The Effect of Gamification on Students' Motivation in Learning English

Khairani Dian Anisa, Sri Marmanto, Slamet Supriyadi
Universitas Sebelas Maret
khairani.dianisa@student.uns.ac.id

ABSTRACT

Motivation plays important role that drives learning. The application of games for educational purposes can boost students' motivation. Nowadays, the game utilizes technology which enables students to experience enjoyment in a more accessible way. However, some games are not suitable for students. Hence, gamification, i.e., the implementation of game elements in a non-game context, serves as a solution to motivate students. This study aims to investigate the effect of gamification on students' motivation in learning English. A game-based student response (GBSR) is an example of gamification. The case study method comprised an intrinsic and extrinsic motivation scale and a semi-structured interview to investigate the effect of gamification on students' motivation in learning English. The study involved 13 eleventh grade students consisting of 10 females and 3 males students. The result indicated that the students experienced competence, autonomy, and relatedness in GBSR which led to stronger intrinsic learning motivation. Besides, the features in the GBSR triggered students' interest to play the game. The extrinsic motivation stimulated through the reward structure and endorsement of goals. Moreover, the classroom atmosphere became more enjoyable for students. These results serve an alternative way for teachers to teach English at the secondary level.

Keywords: *Case study; English; Gamification; Motivation*

Introduction

Motivation is an essential factor that drives learning (Gee, 2003a). It is imperative to motivate students to pay attention and engage with the material as it is a main goal of education. The application of games for educational purposes is able to increase students' motivation, which is a fundamental ubiquitous element of learning behavior (Schunk, et al., 2012). Besides, games have a vital role to change a traditional teacher-centered classroom to learner-centered classroom (Wichadee & Pattanapichet, 2018). It enables students to participate more in classroom activities. Thus, it offers students exciting learning experience (Icard, 2014).

Nowadays, the game utilizes technology to allow players play games anytime and anywhere. For instance, through mobile phone, a player can easily download an online or a digital game. In educational context, a game provides students an experience of competition and gain instant feedback (Kapp, 2012). Through the instant and appropriate feedback, students are more likely to assimilate the feedback into what they have learned and corrected the learned content (Wichadee & Pattanapichet, 2018).

However, not all games are suitable for educational purposes. Many students are lacking the motivation and interest to learn (Zichermann & Cunningham, 2011) as they would prefer to play games rather than doing their assignment or reading a book. To solve this problem, Prensky (2001) suggests combining education and entertainment; which known as edutainment. Game features offer the –tainment part of the educational design needed to involve learners. The implementation of game features in non-game context such as in educational context later recognized as gamification.

Students are growing up in an age of interactive media and video games, so classroom gamification may be appealing and motivating (Glover, 2013). Gamification is a newly coined term that shows a social phenomenon occurring in a generation of the digitally literate population. From 2010, this trend started to emerge (Simoes et al., 2013). The interest in gamification arises from the idea that it affects behavior. Games prompt robust emotional responses, such

as curiosity, frustration, and joy (McGonigal, 2011). Moreover, people are posited to be more engaged and more productive when playing games (Kim, 2012). By applying gamification to the classroom, students could be motivated to learn in new ways or enjoy tedious tasks.

Some studies have examined the success of gamification in learning English (Purgina, et al., 2019; Wichadee & Pattanapichet, 2018; Lin et al. 2018; Zarzycka-Piskorz, 2016). These studies indicate that gamification has a positive effect on students' motivation, engagement, and performance. Moreover, they request for more game-like features (Purgina et al., 2019) applied in their classroom.

Most studies examined the effects of gamification in learning English selected higher education as the setting. However, a few studies explore the implementation of gamification in secondary level and other stages of the education process. As such, the present study intends to find out the impact of gamification on students' motivation in learning English at the secondary level.

Method

This study was a descriptive case study. It attempted to provide a thick description of the effect of gamification on students' motivation in learning English. The data were gathered from 13 eleventh grade students of a high school in Indonesia. The purposive sampling method was applied to access the sample of the study. Three males and ten females students whose ages ranged between 16 to 17 participated in this study.

The teacher asked the students to select a game designed by Kahoot to play. The game was about several questions of English materials which had been taught. The data gathered from the questionnaires and interview analyzed through three stages of data reduction, data display and conclusion.

