

CHAPTER 2

LITERATURE REVIEW

2.1 Quizizz as Gamification-Based Assessment

Gamification is the integration of elements from game design in circumstances other than games. Thus, it differs from pure gaming, it solely makes use of game-specific components to produce a game-like experience. Gamification is defined by Landers & Callan (2011) as the incorporation of game features like game mechanisms to an educational purpose to create increased student participation. Its elements commonly incorporate badges, accomplishments, leaderboards, points to excite users and share helpful feedback.

Since gamification is often used for assessment, any design that integrates game mechanics, game dynamics, and game elements should be termed gamification. They offer the basis of an effective gamification-based assessment system. Werbach and Hunter (2012) provided one example of the design. They described how to create gamification-based assessments in three straightforward stages. The process of choosing the test's dynamics comes first, followed by choosing the right mechanism. The test's dynamics and mechanics must be balanced, among other considerations. The final step is to choose the parts that work with the mechanics. Table below provides an overview of the dynamics, mechanics, and game elements used in the gamification-based evaluation.

Table 2.1 Design of Gamified Assessment by Werbach et al. (2012)

Dynamics	Mechanics	Components
Constraints	Challenge	Content Unlocking
Emotions	Challenge	Content Unlocking
	Reward	Badges, Achievements, Avatars, Content Unlocking
	Competition	Badges, Leaderboard
	Competition	Teams
	Resource Acquisition	Points, Virtual Goods,

	Feedback	Points, Content Unlocking, Badges, Leaderboard, Levels
Progression	Reward	Badges, Achievements, Content Unlocking,
	Resource Acquisition	Points, Virtual Goods
	Feedback	Points, Badges, Leaderboard, Levels
Relationship	Cooperation	Teams

Based on descriptions above, we can name several examples of applications that based on Gamification. Quizizz, Kahoot, Duolingo, and Quizlet are the most known names. Those applications provide various of features to make classroom more enjoyable, interactive, and engaging. Once again, it is important for teachers to provide mentioned atmospheres, so that students would not feel bored. One-way monotone learning that only come from teacher would not be effective. Teachers should offer diversity in learning process. And utilizing Quizizz in formative assessment is capable in providing pointed claims.

2.2 Quizizz's Leaderboard

“Quizizz” provides several useful features. However, this study focuses to merely one, the leaderboard. Quizizz's leaderboard reveals the students' progress and performance level, the live assessment of students among other users was seen to their classmates (Mohamad et al. 2020). It also displays how many correct and wrong answers the users have made; the bar color even will indicate if the user answers several correct answers in a row. The ranking order in the leaderboard will always change if the assessment is going on, if there are users that catch up their friend's scores. The result will only display once all users are finished. Additionally, the teacher or the assessment setter has option to turn off the leaderboard's visibility. There is also another option to let the leaderboard only show top five.

From the point of view of the author himself, the Quizizz's leaderboard is the feature that give good impression, the most memorable from the application.

Witnessing the position slowly climb to the top and receiving compliment from lecturer were really excited him. Otherwise, seeing the position being overlapped by anyone did really encouraging. The regret when choosing incorrect answers, the tension to achieve top rank were also contributed to leaving such memorable impression.

2.3 Leaderboard in Educational Context

Arising from several mentioned points, it is noticed that there is no any studies regarding “Quizziz” that specifically discuss leaderboard. The researcher would argue the importance or the role that it plays in Quizziz, since the pre-interview study revealed that the leaderboard motivated them to become competitive, encouraged them to achieve higher place continuously and they were desired to perform better in further chances.

A study from Theriault et al. (2021) noticed the development of students’ engagement by competitive leaderboard. They report the competitive leaderboard appears to have an extra advantageous effect on participants’ excitement levels. The association between the competitive nature of leaderboards and emotional involvement is thus largely supported, supporting the assumption that self-efficacy positively moderates the relationship. Their study indicates of how a leaderboard influence certain things positively in learning process, this could be applied not only to Quizziz’s leaderboard, but also to any other leaderboard.

