Students' perception toward gamification applied in English language classroom

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Abstract

This study aims to find out the students' perception toward gamification applied in English language classroom. Gamification emerged as an innovation in classroom teaching. The basic concept is to incorporate game elements into teaching, taking advantage of students' interest in games that can be used for the purposes of the teaching process. This study is conducted since there is still limited research that analyses the students' perception toward the gamification utilization. This research used qualitative methods as a way to present research results from data collected. Data from this study were collected using two methods, namely online questionnaires, and interviews. This research shared questionnaires to 30 students. The questionnaire was a Likert-style close-ended question. From the research conducted, it was found that the majority of students' perceptions of gamification used in English classes was positive. The students believed that gamification was effective and fun to bring to classroom learning. This teaching method allows students to engage more in-class activities, reduces boredom because it creates a learning atmosphere, and increases learning motivation without disturbing the understanding of the material obtained by students.

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INTRODUCTION
Gamification appears as an innovation in Language Teaching. The basic concept is to insert game elements into teaching, different from game-based learning, where students learn directly from the game. This technique is believed to increase students’ motivation and engagement in the lesson. Platforms like Kahoot, Duolingo, and Quizizz are examples commonly used for gamification. Students were introduced to game elements such as points, badges, leaderboards, and incentives (Werbach & Hunter, 2012).

The reward is often not directly related to the goal achieved. However, it serves as notice to the player and others that a level of competence has been achieved. Progress tracking is often enabled and guided by reward systems; a sequence of intermediate goals maps out progress towards an overall objective. What distinguishes gamification most distinctly from traditional approaches is the explicit use of competition as a motivational tool. This competitive element is a source of motivation (Nicholson, 2012). In some applications of this technique, students can see the progress of themselves and their friends directly. Transparency in progress should be able to arouse students’ motivation to be the best among their rivals.

The application of gamification in classroom learning is becoming increasingly important as learners no longer seem to be as engaged with traditional teaching approaches as they once were. Several studies have found game-based learning to be more interesting for learners (Malamed, 2012). The gamification of learning has also helped students develop problem-solving and higher-order thinking skills (Malamed, 2012). Therefore, gamification needs to be considered to be applied in the classroom in the teaching process because the benefits obtained from gamification are quite beneficial.

Students’ willingness to learn English in Indonesia is still far from what is expected due to the lack of motivation. However, they are instructed to read at school; this habit does not permeate into students' routines at their homes (Iftanti, 2012). Therefore, the teacher’s role is to raise students' interest in learning a subject, which is vital. Technology supports the teaching process with ICT utilization. (Priyatmojo & Areni, 2017) say that, in the current digital age, technology is essential for learning English because, with technology, there are many benefits that students may receive, including 1) promoting the learning process; 2) making it more straightforward for students to access information; 3) the pressure of learning materials (paperless); 4) the technology literacy; 5) forming independent learners (independent learning); 6), etc.

This topic was chosen because of emerging trends in the development of education worldwide. Therefore, research is needed to support the occurring rapid technological advancement. The research question in this research is to find out students’ perceptions about the gamification used in English class, which later can be used as a reference in making decisions in the process of preparing class materials and activities.

This research refers to the five article titles that are used as the basis for the study. The first study was conducted by Cheong et al. in 2014 entitled ‘Towards the Gamification of Learning: Investigating Student Perceptions of Game Elements.’ What can be seen from Cheong’s et al. study results are that research subjects agreed that gamification would add to their interest in the learning process. I want to prove whether it happens in international schools that have often used IT-integrated teaching methods. A study by Banfield & Wilkerson in 2014 entitled "Increasing Student Intrinsic Motivation And Self-Efficacy Through Gamification Pedagogy" aimed at assessing gamification as a method of experimental learning theory. Ibanez et al. (2014) had a study entitled “Gamification for engaging computer science students in learning activities: A case study.” It was appealed that there is a positive effect on students' engagement toward gamification learning activities and a moderate improvement in learning outcomes. In 2018, Bicen & Kocakoyun conducted a study entitled "Student Perceptions for the Gamification Approach: Kahoot as a Case Study. This method was also found to have a positive impact on student motivation. The last reference was taken from research in 2017; Buckley & Doyle conducted a study entitled "Game On! Student Perceptions about Gamified Learning". This study explores students' perceptions of gamified learning interventions used in large undergraduate modules and small postgraduate modules. The perception of undergraduate students tends to be positive when viewed from FGD data. While postgraduate students are the opposite, they are more questioning and less crediting gamification.