Results and Discussion

Gamification has drawn many researchers attention to investigate its application in various contexts. Deterding et al. (2011) defined gamification as the implementation of games elements in a non-game context. In the field of education and training, gamification often described as a way to engage students in their learning activities by promoting learning, motivating action, and helping them solve problems (Kapp 2012). Gamification applies features associated with video games, such as game mechanics and game dynamics, to non-game applications (Simões et al. 2013). Game mechanics and elements are designed to facilitate

teachers engaging their students in everyday class activities by making the tasks more playful while giving the students more choice and control over their learning.

Gamification is a form of digital literacy where many layers of meaning-making and processing take place through a gamified application as a media. This literacy defined as New Media Literacy Studies (NMLS). NMLS deals with how people make meaning and gain meaning from media (Gee, 2010). Gamification contains multiple features for constructing meaning, for instance, sound, images, words, colors, and the like. In the educational context, students learn to acknowledge the relationship between multiple features to comprehend the game. Gee (2003b) denotes that perceiving the relations and combination of various elements (images, words, actions, symbols, artifacts, etc.) as a multifaceted system is substantial to the learning. Students study, build, associate, and synthesize the relationship of these features. As such, learning becomes more meaningful, purposeful, and motivating.

Self-Determination Theory (SDT) has already been successfully applied in the context of games (Sailer et al., 2016). SDT is a motivation theory proposed by Edward Deci and Richard Ryan in 1980s. SDT distinguishes motivation into two categories, namely intrinsic and extrinsic motivation. Intrinsic motivation refers to a particular individual owning the interest to involve in action, and getting personal enjoyment from doing so. On the other hand, it is extrinsic motivation if an individual engages in work since he/she is interested in external factors (e.g., gaining good scores, doing an assignment to earn rewards and particular advantages) instead of the action itself (Ryan & Deci, 2000a).

Intrinsic motivation has a vital motivating role in personal development, adjustment, and the learning process (Ryan & Deci, 2000b). Students were said to be more positive and motivated when they did errands with intrinsic value (Wigfield & Eccles, 2000). They were also capable of getting a more thorough comprehension of the substance and concepts of the lesson, and the material learned was remembered for a longer time (Vansteenkiste, Lens, & Deci, 2006). Extrinsic motivation is particularly significant when students have a less personal interest; the use of extrinsic stimuli to rise involvement can help promote interest in learning (Hidi & Harackiewicz, 2000).

SDT postulated that autonomy (ability to make a decision independently), competence (ability to solve problems), and relatedness (ability to socialize) boost intrinsic motivation (Deci & Ryan, 1985; Ryan & Deci, 2002; Ryan, 1995). Earlier studies have presented that choice

influence intrinsic motivation (Ryan & Deci, 2000b). Students who can determine their aims, tasks, and challenges have a higher intrinsic motivation to do their activities (Schunk et al., 2012). The rivalry effect raised by the games and the harmonious communications among peers could make students more enthusiastic in learning the lesson, leading to greater learning motivation and enhancing learning performances (Burguillo, 2010).

The following explanation presents the effect of Kahoot as an example of gamification on their motivation to learn English.

The Effect of Gamification on Students' Intrinsic Motivation to Learn English

The result of students' intrinsic motivation questionnaire presented in Table 1.

Table 1. The result of the questionnaire examining students' intrinsic motivation

Item	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
Using Kahoot is fun	10	2	1	-
I feel satisfied when I can accomplish difficult questions when using Kahoot.	5	8	-	-
Kahoot helps me to have more interaction with my friends.	3	10	-	-
I have a chance to choose the game that I want to play.	3	10	-	-
I feel satisfied with being able to excel my English skill through Kahoot.	2	11	-	-
I experience pleasure in learning new things through Kahoot	4	9	-	-

Through the result of the questionnaire, the researcher found that Kahoot stimulated students' intrinsic motivation to learn English. The survey revealed that most students enjoyed using Kahoot. Based on the interview, students enjoyed using Kahoot since it had entertaining features such as backsound and attractive design as explained by participant 2:

I like the backsound of this application. Besides, the design is appealing. It makes me excited to answer the questions. (Participant 2)

Kahoot, as an example of gamification, contains multiple features for constructing meaning. Based on the interview result, the sound and the design of the application foster student to play it. The design includes images, words, colors, and symbols. This result is in line with Gee (2003b) "learning about and coming to appreciate interrelations within and across multiple sign systems (images, words, actions, symbols, artifacts, etc.) as a complex system is a core to the learning." Students study, build, associate, and synthesize the relationship of these features. As such, learning becomes more meaningful, purposeful, and motivating.

