

Examining Effects of Gamification on Reading Progress and Interest in ESL Learners

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As technology becomes more and more prevalent in society, schools have begun to integrate it for use in learning. One way to utilize this resource is gamification, which I hope to use to create an engaging reading program for ESL students. In this review, I will look at who influences the integration of technologies in schools, what gamification is, and the effects gamification can have on increasing both reading skills and engagement with reading materials.

Articles assessed in this review were found in academic journals. Several factors were assessed in determining relevance: recency, sample size, and sufficient relationship to reading, ESL reading, technology integration in schools, or gamification. Most articles are from within the past 5 years, exceptions are deemed to still be relevant or have a disclaimer with them. Almost all of the studies discussed sample sizes when giving numerical figures, and some even gave ratios of male to female participants. Some research was interested in finding statistically significant correlations using tail tests, and others used combinations of quantitative and qualitative data and analysis. While some of the qualitative data may not be as objective as the quantitative data, I believe it gives important insight into the studies conducted.

Roles in the Success of Technology Integration

When it comes to integrating technology into the classroom, there is no end to the resources that can be found for any given topic. And although technology is generally looked upon as a way to enhance learning outcomes, there are several factors that may affect or limit its effectiveness in the classroom. If teachers are not taught how to effectively use the technology they are attempting to integrate, there may be little evidence that it will have a positive impact on its own. Blair & Godsall (2006) compare ill-conceived tech integrations to

putting violins in the classroom and expecting all students to automatically get better at playing them. However, they go on to highlight that with proper training, teachers can individualize learning for students and learners can take more responsibility for their own education; this means that the teacher's role can shift from instructor to facilitator. This highlights the need for ongoing professional development for teachers who hope to use technology effectively.

Another role which affects the successful implementation of technology is that of school leadership. Waxman et al. (2013) found that school principals play an important role in determining the integrations that a school makes, and that they had varying ideas about the use of technology in the school, with only 9.7% saying that student learning was a major factor in the function of technology. This article came out in 2013, so it stands to reason that perceptions may have gone up in the last 9 years. However, at the time, student learning was the lowest of all the factors, with the highest being communication (34.5%). While the percentage may have gone up over the years, we may very well find that the percentages for all these factors have gone up at relatively the same rate and that student learning is still perceived to be a major function of technology by the lowest percentage of school principals. Regardless, school leaders have a direct influence over whether or not technology plays an integral role in their school; they may make decisions about purchasing, PD, and policies on technology use. Getting principals to see the value of technology is an important first step in its effectual use, and training teachers to use it well comes next.

Gamification of Learning

The concept behind gamification of learning is that it uses game elements to encourage engagement and mastery. It can allow teachers to help focus students' attention on subject

matter (Gilbert et al., 2021). One goal may be to increase engagement with material that is otherwise of low interest to students. Game elements such as points and competition may serve as a way to get students more actively engaged with the material and motivated to complete tasks.

However, as the concepts of gamification in education have continued to evolve, some educators seem to be shifting away from the extrinsic motivations of gaming such as points, levels, and badges towards encouraging enjoyment of play to make impacts more meaningful (Ling, 2018). This will allow the initial effects, such as engagement with material, to have a longer lasting impact once the novelty wears off.

Another important aspect of gamification in learning is that it frames mistakes and failures as an essential part of the learning process, therefore developing resilience (Ling, 2018). Ling goes on to explain that, “The potential that gamification has for raising students’ intrinsic motivation appears to be high. Overall, with the meaningful gamification approach, external rewards are de-emphasized, and intrinsic motivation is prioritized, with the condition of competence being most prominent” (p. 143). If designers can minimize the use of points and maximize the enjoyment of play, they can make the gamified program meaningful to the user and encourage long term motivation (Martens, 2014). When designing the ESL reading project, I will keep this in mind and attempt to use intrinsic motivating factors.

Effects of Gamification on Reading for ESL Students

Gamification in reading may sound like a new concept, but Martens argues that, “Connecting children’s reading experience to play is not a new concept, and there are many examples of game elements in print books, such as in Edward Packard’s Choose Your Own

Adventure series published in the 1980s and 1990s. Movable books, including pop-ups, are hybrid formats that elegantly fuse educational elements with play” (p. 21). This explains gamification as a sort of next step in the evolution of trying to entice reluctant readers.

However, one problem with researching the effects of gamified learning on reading is that there are numerous factors that can affect the outcomes among students. If there is no significant change in reading progress upon study of a group, is it because gamification has failed or because the program that was used has failed or been designed poorly? There is also an argument to be made that gamification in reading is not only meant to increase reading scores, but to increase motivation to read, which will hopefully lead to greater comprehension and long-term engagement with reading.

Effects on Reading Scores

Gilabert et al. (2021) tested a reading program aimed at increasing word accuracy (WA), non-word accuracy (NWA), and words per minute (WPM). They hypothesized that overall number of games played would have a correlation to gains in all of those areas. And while their results indicated that there was an overall increase in accuracy and fluency (WA and WPM), they did not find a statistically significant relationship between higher use and increased gains in the three target areas. This shows that while the game itself was able to increase certain reading skills, the idea that exposure will lead to higher gains seems to be refuted.

Conversely, a study done on students in Hong Kong seemed to show that users who showed greater engagement with a program called Reading Battle (RB) also had better outcomes in their test scores than their counterparts who used the program sparingly (Li & Chu, 2021). The study aimed to find out if the gamified reading program was effective in raising

students reading scores and examine whether the effects were long term. The program offered students the ability to take comprehension tests on books they had read, gain points, and compete against friends. The program offers tests on both English and Chinese books.