The definition of Game by Salen (2004, p. 81) defines "a system in which players engage in an artificial conflict defined by rules that result in a quantifiable outcome." Aside from that, according to Kim in 2012, games provoke robust emotional responses, such as curiosity, frustration, and joy. From
the definition mentioned, it can be said that the elements in the game can stimulate the player and indirectly provide simulation and input to the brain.

According to Kapp, the definition of gamification is integration by "using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2012, p. 10). It applies characteristics associated with video games, such as game mechanics and game dynamics, to non-game applications (Simões et al., 2013). It was explained that gamification is a combination of material delivered by a teacher or lecturer combined with game mechanics. The other distinguishing characteristic is the explicit use of competition as a motivational tool (Nicholson, 2012). Competition may be generated at an individual level through progress tracking, whereby movement towards an overall objective is mapped by a sequence of intermediate goals to be achieved. It may also be social, with individuals competing against each other to achieve the highest score. According to Deterding et al. (2011), the competition is often operationalized in a leader board, which ranks first to last in performance. This is one of the instant feedback examples that students can receive; in gamification, students can see how their grades or progress in the quiz is running. Although only using elements taken from the game, Deterding (2012) says that gamification is well-known for motivating and engaging players for lengthy periods. In the era called Education 4.0 or 21st Century Education, gamification has the potential to be the answer to the challenges of education in this era.

In order to achieve this, we also need to consider students' perceptions. Every person has his perception of something. McDonald (2011) said that differences in perception lead to miscommunication and suboptimal results. Montague (1997) said that students' perception is what the students feel about a particular thing. Therefore, to understand student perceptions, I focused on student perceptions of students' feelings about their learning experiences. Chen & Hoshower (2003) stated that students' perception is essential for considering the success of the strategy of learning. Based on these considerations, the researcher agreed that students' perception is the main aspect of the learning process, not only for evaluation but also for increasing understanding.

In applying a method, feedback from participants is needed to evaluate how the method is implemented. In this case, the students' perceptions of gamification applied in the English class. Chen & Hoshower (2003) also stated that students' perception is vital for considering the success rate of a strategy. The students' perception helps the teacher see something or decide something from the point of view of students. Furthermore, the perception is taken what matters can be improved or what is too high; in other words, adjusted so that the gamification method's application can be optimal.

**METHODS**

This study used the descriptive qualitative method. Cresswell (2014, p. 4) stated, "Qualitative Research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem." The role of the researcher in this research is a data collector and a data analyst. As a data collector, the researcher collected the students' perceptions through two methods, which are questionnaires and recorded interviews. As a data analyst, the researcher analyzed the data gathered on behalf of the research to conclude gamification perceptions.

In selecting research subjects, all students from the school were chosen as the population of the research. Furthermore, 30 students from one class were taken as the research sample. Clustered Sampling was used to determine the sample in this research. The subject was chosen because the teacher used gamification with Kahoot and Quizizz platforms in learning English.

The research was done in the academic year 2019/2020. During this time, the researchers conducted data collection by distributing questionnaires and conducting interviews. Two instruments were used to collect data in this research, namely, questionnaires and interviews. The questionnaire was created to collect students' answers regarding their perceptions of gamification. The form of the question and answer form is on the online platform to facilitate the collection process. The questions were using statement sentences are then sorted according to the perception domain for easy reading and analysis. Choices used are 'Strongly disagreed,' 'disagreed,' 'agreed,' and 'strongly agreed.' This design uses a Likert-scale questionnaire to reduce the bias of answers from subjects.

The next instrument is the interview. An interview was held to obtain more in-depth information that was paired with the results of the questionnaire. The form of the questions asked is an open-ended question that is still guided around students' perceptions about gamification. The process of taking was using recorded teleconference media one by one with the students. After the
records are obtained, the next process is to transcribe and label the relevant information with the other instrument, the questionnaire. After that, the data is presented with a table. Each statement is averaged with a percentage formula to see the trend in student answers. This is followed by additional information obtained from one-on-one interviews with students.