Kahoot stimulated students' intrinsic motivation through the competence aspect. Most students agreed that they were satisfied when they could accomplish difficult tasks when using Kahoot. Participant 1 explained:

I was so happy when I could answer some difficult questions correctly. It made me feel like I found a bar of gold. (Participant 1)

Deci & Rian (1985) highlights there are three essential factors relating to perceived competence. First, the task must be optimally challenging; second, the existence of spontaneous feedback; and third, the input must be informational. Kahoot provided a challenging game for students to play. As soon as they selected an answer, they got immediate feedback. This feedback informed them whether their answers were right or wrong. Besides, students enjoyed learning English through Kahoot.

Students had a chance to select a game they want to play. Therefore, they chose the challenges they had to be solved independently. Moreover, they decided the goal they wanted to achieve themselves. Participant 3 explained:

The teacher let us choose the game we want to play. So, we can determine which material that we want to learn ourselves.

Schunk et al. (2012) report that students who can determine their aims, tasks, and challenges have a higher intrinsic motivation to do their activities.

Moreover, in applying Kahoot, students had more chance to interact with their friends, as explained by participant 2:

The learning atmosphere was more exciting

when Kahoot was used. We discussed before we answer the question. And it was fun to battle against my friends.

Through this interaction, they shared similar goals, practices, and endeavors, which called an "affinity group" (Gee, 2003b). Besides, they shared similar challenges which boost rivalry. The rivalry effect raised by the games and interaction among peers led to greater learning motivation (Burguillo, 2010).

Based on the explanation above, Kahoot raised students' motivation through the experience of autonomy (ability to make a decision independently), competence (ability to solve problems), and relatedness (ability to socialize).

The Effect of Gamification on Students' Extrinsic Motivation to Learn English

Ryan & Deci (2000b) categorizes extrinsic motivation into 4 types, namely "external regulation; introjected regulation; identified regulation; and integrated regulation". However, this study did not measure integrated regulation as the source of its motivation was internal. Thus, only the first three regulations measured in this study as their source of motivation were external to slightly internal. Table 2 presents the result of students' extrinsic motivation questionnaire.

Table 2. The result of the questionnaire examining students' extrinsic motivation

Item	Strongly Agree (4)	Agree (3)	Disagree (2)	Strongly Disagree (1)
I play Kahoot because I want to have a good score.	4	7	2	-
Kahoot helps me to show myself that I am an	2	8	3	-
Kahoot helps me to understand the material easily.	3	9	1	-
Kahoot helps me to improve my English skill.	2	10	1	-
Kahoot helps me to prove to myself that I am capable	3	9	1	-
I play Kahoot because I want to be a winner.	2	7	4	-

The outcome of the survey showed that Kahoot stimulated students' extrinsic motivation. They were interested in playing Kahoot since they got more points and were proud if their answers were correct. Moreover, they could understand the material better through the application of Kahoot in the learning activity. The questionnaire result also showed that some students had already had high intrinsic motivation. Therefore, they played Kahoot because they wanted to learn instead of gaining points and becoming the winner. However, extrinsic motivation is significant in stimulating students' interest to learn (Hidi & Harackiewicz, 2000).

The external regulation deals with rewards and punishments. This regulation comes from external support. The result of the questionnaire showed that most students played Kahoot to gain good scores and to become a winner. The rewards structure (points and leaderboard) and competition in Kahoot raise students' interest to play Kahoot, as explained by Participant 3.

I wanted to get more points and be the winner of this game. (Participant 3)

The introjected regulation deals with avoiding guilt or anxiety or attaining ego enhancement such as pride (Ryan & Deci, 2000b). In this study, the students asked if Kahoot helped them to show that they were intelligent people and to prove that they were capable of completing the game. Most students felt that as they were clever as they could answer the questions correctly. Participant 1 explained:

I am proud of my self because I can answer the questions correctly. (Participant 1)

Kapp (2012) stated that leaderboard prompt impressive right to the individuals who achieved the high scores. However, a few students did not experience external regulation and introjected regulation as they focused on the learning process instead of gaining rewards.

Identified regulation is somewhat internal. It deals with the endorsement of goals. The result of the questionnaire showed that Kahoot helped the students to achieve the learning objective. Moreover, it raised students' curiosity and challenged them to learn English more. Participant 2 explained:

By using Kahoot, I could enjoyably learn English. I could understand the points of the material.