Li and Chu split students into two groups: A – low use and B – high use. According to their research, the change in reading scores of English books was significantly different, “meaning that Group B students made more improvement in English reading in the experimental semester than Group A students. Although the findings suggested that the change of Chinese reading scores in Group B was higher than that in Group A, the difference was not statistically significant” (p.167). Opposite to Gilabert et al.’s study, this would indicate that exposure does lead to greater gains in reading skills. Regardless, both studies showed a general increase in student learning when using gamification.

One further study done in a university in Singapore used gamification to scaffold reading materials for a film course. Students were from various countries, but all had native or near native English levels. While the project’s aim was to increase motivation and engagement, anecdotal evidence collected from students showed that, “Many also found that their understanding of the reading improved after playing the game, particularly in clearing up misconceptions that they had” (Ling, 2018, p. 150). While there is no numerical data to show how much students’ comprehension improved, it seems to align with the other studies to show that gamification can lead to increased reading accuracy and comprehension.

Effects on Motivation

Gamification is not only about increasing scores. Arguably, the goal of gamification is to increase engagement with materials more than anything. The research from Li and Chu (2021)

spanned 5 years and looked student motivation as well as long term effects of the program on students' reading. In a questionnaire, students, parents, and teachers ranked the motivating factors of the program. They found that there were several motivating factors, both extrinsic and intrinsic that motivated students. The highest motivating factor amongst students was the leaderboard and rankings (an extrinsic motivation), but the second was a sense of achievement (an intrinsic motivation).

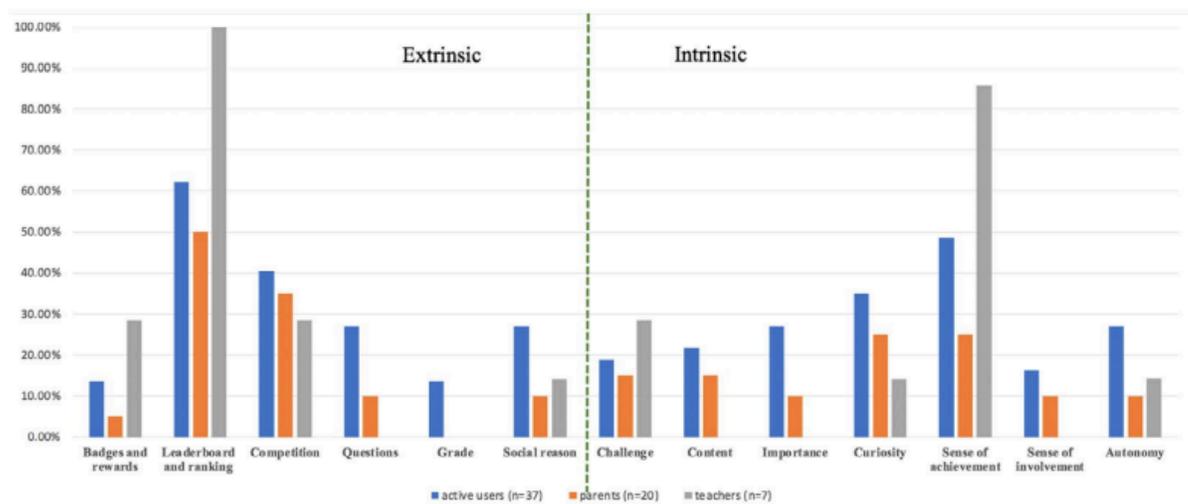


Figure 3: Coding results of students' motivation of their active participation in RB in Study 2 [Colour figure can be viewed at wileyonlinelibrary.com]

The figure above (p. 170) clearly shows that there were many motivating factors which contributed to students' active participation with the program. The chart only shows the results of group B, the high use group, as the low use group didn't perceive the program to have had an effect on their reading, which may indicate that motivation and engagement may be linked to frequency of use whether or not academic improvement is.

In the long run, student use of the program inevitably dropped off. However, when surveyed after an extended period of time, high use students said that the program had

changed their intrinsic motivation for reading even after they stopped using the program. “This means that students had positive or inspiring feelings of reading after using RB. Seven active participants (17.95%) mentioned that they first played RB for ranking and rewards, but later on they enjoyed reading books simply for pleasure. Before using RB, they regarded reading as homework; however, now they found RB helpful as it provided knowledge and pleasure. They also recognized the importance of reading, even though they did not use RB anymore” (Li & Chu, 2021, p. 170).

Similar feelings were shared by the respondents in Ling’s study. Students reported experiencing higher than average levels of enjoyment of the readings and perceived higher levels of choice and autonomy even though the reading was given as an assignment (2018). According to Ling, “The most dramatic indication was that of the low pressure/tension that students felt in the gamification experience” (p. 149). This illustrates that gamified reading can contribute to higher levels of engagement while lowering levels of stress amongst students.

Conclusions

In this project, I hope to create a resource which allows students to take control of their own learning and become responsible for their reading progress. I hope to both increase reading levels and increase motivation and engagement. Massler et al. (2020) explains that reading incompetence can hinder students in all areas of their education and bleed into their professional life. This is particularly true of our students who are learning in a bilingual environment and need to use reading in English, their second language, as a tool to access other classes and aspects of the curriculum.

This review has shown that gamification, when designed and implemented properly, can have a positive effect on both academics and engagement. Hopefully, this project can utilize the lessons from these past studies to design an effective learning solution for students.

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