**FINDINGS AND DISCUSSION**

The questionnaire responses were analyzed by interpreting the students' answers, with information from the results of student interviews relevant to the statements on the Likert-scale questionnaire.

### Table 1. Students' Perceived Feeling

| No | Statements                                      | Answers Percentages |
|----|-------------------------------------------------|---------------------|
| 1  | Gamification makes me happy                     | Strongly Agreed: 60% | Agreed: 37% | Disagreed: 3% | Strongly Disagreed: 0% |
| 2  | Gamification is childish                         | Strongly Agreed: 0%  | Agreed: 0%  | Disagreed: 33% | Strongly Disagreed: 67% |
| 3  | Gamification is not necessary                    | Strongly Agreed: 53% | Agreed: 40% | Disagreed: 3%  | Strongly Disagreed: 3%  |
| 4  | Gamification is a waste of time                  | Strongly Agreed: 0%  | Agreed: 0%  | Disagreed: 23% | Strongly Disagreed: 77% |
| 5  | I am bored with gamification                     | Strongly Agreed: 7%  | Agreed: 3%  | Disagreed: 20% | Strongly Disagreed: 70% |
| 6  | I prefer longer portion of gamification in my class | Strongly Agreed: 37% | Agreed: 37% | Disagreed: 17% | Strongly Disagreed: 10% |
| 7  | I think gamification needs to exist in every meeting | Strongly Agreed: 47% | Agreed: 40% | Disagreed: 7%  | Strongly Disagreed: 7%  |

In the first statement, we found that 18 students Strongly Agreed, 11 students chose to Agree, one student chose to Disagree, and no students Strongly Disagreed. It indicated that there was a positive perception about gamification.

We also provided several answers from the interview describing the subjects' perceptions about the use of gamification. This statement is supported by several answers on the subject related to the first statement.

Interviewee 1: "I think using it makes me happy; it is fun because there are games."
Interviewee 11: "I prefer to be taught using gamification, sir. It is not boring."
Interviewee 12: "Very happy, sir, when I was taught using this method because we rarely play the game in the class."
Interviewee 29: "Yes, sir. I am very happy because while playing the game too."

The next results of the statement "Gamification is childish" got no students answered Strongly Agreed, no one agreed with it. Followed by ten students have disagreed, and 20 students strongly disagreed with the statement. This signifies that the students thought that gamification is applicable to their age.

After that, the next statement contains "Gamification is not necessary." Explained that students tend to disagree with the statement. With 16 students answering firmly disagreed, 12 of the students disagreed, one student agreed, and one more student strongly agreed with the statement.

Students strongly disagreed that "Gamification is a waste of time," which shows the acceptance of positive gamification in English classes. Furthermore, data that can be seen are 23 students strongly disagreed with the statement, seven students of the total answers disagreed, no students who agreed, and 0 students who strongly agreed with the statement that gamification is a waste of time.

The next statement is, "I am tired of gamification." The students' answers are the opposite of the statement, meaning that students are not bored with gamification in their class English. The information obtained was that 21 students strongly disagreed, six students disagreed, one student agreed. The last two students strongly agreed with the statement.

The sixth statement, which is "I prefer longer portion of gamification in my class," was responded to be quite varied but is still dominant to students' approval to prolong gamification's use in English class. Based on the table, 11 students strongly agreed, followed by 11 students who agreed with the statement, five students chose to disagree, and three students strongly disagreed with Statement 6.
In addition to the questionnaire data taken, some students also mentioned several things about Statement 6, as follows:

Interviewee 9: “Yeah, sir, if possible, we want teachers to extend the time to play games in the class.”
Interviewee 14: “In my opinion, if it is too long, it is no fun any longer, sir.”
Interviewee 25: “I have a difficulty because there was no enough time to do it in a hurry; if the time is longer, it seems good.”

The following statement, which is the need for "Gamification to exist in every meeting," explained that fourteen students chose strongly agreed, 12 students chose to agree, two students chose to disagree. The last two students also chose to disagree strongly. Although the answers are quite distributed, the tendency of student acceptance of gamification is positive. They want gamification to be present in every teaching process in the English class.

In the interview session, the subject also conveyed things about Statement 7.