And if I answered the questions incorrectly, I wanted to learn more to know what was the correct one. (Participant 2)

The result of this study is in line with the related study. It showed that gamification had a positive effect on students' motivation (Sun & Hsieh, 2018). It stimulated the intrinsic and extrinsic motivation so that learning became more enjoyable for students.

Conclusions

This study showed that gamification had a positive effect on students' intrinsic and extrinsic motivation in learning English. Gamification raised students' motivation through the experience of autonomy (ability to make a decision independently), competence (ability to solve problems), and relatedness (ability to socialize). Moreover, Kahoot's features made them enjoyed playing Kahoot. The students' extrinsic motivation stimulated through rewards structure and endorsement of learning objective. Therefore, gamification serves as an alternative way to teach English at the secondary level.

It is necessary that teachers design Kahoot in a more creative way so that students become more attractive in implementing gamification. Besides, schools need to make sure that the Internet connection is stable to support the application of gamification. The future research may be conducted in a more extended period so that the limitation of applying gamification can be determined.

References

Alsawaier, R. S. (2018). The effect of gamification on motivation and engagement. *The International Journal of Information and Learning Technology,* 35(1), 56-79.

Buckley, P., & Doyle, E. (2014). Gamification and student motivation. Interactive Learning Environments, 24(6), 1162e1175. https://doi.org/10.1080/10494820.2014.964263.

Burguillo, J. C. (2010). Using game theory and competition-based learning to stimulate student motivation and performance. *Computers & Education, 55*(2), 566–575.

Costa, J. P., Wehbe, R. R., Robb, J., & Nacke, L. E. (2013). Time's Up: Studying Leaderboards For Engaging Punctual Behaviour. Paper presented at the Gamification 2013: 1st International Conference on Gameful Design, Research, and Applications, Stratford. http://dx.doi.org/10.1145/2583008.2583012.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human be-

havior. New York: Springer. http://dx.doi.org/10.1007/978-1-4899-2271-7.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal Pursuits: Human needs and the self-determination of behavior. Psychological Inquiry, 11(4), 227-268. http://dx.doi.org/10.1207/S15327965PLI1104_01.

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). New York, NY: ACM. doi:10.1145/2181037.2181040

Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: A systematic mapping study. Educational Technology & Society, 18(3), 75-88.

Dornyei, Z. and Otto, I. (1998) Motivation in Action: A Process Model of L2 Motivation. Working Papers in Applied Linguistics, 4, 43-69.

Dornyei, Z., & Ushioda, E. (2011). Teaching and Researching Motivation, 2nd ed. New York: Pearson Education Ltd.

Gee, J. P. (2003a) What Video Games Have to Teach Us About Learning and Literacy. *ACM Computers in Entertainment,* (1)1, 1-4.

Gee, J. P. (2003b). What video games have to teach us about learning and literacy. New York, N.Y.: Palgrave Macmillan.

Gee, J.P. (2010). A Situated-Sociocultural Approach to Literacy and Technology. *The New Literacies: Multiple Perspectives on Research and Practice,* 165-193. Retrieved from http://www.jamespaulgee.com

Glover, I. (2013). Play as you learn: Gamification as a technique for motivating learners. In: J. Herrington, A. Couros & V. Irvine (Eds.) Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications (Vol. 2013, pp. 1999–2008). Chesapeake, VA: AACE.

Hamari, J.K., Koivisto, J, & Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. *Proceedings of the 47th Hawaii International Conference on System Sciences, Hawaii, January,* 6-9.

Hidi, S., & Harackiewicz, J. M. (2000). Motivating the academically unmotivated: A Critical issue for the 21st century. *Review of Educational Research, 70*(2), 151–179.

Hsieh, T., L. (2014). Motivation matters? The relationship among different types of learning motivation, engagement behaviors and learning outcomes of undergraduate stu-

dents in Taiwan. *Higher Education, 68*(3), 417-433.

Icard, S. B. (2014). Educational technology best practices. *International Journal of Instructional Technology and Distance Learning,* 11 (3), 37-41.

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

Keeler, A. (2014). "Beyond the worksheet: playsheets, GBL, and gamification", Edutopia, pp.1-3, available at: www.edutopia.org/blog/beyond-worksheet-playsheets-gbl-gamification-alice-keeler.

