

GAMIFICATION-BASED APPS IN TEACHING AND LEARNING ENGLISH: A SYSTEMATIC LITERATURE REVIEW

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Abstract: The use of gamification-based apps has gained popularities in the last few years as teachers were forced to be creative in designing the teaching and learning activities during the pandemic. This study is a Systematic Review using Prism methodology which aims to seek what gamification-based apps have been researched, methodologies, targets, years, and areas improved. The research resulted in 28 papers associated with the research topic collected from a single database i.e., Google Scholar. The results were synthesised in tables and figures based on the questions and discussed thoroughly. The research highlights the main findings include Quizziz as most used gamification apps, Quantitative approach as most popular research method, most targeted participants were senior high school, most studies were done in 2021, and engagement was the most improved aspect through the utilisation of gamification-based apps. The study also proposes some recommendations for the future research including the limitation of the study.

Keywords: *Gamification-based apps, Systematic Review, EFL*

INTRODUCTION

Gamification or game-based Apps in teaching and learning English have been utilised to promote students' engagement in recent years. Gamification has been defined in several ways such as the use of game design in non-game context (Deterding et al., 2011), a process of designing a gameful learning experience, (Majuri et al., 2018) a way of making a game-like activities (Werbach, 2014) (the use of technology-human interaction for learning (Mahnič, 2014), and a factor that is studied as it is believed to play important role in students engagement and motivation (Dichev & Dicheva, 2017; Linehan et al., 2011). Therefore, gamification can be summarised as integrating the game-like features (elements and mechanics) into language teaching to engage the students in an interactive, enjoyable, effective, and fun classroom.

Gamification-based Apps today have incorporated features in them to tackle specific language skills such as grammar exercises, vocabulary quizzes, reading quizzes, listening quizzes, as well as writing and many different forms. These features are also equipped with rewarding elements like points, levels, leader boards, badges, and virtual currency to motivate the users. Besides, it has been said as a best teaching practice (Dellos, 2015) and practical strategy to create engagement and enjoyment with a purpose (Dichev & Dicheva, 2017). Besides, not only does it create engagement, but the use of gamification has also been found to positively improve the students learning success (Godwin-Jones, 2014) (Chans & Portuguese Castro, 2021)). To sum up, gamification-based Apps offer experiences to uniquely different students' traits by personalised learning through pace and level of abilities (Smiderle et al.,

2020). The level of abilities and the pace in set in the gamification promotes self-paced and autonomous learning.

Along with the benefits, challenges to the gamification-based app in learning and teaching English also appear. From the teachers' side, the lack of ability in managing the virtual classroom, the inappropriateness of the gamification-based app, lack of time, lack of internet, and frustration in presenting the gamification have been reported (Alzahrani & Alhalafawy, 2022). Meanwhile, on the students' side, more challenges and setbacks have been reported. Cheating, privacy violation, gradual interest lost (Al-Rayes et al., 2022), lack of motivation and different levels of the course (Borras-Gene et al., 2016), the boredom of repeated patterns in activities (Alzahrani & Alhalafawy, 2022), and being easily distracted have dominated the setbacks (Sombrio et al., 2016).

This study aims to identify the studies on gamification-based apps that have been incorporated into teaching and learning English in Indonesia. The study synthesises the published studies to explore the existing evidence from what has been done in teaching and learning English using gamification-based learning. The research questions addressed are:

1. What are the gamifications or game-based apps utilised in the studies?
2. What are the research methodologies employed in the studies?
3. Who is the target investigated in the studies?
4. When was the study conducted?
5. What are the areas of the topic improved through the Gamification-based Apps?
6. What are the recommendations for future research through this Systematic Literature Review?

RESEARCH METHODOLOGY

This study was designed in Systematic Literature Review (SLR) method aiming to collect, identify, analyse, and synthesize a pool of data on the gamification-based app used in teaching and learning English. A systematic literature review is defined as a methodology of research aiming to identify, evaluate, and synthesise the existing body of research in a systematic, explicit, and reproducible way (Fink, 2019). SLR looks into the evidence as a body so it can inform and shape the practice and policies in the future (Richter et al., 2019). The study was conducted firmly committed to the scientific methods that avoid biased errors (Kerres & Bedenlier, n.d.). This study uses the PRISM Statement methodology to guide the accuracy and transparency. Prism's statement is a guidance to help researchers best describe what was done, what was found, and in the case of a review protocol, what they are planning to do (Sarkis-Onofre et al., 2021).