Interviewee 8: “I think it should be in every meeting, except for the test, but. Because there are many benefits, sir.”

Table 2. Students’ Perceived Classroom Atmosphere

| No | Statements                                      | Answers Percentages |
|----|------------------------------------------------|---------------------|
|    |                                                | Strongly Agreed     |
| 8  | Gamification makes the classroom atmosphere more lively | 70%                 |
| 9  | Gamification makes the classroom atmosphere chaotic | 3%                  |
| 10 | Gamification makes joy in the classroom         | 83%                 |

Furthermore, what can be translated from Statement 8, "Gamification makes the classroom atmosphere more lively," is getting very positive reactions from students. Data shows 21 students who strongly agreed, nine students, or who agreed; no students disagreed and strongly disagreed. This means that gamification does make the classroom atmosphere more lively in learning.

This result was reinforced by several students interviewed and mentioned the classroom atmosphere's positivity when using gamification.

Interviewee 3: "Yes, sir, usually silent, but if the teacher uses the game even though sometimes it is noisy, but it is still good.”
Interviewee 6: "I agreed with that statement, sir, because if you use gamification, the class atmosphere will be cheerful. I don't feel sleepy.”

The next statement is "Gamification makes the classroom atmosphere chaotic." Getting the questionnaire responses showed that 22 students strongly disagreed, six students disagreed, one student agreed, and one student strongly agreed with the statement that gamification creates a chaotic classroom atmosphere.

This statement was also reinforced by several students who mentioned the disruption caused when gamification was being used in the English class.

Interviewee 13: "Even though it's crowded, but if it's too much, it becomes disturbing, sir.”
Interviewee 16: "If it became noisy, I would be disturbed, sir, I cannot concentrate.”

They also believe that the use of gamification can make joy in the classroom, as it is Statement 10. Took 25 students strongly agreed, five students agreed, 0 disagreed, 0 strongly disagreed. Besides being able to be seen from the results, several students also gave their opinions through interviews, including:
Interviewee 5: "I agreed with that because my classmates and I feel joy when taught by using it."

Interviewee 19: "Compared to the usual ones, this is more fun, sir."

Table 3. Students' Perceived Classroom Engagement

| No | Statements                              | Answers Percentages |
|----|-----------------------------------------|---------------------|
|    |                                         | Strongly Agreed     | Agreed | Disagreed | Strongly Disagreed |
| 11 | Gamification makes me interested in joining classroom activity | 57% | 37% | 7% | 0% |
| 12 | I don't care about the game being played by the class | 3% | 3% | 17% | 77% |

The next statement, Number 10, which reads "gamification makes me interested in joining classroom activity," shows very positive results with 17 students strongly agreed with the statement, followed by 11 students agreed, two students disagreed, and 0 students strongly disagreed with the statement. This indicates that gamification can increase students' motivation to participate in-class activities.

This statement was also reinforced by several students who mentioned the interest in joining classroom activities when gamification was being used in the English class.

Interviewee 23: "Yes, Sir, playing games is fun, so I want to join class activities. Not lazy anymore."

Statement 11, which reads "I do not care about the game being played by the class," shows the statement's significant negation. The data obtained were 23 students strongly disagreed with the statement, followed by five students who disagreed, one student agreed, and one other student strongly agreed with the statement. This illustrates that gamification can make students care about the game being played by the class.

Table 4. Students' Perceived Motivation

| No | Statements                              | Answers Percentages |
|----|-----------------------------------------|---------------------|
| 13 | Gamification motivates me to compete to be the best | 70% | 23% | 7% | 0% |
| 14 | Gamification makes me interested in the material being taught | 60% | 37% | 3% | 0% |
| 15 | When I lose or get a low score, I lose motivation | 3% | 23% | 27% | 47% |
| 16 | Gamification makes me want to learn more about material outside the classroom | 23% | 67% | 10% | 0% |

The next statement is "gamification motivates me to compete to be the best," illustrates that 21 students strongly agreed, seven students agreed, two students disagreed, and 0 students strongly disagreed, which means that the application of gamification in English classes can motivate students to Compete to be the best.

This statement was also reinforced by several students who mentioned the motivation caused when gamification was being used in the English class, they are:

Interviewee 1: "I encouraged to be the best sir, to be the best in the score."

