socialization (Kreijns et al., 2013) for the students.

Another factor influencing the social interaction in the CSCL space is the perception of the *social presence* of others in the learning environment. A presence in the classroom is mediated by the class environment, and "the degree of

social presence is influenced both by sociability and by the techniques used by teachers to allow the CSCL members to get to know each other and to form individual impressions of each other" (Kreijns et al., 2013, p. 235). Students did not feel that the presence of each other on Zoom was as satisfying to their language needs and social needs as they would have wanted. Many students reported instances of peers refusing to turn cameras on, keeping themselves on mute, or otherwise openly showing distraction in the online context. This seems to undermine the concept of "realness" that is a component of being *present* in a social space, an antecedent to social interaction between learners (Kreijns et al., 2013).

Finally, as Kreijns et al. (2013) explain, feeling like you are talking with a real person supports interaction, which in turn maintains what they term a *sound social space* for learning. They write, "A performing group requires that the social space is sound. This is the case when the group structures manifest themselves by strong relationships, group cohesiveness, trust and respect, feelings of belonging, satisfaction, and a sense of community" (p. 234). In the language learning environment, the importance of building a supportive classroom to overcome speakers' affective filters has long been an area of study (Krashen, 1986). However, due to limitations of the technology as well as curricular changes due to the COVID-19 pandemic, the CSCL context appears to have fostered limited feelings of community within nearly all of the students. As Student Liang expressed of his opportunities to get to know others, "I think we have [them], but we don't want to. [laughs] We don't want to share. You know, the teacher is there, so we think he or she will talk, and we don't need to. And there are not so many discussions, so I think we don't need to, so we don't want to" (Liang, student interview, 10/11/21).

Suggestions and Conclusion

The findings of this study can offer a number of suggestions for instructors hoping to implement gamified vocabulary practice in an online learning environment. While the context for this study was especially unique due to the larger COVID-19 pandemic and its effects on teaching and learning, there are still findings that can inform online and in-person instruction in the post-pandemic environment.

The intentional design of a sound social space (Kreijns et al., 2013) for relationship building within a classroom is critical to support students who instructors wish to work collaboratively, whether that work is on required course material or gamified language practice exercises. There are numerous intentional design choices that could support such a space. For example, instructors could hand over hosting of synchronous virtual classes to students who wish to socialize or meet with group members after the official class time has expired rather than closing meeting rooms. This practice, advocated by Bannink and Van Dam (2021), creates a "teacher-free zone" for student socialization.

Also, using a more unified platform of synchronous video, chat channels, links and files provided by Microsoft Teams may provide additional channels of communication between students and allow the instructor to host gamified programs in a more central location. Having students share flashcards openly may also be seen as intimidating by students if the social space is not perceived as being supportive enough to share this kind of information. Instructors may wish to give students options to not share their resources with the class, even though that may prevent some of the collaborative nature of the team activity and make monitoring participation more difficult for the instructor (for example, being unable to see the test performance of such students on Quizlet).

Based on the interpretations of the findings in this study, the context of the learning environment can play a critical role in engagement with certain types of gamification elements. However, as Koivisto and Hamari (2019) explain, more research into perceptions of gamification that goes beyond the individual experience and explores the more social and contextual elements of gamification is needed.

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