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

Kingsley, T.L., & Grabner-Hagen, M.M. (2015). Gamification: Questing to integrate content, knowledge, literacy, and 21st century learning. *Journal of Adolescent & Adult Literacy,* 59(1), 51-61.

Lepper, M. and Greene, D. (eds) (1978) *The Hidden Costs of Reward: New Perspectives on the Psychology of Human Motivation.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Lin, Debbita Tan Ai, Ganapathy, M., & Kaur, Manjet. (2018). Kahoot! It: Gamification in higher education. *Pertanika Journal Social Sciences and Humanities,* 26(1), 565-582, http://www.pertanika.upm.edu.my/Pertanika%20PAPERS/JSSH%20Vol.%2026%20(1)%20Mar.%202018/34%20JSSH-2477-2017-3rdProof.pdf.

Malone, T. W., & Lepper, M. R. (1987). Making learning fun: A Taxonomy of intrinsic motivations for learning. In R. E. Snow & M. J. Farr (Eds.), *Aptitude, learning, and instruction* (pp. 223–253). Hillsdale, NJ: Erlbaum Routledge.

McGonigal, J. (2011). Reality is broken: Why games make us better and how they can change the world. London: Penguin.com.

Nah, F. F., Zeng, Q., Telaprolu, V. R., Ayyappa, A. P., & Eschenbrenner, B. (2014). Gamification of education: A review of literature. HCI in Business, 401-409.

Purgina, M., Mozgovoy, M., & Blake, J. (2019). WordBricks: Mobile Technology and Visual Grammar Formalism for Gamification of Natural Language Grammar Acquisition. *Journal of Educational Computing Research,* 0 (0), 1-34.

Prensky, M. (2001). *Digital Game-Based Learning.* New York: McGraw Hill.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. Journal of Personality, 63(3), 397e427. http://dx.doi.org/10.1111/j.1467-6494.1995.tb00501.x.

Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary Educational Psychology, 25(1), 54–67.

Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. doi:10.1037110003-066X.55.1.68.

Ryan, R. M., & Deci, E. L. (2002). Overview of self-determination theory: An organismic dialectial perspective. In R. M. Ryan, & E. L. Deci (Eds.), Handbook of self-determination research (pp. 3e33). Rochester: University of Rochester Press.

Sailer, M., Hense, J. U., Mayr, S. K., & Mandl, H. (2017). How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction. Computers in Human Behavior, 69, 371–380.

Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2012). *Motivation in education: Theory, research, and applications* (4th ed.). Upper Saddle River, NJ: Pearson Education.

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), 345–353. doi:10.1016/j.chb.2012.06.007.

Sun, J. C.-Y., & Hsieh, P.-H. (2018). Application of a Gamified Interactive Response System to Enhance the Intrinsic and Extrinsic Motivation, Student Engagement, and Attention of English Learners. *Educational Technology & Society, 21* (3), 104–116.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C. B., Vallieres, E. F. (1992). The Academic Motivation Scale: A Measure of Intrinsic, Extrinsic, and Amotivation in Education. *Educational and Psychological Measurement,* 52(4).

Vallerand, R.J. (1997) Towards a hierarchical model of intrinsic and extrinsic motivation. In Zanna, M.P. (ed.), *Advances in Experimental Social Psychology. 29,* 271–360.

Vallerand, R.J. and Ratelle, C.F. (2002) Intrinsic and extrinsic motivation: A hierarchical model. In Deci, E.L. and Ryan, R.M. (eds), *Handbook of Self-Determination Research.*

Rochester, NY: The University of Rochester Press: 37–63.

Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist,* 41(1), 19–31.

Werbach, K., & Hunter, D. (2012). For the Win: How game thinking can revolutionize your business. Philadelphia: Wharton Digital Press.

Wichadee, S., & Pattanapichet, F. (2018). Enhancement of performance and motivation through application of digital games in an English language class. *Teaching English with Technology,* 18(1), 77-92, https://www.ceeol.com/search/article-detail?id=606509.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25*(1), 68–81.

Yin, R. K. (2003). Case study research: Design and methods,3rd Edition. Sage Publications.

Zarzycka-Piskorz, Ewa. (2016). Kahoot it or not? Can games be motivating in learning grammar?. *Teaching English with Technology,* 16 (3), 17-36, https://www.ceeol.com/search/article-detail?id=420768.

Zichermann, G., & Cunningham, C. (2011). Gamification by design: Implementing game mechanics in web and mobile apps. Sebastopol, CA: O'Reilly Media.