Interviewee 7: "I feel like to have the biggest score, sir, even though there is no gift or so."

Interviewee 10: "The game makes me want to compete; it is like adrenaline when playing like this."

Statement fourteen, which reads "gamification makes me interested in the material being taught," showing 18 students strongly agreed, 11 students agreed, one student disagreed, and 0
students strongly disagreed with the statement. This means that students' acceptance in terms of motivation to positive gamification makes them interested in the material being taught using gamification in the English language classroom.

In statement fifteen, which said, "When I lose or get a low score, I lose motivation," it is obtained that one student strongly agreed, seven students agreed, eight students disagreed, and 14 students strongly disagreed. The spread of these answers tends to negation, which means that when students lose the gamification process or get a low score, most of them stay motivated and do not lose the spirit.

The next statement, "gamification makes me want to learn more about the material outside the classroom," getting results seven students strongly agreed, 20 students agreed, three students disagreed, and 0 students strongly disagreed. This means that gamification indirectly makes students like English lessons, so they intend to study more outside the classroom.

| Table 5. Students' Perceived Comprehension |
|-----------------------------------------|
| No | Statements                                         | Answers Percentages |
|----|---------------------------------------------------|---------------------|
|    |                                                   | Strongly Agreed     |
|    |                                                   | Agreed              |
|    |                                                   | Disagreed           |
|    |                                                   | Strongly Disagreed   |
| 17 | Gamification makes me distracted from the core of the lesson | 10%                 |
|    |                                                   | 3%                  |
|    |                                                   | 20%                 |
|    |                                                   | 67%                 |
| 18 | In the use of gamification, I can still understand the core material being taught | 43%                 |
|    |                                                   | 50%                 |
|    |                                                   | 3%                  |
|    |                                                   | 3%                  |
| 19 | Gamification has more impact than conventional teaching | 43%                 |
|    |                                                   | 40%                 |
|    |                                                   | 7%                  |
|    |                                                   | 10%                 |
| 20 | Gamification blurs the learning objective         | 0%                  |
|    |                                                   | 3%                  |
|    |                                                   | 23%                 |
|    |                                                   | 73%                 |

The next statement is Number 17, which reads, "Gamification makes me distracted from the core of the lesson" data obtained three students who strongly agreed, one student agreed, six students who disagreed, and 20 students strongly disagreed that gamification makes students in X IPS 1 distracted from the core of the lesson. This data indicates that most students can still understand core lessons when the method being used is gamification.

The other statement is, "in the use of gamification, I can still understand the core material being taught." Data obtained 13 students strongly agreed, 15 students agreed with the statement, one student disagreed, and one student strongly disagreed, showing students can still accept lessons and still understand the core material when gamification is used.

The next is Statement 19, which reads, "gamification has more impact than conventional teaching." The data obtained are 13 students strongly agreed, 12 students agreed with the statement, two students disagreed, and three students strongly disagreed. The majority of students have a positive perception of gamification.

This result was reinforced by several students interviewed and mentioned the classroom atmosphere's positivity when using gamification.

Interviewee 2: "I agreed with that statement, sir. It is clearly having more impact, sir, because it makes it easier to understand and, most importantly, because it is cool."
Interviewee 4: "Because in my opinion, it is very far from boring. The usual thing is that you only listen. This way of teaching makes me think and play."
Interviewee 19: "This is better, sir, because we used technology. I'm interested. I realize I am interested more in being able to speak English better."
Interviewee 24: "I chose disagree because the process was still not perfect, sir, yesterday there were still some problems, the question did not appear several times on my cell phone."

The last statement discussed in this section is "gamification blurs the learning objective" gets the results of 0 students who strongly agreed, one student who agreed, seven students disagreed, and 22 students strongly disagreed that gamification of blurs the learning objective. The students felt that learning objectives could still be achieved from this positive reception even though gamification using games risked making learning objectives uninteractive.
CONCLUSION

It can be concluded that gamification is acceptable to be applied in English classrooms and fulfill the objective of gamification, which is to increase the student interest in learning the English language. The data presented that gamification can enliven the classroom atmosphere because it is no longer teacher-centered. However, in the application of gamification, all students also participate in-class activities. The second statement explains that gamification can also make the chaotic atmosphere class. Although only a few students agreed with the statement, it should be noted in its application that gamification can also cause noise.