The articles were selected from the databases of Google Scholar. The sole reason for this single database is that papers from other databases were widely registered in Google Scholar therefore it gave access to papers which were accessible through other subscription-based databases. Besides, the research had no access to paid databases. The researchers conducted the database search between January to February 2023. The keyword was established by using the Boolean operators and searching through the databases. The keywords were: ((game OR gamification) AND (teaching" AND learning) OR (EFL OR ESL) AND (INDONESIA)). The articles selected were those written in English between 2012 and 2022. The inclusion criteria included theme, keywords, gamification-based apps, any language level, and all audiences. The exclusion criteria were the systematic literature paper, conference paper,

gamification apps in other subjects than English, and papers that had no contribution to the paper.

RESULT AND DISCUSSION

The search in the Google Scholar database resulted in 804 which were saved into the library. The papers were downloaded in CSV files. 410 paper duplicates were removed and remained 394. The authors screened the papers based on the titles, abstract exclusion, and inclusion criteria. This screening resulted in 394 articles. Then, the screening focuses on including rather than excluding based on the titles and abstract. This screening resulted in 114 articles. 114 papers underwent the identification of whether or not they reflected the gamification apps. 69 papers were selected to go to the final screening. The final screening resulted looked into the content and whether it reflected the gamification-based apps in teaching and learning English. The final search resulted in 28 papers.