In the other hand, a contrast finding is found. In Bai’s study (2021), in regard to leaderboard, he observed in a circumstance where they did summative assessment and utilized leaderboard to display the overall results, he found that leaderboard give sort of pressure to some students. It is indicated by the participant’s statements that they prefer to see only top five posted publicly on the leaderboard. This finding should be extended and supported by further studies, considering it is a turning point that pointing leaderboard not only gaining positive responses. However, the pressure that mentioned should be clarified in more details, if the pressure was actually somehow encouraged them, it might caught as

positive output. However, it is eventually debatable whether the output results positively, or is it just leading them towards uncomfortable feelings.

The conclusion should be discussed further to clarify. Nonetheless, the researcher believes that the positive results are more dominant than the negative one. Overcoming the negative output could be done by several decisions, for instance we could set the leaderboard visibility only in certain times, not all the time.

2.4 Formative Assessment

Formative assessment is commonly defined as an arrangement which offers lots of opportunity to evaluate how well children are learning and then utilize that data to improve instruction. Formative assessment refers to comprehensive method of assessment to offer teachers and students insights throughout the instructional process. Whilst Black and Wiliam (1998b) argue that assessment broadly refers to all actions that educators and students engage in to gather data that can be utilized to diagnose problems and change instruction.

There are several categories included in formative assessment, for instance questionnaire and direct observation. A questionnaire was implemented by Song and Koh (2010) to measure the various kinds of assessment that educators had implemented for formative purposes. Furthermore, it is apparent that a lot of teachers are using direct observation while assessing their approaches to formative assessment (see, for example, Cagasan et al., 2020; Hartmeyer et al., 2016; Lyon et al., 2020).

Furthermore, Wiliam and Thompson (2017) proposed a framework in which various formative assessment practices are categorized into five key strategies. First, clarifying and sharing learning intentions and criteria for success. Teacher should make their success criteria and learning objectives visible to students. William and Thompson gave example to implement this point, they stated that teacher could share completed assignments from a prior year's class, such as lab reports, to initiate a quality-related discussion. Students select the best reports and evaluate the strengths and weaknesses of the better reports. Teachers have also discovered that they can adapt the task to the students' skills by carefully selecting

the examples. To start, a teacher could select four or five samples with widely diverse quality levels to get pupils to concentrate on general quality standards. Second, engineering effective classroom discussions, questions, and learning tasks. A significant amount of a teacher's teaching time is often allocated to whole-class discussions or Q&A sessions; however these sessions typically are used for reinforcement rather than present new knowledge to the learners. Moreover, teachers typically listen for the "right" answers rather than listen to what can be discovered about their students' thought processes. Teachers should therefore address this issue by asking questions to learners that either stimulate their thinking or give them information that will allow them to improve their learning to better fit the needs of all learners and eventually building consciousness that teachers must thoughtfully consider the questions they give in class. Third, providing feedback that moves learners forward. For feedback to be efficient, it must trigger reflection. A comment that targets the student's areas of improvement and, when necessary, links to rubrics is what gets them reflecting. Fourth, activating students as instructional resources for one another. Students are considerably better at identifying mistakes in the work of other students than in their own. Peer evaluation and feedback can therefore play a significant role in successful instruction. Not just students who receive feedback benefits from it, sometimes even more so than the recipients, students who provide comments gain benefits as well. They are compelled to comprehend while evaluating a peer's work, but this requires them to do it in the context of someone else's work, which is less emotionally charged. And last activating students as the owners of their own learning. When students evaluate their own work using defined success criteria, they may take control over their own learning. Instructors can provide students a rubric that is written in an approachable language, or the class can create the rubric with the teacher's assistance.

From one of the strategies, we could see a solid connection between formative assessment and feedback. Feedback on assessments that is explicit about errors and offers recommendations for how to improve enables students to concentrate critically on the subject at hand, rather than just focusing on achieving

the right answer. Since it highlights that students can grow because of effort rather than being doomed to poor result (Chodorow, 2020). These are in line with one of the Quizizz's function and principle. The application provides feedbacks to let the users know how many and which one is the error.