The next assertion indicates that students find that gamification should not confuse the learning goal. In contrast, gamification is closely related to the game and high student excitement. Despite that, most students still agreed that gamification has a more significant effect than the traditional teaching and learning process.

This is backed by the innovation of the process, including the use of technology in teaching. Students’ interest in the material being delivered also increases because what is in the game is the teacher's material, so they try to understand the material to compete. Students’ interest in learning material, in this case, English outside the classroom, also increases. This can be integrated because gamification is not only in the classroom, but the teacher can make games that students can do at home. In the game, some students lose motivation when getting low scores in the game. However, the majority of students do not lose enthusiasm when getting low scores.

We suggest that gamification can be used in learning English in the classroom. Referring to the results obtained, students feel that gamification can make the teaching and learning process of English in the classroom more lively. Therefore, teachers need to be more aware of gamification by upgrading their ICT skills so that they can more freely adopt beneficial methods, especially gamification.

REFERENCES

Banfield, J., & Wilkerson, B. (2014). Increasing student intrinsic motivation and self-efficacy through gamification pedagogy. Contemporary Issues in Education Research (CIER), 7(4), pp. 291-298.

Bicen, H., & Kocakoyun, S. (2018). Perceptions of students for gamification approach: Kahoot as a case study. International Journal of Emerging Technologies in Learning, 13(2), pp. 72–93.

Buckley, P., Doyle, E., & Doyle, S. (2017). Game on student’ perceptions of gamified learning. Educational Technology and Society, 20(3), pp. 1–10.

Chen, Y., & Hoshower, L. B. (2003). Student evaluation of teaching effectiveness: An assessment of student perception and motivation. Assessment & Evaluation in Higher Education, 28(1), pp. 71–88.

Cheong, C., Filippou, J., & Cheong, F. (2014). Towards the gamification of learning: Investigating student perceptions of game elements. Journal of Information Systems Education, 25(3), pp. 233–244.

Cresswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches. Thousand Oaks: Sage.

Deterding, S. (2012). Gamification: designing for motivation. Interactions, 19(4), pp. 14–17.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From Game Design Elements to Gamefulness: Defining Gamification. Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments. pp. 9–15.

Ibanez, M.-B., Di-Serio, A., & Delgado-Kloos, C. (2014). Gamification for engaging computer science students in learning activities: A case study. IEEE Transactions on Learning Technologies, 7(3), pp. 291–301.

Iftanti, E. (2012). A survey of the English reading habits of EFL students in Indonesia. Teflin Journal, 23(2), pp. 149–164.

Kapp, K. M. (2012). The gamification of learning and instruction: game-based methods and strategies for training and education. San Francisco: Pfeiffer.

Kim, B. (2012). Harnessing the power of game dynamics1: Why, how to, and how not to gamify the library experience. College & Research Libraries News, 73(8), pp. 465–469.

Malamed, C. (2012). Review of the book The gamification of learning and instruction: game-based methods and strategies for training and education by Karl Kapp. eLearn Magazine. 2012(5).

McDonald, S. M. (2011). Perception: A concept analysis. International Journal of Nursing Terminologies and Classifications.
Montague, M. (1997). Student perception, mathematical problem solving, and learning disabilities. *Remedial and Special Education, 18*(1), pp. 46–53.

Nicholson, S. (2012). Strategies for meaningful gamification: Concepts behind transformative play and participatory museums. *Meaningful Play 2012*, 1999, pp. 1–16. [http://scottnicholson.com/pubs/meaningfulstrategies.pdf](http://scottnicholson.com/pubs/meaningfulstrategies.pdf)

Priyatmojo, A., & Areni, G. (2017). *Ict dalam pembelajaran bahasa inggris*. Semarang: Fastindo.

Salen, K. (2004). *Rules of Play: Game Design Fundamentals*. Cambridge: MIT press.

Simões, J., Redondo, R. D., & Vilas, A. F. (2013). A social gamification framework for a K-6 learning platform. *Computers in Human Behavior, 29*(2), pp. 345–353.

Werbach, K., & Hunter, D. (2012). *For the Win: How Game Thinking Can Revolutionize Your Business*. Philadelphia: Wharton Digital Press.