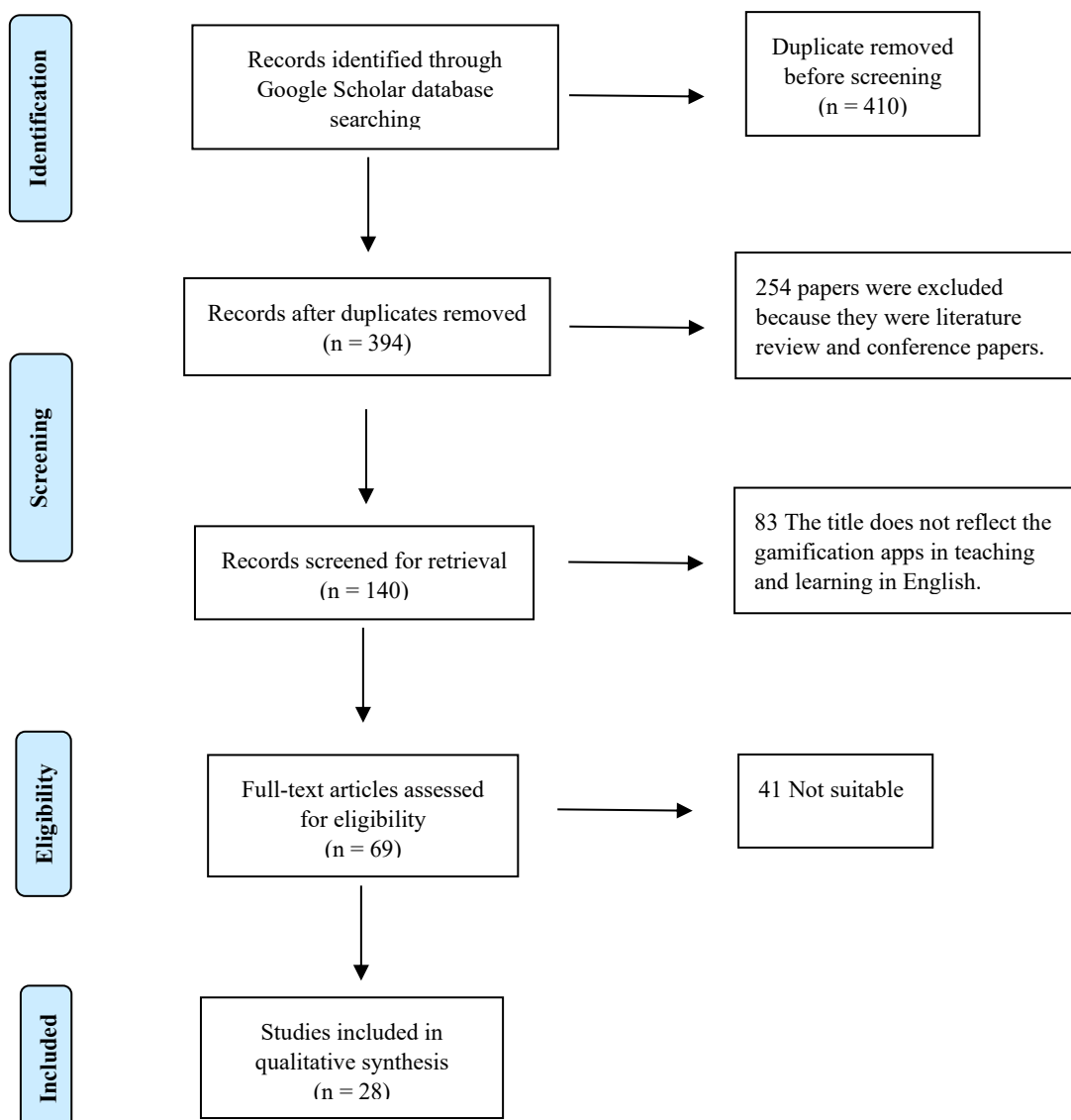


Figure 1 – Prisma flow chart for the systematic review of Gamification based apps in teaching and learning English.

3.1 Gamification-based apps in teaching and learning English in Indonesia

The distribution of the gamification-based apps used in Indonesia is shown below with the references of each study reviewed.

Gamification App	Numbers	References
Quizziz	8	(Asmara et al., 2022; Dewi et al., 2020; Dhamayanti, 2021; Inayati & Waloyo, 2022; Munawir & Hasbi, 2021; Pahamzah et al., 2020; Santosa & Dewi, 2019; Wulandari, 2022)
Kahoot	7	(Amalia, 2022; Artati, 2021; Katemba et al., 2022; Kusumayanthi & Rusmiyati, 2021; Mahbub, 2020; Mahbubah, L., & Anam, 2022; Rachman et al., 2020)
Bamboozle	1	(Saud et al., 2022)
Marbel	1	(Amalia, 2022)
Square App R	1	(Kusmayanti et al., 2021)
Duolingo	6	(Aulia et al., 2020; Budiani et al., 2020; Hakimantieq et al., 2022; Hidayati & Diana, 2020; Mahbub et al., 2020; Saraswati & Purwati, 2021)
Quizlet	3	(Aprilani, 2021; Fithriani, 2021; Saud et al., 2022)
Wordwall	1	(Jannah & Syafryadin, 2022)

Table 1: The gamification apps researched in the studies reviewed.

As seen in the table, the majority of the studies look into the Quizziz, Kahoot and Duolingo come close with seven and six in total respectively. Quizlet is also studied with a number of three articles. At the least, Bamboozle, Marble, Square App, and Wordwall are done in each one study.

3.2 The research methodologies employed.

The research methodologies used in the studies reviewed varied and dispersed including Qualitative, Quantitative, Mixed Methods and Quasi-experimental. The distribution is as shown below:

Research Methodology	Numbers
Quantitative	17
Qualitative	4
Quasi-experimental	5
Mixed method	2
Total	28

Table 2: Distribution of Research Methodologies

As seen in the table, the popular research methodologies employed in the studies of the gamification-based app in teaching and learning English are Quantitative. More than half of the studies reviewed were conducted with a quantitative approach. Qualitative and Quasi-experimental are typical in terms of number with four and five articles respectively. The mixed-method approach appears to be the least used with only a total of two articles.

3.3 Target investigated in the studies.

The target of the studies ranged from primary school students to university students.

Target	Numbers
Primary School Students	3
Junior High School Students	6
Senior High Schools Students	10
University Students	9
Total	28

Table 3: Distribution of target investigated

The data shows that the studies are conducted mostly on Senior High School students. Studies with University students place second with only one difference to the former. The least targeted were the primary school students with only three studies.

3.4 Year distribution of the study

The following figure illustrates the years of the studies conducted.

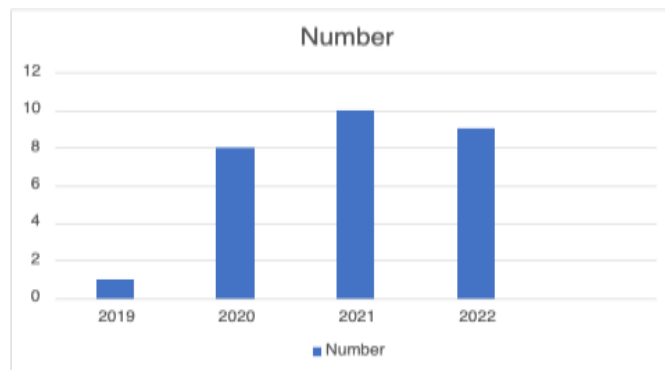


Figure 1: Distribution of papers studied

The figures indicate that the majority of the studies were conducted in 2021 with a total of 10 articles. In 2022, there are 9 studies conducted. Meanwhile, in 2020, there are a total of 8 studies conducted. The least is seen in 2019, where there is only 1 study conducted.