The significance of formative assessment should be promoted more, likewise encouraging technology utilization in the assessment. Technology such mentioned application is proven to complete formative assessment requirements. Therefore, School and stakeholders have to contribute in facilitating prior points. Advancement technology should be a part of education in the present era.

2.5 Quizizz in Formative Assessment

Numerous studies have discussed Quizizz in formative assessment, nearly all results are showing positive impacts, for instance, increasing students' higher order thinking skills. Higher order thinking skills are thinking skills that develop the cognitive skills of learners at an advanced level. Students can integrate concepts and knowledge while examining and assessing information to the point of producing an assessment of a fact under study (Mahendra, 2022). He afterwards conducted related research and found that students who participated in integrative Quizizz as a formative assessment and those who participate in conventional online learning possess distinct high-level thinking skills. With Quizizz's characteristic which provides competitive classroom environment that pushes students to work independently and gives motivation, they are more engaged in their studies and more creative.

The recent study was also proving that Quizizz in formative assessment offers numbers of positive outcomes, even in its another mode. Putra (2023) gathered favorable perceptions about the use of Paper-mode Quizizz in formative assessment of English language instruction. In addition, the students agreed that Quizizz's Paper mode was engaging and enjoyable. Most students found the Quizizz paper-mode quiz interesting. Many students also mentioned the challenges and tough it was. As a result, pupils were forced to concentrate harder on the task to avoid cheating.

Findings above are solid evidence that Quizizz with all its characteristic is a relevant beneficial tool for educational field. They once again strengthen the fact that “Quizizz” contributes in constructing effective formative assessment. However, it is an obligation to continuously support all relevant studies, this study therefore presents to support.

2.6 Students' Perception

Hasnidar (2020) argue that perception provides information via each unique sensory receptor, such as the skin, hair, eyes, and nose. Due to this, psychology illustrates how people experience and learn based on what they can perceive, feel, see, and experience in their environment. According to Cherry (2019), perception is the process of obtaining environmental cues so that a person can classify and evaluate information that has been gathered. In addition, according to Efron (1969), the term "perception" can be used to illustrate a variety of topics, including things that we can see or perceive, as well as things that we can touch, such as raw materials, objects that form scars, food scraps, and feelings.

Students' perception in this study refers to the students' perception toward the use of leaderboard feature in Quizizz in formative assessment. It is important to discover the information through students' perception to gain an understanding of what they see and feel. Specifically, to encourage students to perform better in accomplishing English formative assessment.

2.7 Studies of the Relevant Research

There are numerous of studies that concerning Quizizz. Permana & Permatawati's (2020) finding demonstrate that pupils' performance can be raised with the Quizizz app. Furthermore, the statistical analysis illustrates that this application has improved learning outcomes. There are undoubtedly several advantages for students using Quizizz. It may offer students immediate, yet helpful feedback due of its interactivity. Additionally, they claim that teaching with gamification like “Quizizz” can effectively foster students' curiosity, focus, creativity, and interpersonal skills. Students' desire to compete is also stimulated

by this application. Students can determine their place among their classmates with the use of the leaderboard.

Studies regarding leaderboard, out from “Quizzz”, will be also deployed here. Na & Han (2023) discovered that the high-ranking group of students on the leaderboard tended to be motivated by results to swiftly accomplish a more significant outcome. Nevertheless, lower leaderboard positions were more effective at boosting motivation than higher ones. Their findings agree with Nebel et al. (2016) who found that low-rank students accomplished better when there was a higher perceived level of competing. In addition, they also draw attention out that the high-ranking group of participants didn’t step up their efforts when achieve high rank several times, they just tend to maintain their position.

The tendency of positive and negative outcomes should be a point of consideration for teachers. They should choose the prominent effect as main reference, whether they would ignore the negative impacts and focusing on major positive, expecting the low rankers to be motivated. Other option, they would probably be changing the setting of the leaderboard. The setting for instance, could be set up to show only the top five or top ten in the leaderboard, so that the low rankers will not feel pressured. These two options however could be done in the same period to see concrete effects.