3.4 Topic Areas improved through Gamification-based apps

The following pie shows the illustration of the topic areas researched.



Figure 2. The topic areas researched.

The data shows that the gamification-based apps improve the Engagement of the class in all areas. Vocabulary becomes the most targeted skill through gamification-based Apps. Other skills appear to have been researched also through the use of gamification-based apps such as Motivation, Reading, Writing, Grammar, and Assessment.

Discussion

The present systematic literature study aims to answer the questions that have been set including the gamification-based apps that have been employed the studies from 2012-2022 in

Indonesia, the research methodologies, the target investigated, the year of studies, areas improved and recommendations for future research.

First, Quizziz is found as the most used gamification-based app in the classrooms and has been used in the classroom to improve motivation, grammar, and engagement. The features of self-paced learning in Quizziz have been the reasons for this choice. Quizziz can set the learning to both live and homework mode. Besides, it enables more participants to join as a class compared to other gamification-based apps. Kahoot may offer the engagement type of interaction as there is a feature of the fastest and the most accurate, however, for the free account this only enables up to five participants. Duolingo on the other hand is more into personalised learning where it fits one-to-one study. Other gamification-based apps appear in this review however there are only a few studies regarding them.

Second, the Quantitative approach appeared to be the most used methodology in researching the gamification-based apps in this study. The quantitative study aims to generate knowledge about social phenomenon that happen in population (Burrell & Gross, 2017). Therefore, it is safe to say that it is an early exploration of the phenomenon. There needs to be further study to the topics. In contrast, the data also show that mixed method is the least conducted in the study. As known, mixed method combines and integrates the quantitative and qualitative to better understand the topic and solve the more complex questions (Molina-Azorin, 2016). Therefore, future studies can explore more of the gamification-based apps use in teaching and learning English using mixed methods.

Third, the target investigated the use of gamification-based apps in teaching and learning English appear to be in a wide range. In fact, the most use is not for university students but for senior high school students. Besides the use of gamification-based apps in Junior high School has also been found to be quite high. The existence of the learning management system in university may have contributed to why university students are second to senior high school students. The emerging data from primary school students also open research opportunities to explore the use of gamification-based apps in younger learners.

Fourth, this research is set to find the gamification-based apps studies which have been done in the last 10 years, namely from 2012-2022. The findings however are surprising as the gamification-based apps started to gain popularity in Indonesia only after the COVID-19 Pandemic. There is only study done in 2019 right before the pandemic about the use of Quizziz. Most studies appear to be conducted in 2020, 2021, and 2022 where students and teachers were to study remotely and had to find way to keep the teaching and learning going despite the situation. The forced situation speeds up the use of the gamification-based apps in the teaching and learning English.

Fifth, the areas of research in the study of gamification-based apps have ranged from vocabulary, reading, grammar, engagement, motivation, writing, and assessment. Engagement appears to be the most studied out of all the areas. This finding resounds the definition of

gamification in the first place where students have increased engagement using gamification-based apps (Chans & Portuguese Castro, 2021; Godwin-Jones, 2014). Meanwhile, assessment has been found to be the least studied which calls for future research to explore more on assessment using gamification-based apps. To sum up, the studies reviewed positively show that gamification-based apps have been improving the areas researched.

Finally, the recommendation for future research includes; 1) the research to various gamifications apps with more varied topic areas like listening and speaking; 2) the future research employing the mixed method will fill in the research gaps as there are only few of them compared to the quantitative research.; and 3) Primary school students appear to be least studied in the reviewed papers, therefore more research can be done with primary school students as the target.

CONCLUSION

This study generates the various studies in gamification-based apps in teaching and learning English to find out the gamification-based apps utilised, the methods, the year studied, the target, and the areas research. The finding indicates that Quizizz is the most used gamification-based apps in the teaching and learning English. All the gamification-based apps are used for the similar purpose that to improve engagement, vocabulary, skills, and assessment. While all the studies have mostly done quantitatively, the target studied has been ranging from primary to university students opening the possibilities for more research. The gamification-based apps gain popularity right in the last three years. This study is however limited in terms of references as Google Scholar is the only database searched. Studies involving more databases such as Elsevier, Springer, Wiley online library, Scopus, Science direct, and Web of Science.

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