

THE LATEST TECHNOLOGY PARADIGM IN EDUCATION: THE ROLE AND CONTRIBUTION OF GAME-BASED LEARNING (GAMIFICATION) IN INCREASING STUDENT MOTIVATION

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Abstract

One of the newest technological trends in education is game-based learning, or gamification. The use of game design features and principles in non-gaming situations, such education, to boost user motivation, engagement, and involvement is known as gamification. Gamification is a significant factor in making learning more engaging and fun for students in the setting of education. Gamification holds enormous promise for boosting student enthusiasm and involvement in the classroom. Gamification can be a useful tool in helping students have more meaningful and engaging learning experiences provided it is designed and implemented well. Student motivation and achievement can be significantly enhanced by the use of game-based learning. By creating interactive, immersive, and enjoyable learning experiences, this approach can stimulate student interest and improve the quality of their understanding of the subject matter. However, it should be remembered that the success of game-based learning lies in careful design, proper integration into the curriculum, and careful monitoring of student responses to ensure success in achieving learning objectives.

Keywords: Role and contribution, gamification, student learning motivation

INTRODUCTION

The educational landscape has undergone a fundamental change as a result of the influence of digital technology such social media, mobile devices, and the internet. According to Pînzariu, A. I. (2020) current technological

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advances have shown future changes where the use of ICT in education is inevitable; As a result, preparing teachers who meet the standards of preparation for use will also affect student readiness. Technological advances have also brought significant changes to the educational paradigm. Digital technology has expanded and enhanced conventional educational methodologies that are teacher-centered and textbook-oriented (Asad, M. M., & Malik,, 2023). More equitable and flexible access to education is now possible due to the expansion of learning methodologies that were previously exclusive to physical classrooms into virtual spaces. Based on their research findings, teachers are the ones who drive digital-based learning (Tomar, P., & Dhingra, 2021).

Education is the main foundation for the development of young people in achieving their full potential. However, in the past, learning experiences were often considered boring and limited by rigid curricula. For many students, school is just a boring routine that requires them to face subjects that do not always match their interests and talents. However, with the development of technology, this paradigm has changed.

Khan, S., Kahn, M., & Ramsey, P. (2024) stated that technology has changed the way students learn, making the educational process more fun and meaningful. Not only in Indonesia, but throughout the world, students can now find unique ways to develop their talents and interests through the help of technology. If previously the curriculum in schools may not have provided opportunities to explore natural talents, now students can channel them with the help of technology. Education is the main foundation in preparing future generations to have the skills and knowledge needed to face global challenges. Along with the development of technology, learning methods have also undergone significant evolution. One of the latest innovations in education is the use of game-based learning.

The term "gamification," which has a strong connection to technology, is said to have been first used by Nick Pelling in 2002. However, Benthem (2002) also suggested that any logical task could be made game-like at this same time. Shortly after, in 2008, Bret Terrill used the term "gameification" on his blog as a way to boost engagement. Terrill spelled the term incorrectly, which was unfortunate. Gamification started to garner a lot of attention in the 2010s in areas such as business, health, education, and crowdsourcing (Pesare et al., 2016). The use of (video) game components in non-gaming situations (e.g., corporations, schools) is known as gamification. There is no agreed-upon list of features, making game design aspects hard to pin down. However, there

are a few methods that designers can use to comprehend how game aspects affect learning settings.

Gamification is becoming more common in some contexts, such as education, where it's thought to be a useful tool for motivating students. The goal of gamification tactics used in education, sometimes referred to as gamified learning experiences, is to promote a playful mindset among students. This can be achieved by introducing game components into the classroom. Games and their mechanics give rise to gamification, which is progressively being investigated in educational institutions. When used properly, gamification increases motivation, which in turn can motivate students to devote more time to their studies (Karagiorgas, D. N., & Niemann, 2017).

In the field of education, gamification-ready electronic tools are being utilized in classrooms more and more. But there are also other game-inspired methods and approaches that are widely used in education, such as game-based learning, virtual reality (VR), serious games, and 3D simulations. Consequently, it's critical to differentiate between three ideas: (1) game-based learning, which entails implementing full educational games intended to motivate students; (2) gamification, which refers to devices that integrate game elements to provide an enjoyable experience without being a game itself; and (3) serious games, which blend the real world and games through simulations that aim to develop certain competencies in a safe and reasonably priced environment (Lamrani, R., & Abdelwahed, 2020). Because gamified learning experiences make student progress easily observable, they are frequently used in educational settings to boost motivation and engagement in the learning process. Gamification services are full of game components including tasks, badge awards, points, ranking, levels, and storytelling to improve the gamification learning experience.

Many digital services for gamified learning are already available. Kahoot, a quiz-based platform with gaming components including points, rankings, competitiveness, and cooperation, is one of the most well-liked ones. But there are gamified learning opportunities everywhere, with apps covering a wide range of academic subjects and a focus on STEM (Hartt et al., 2020). One such example is Codecademy, a gamification-based platform that assists students in learning programming languages. Learning experiences that are gamified can therefore be advantageous to pupils. The literature in this area highlights the benefits of gamification in a number of areas, including high

school motivation. Because of this, it's critical to closely consider how gamified learning experiences affect students' motivation.

RESEARCH METHOD

In this study, data were collected through descriptive methods from various reliable sources, including literature studies and recent publications. The latest technological paradigm in education: the role and contribution of game-based learning (gamification) in increasing student motivation is described using a descriptive approach. Collecting literature related to the research topic is the first stage of this research method. Literature research was conducted using academic databases, scientific journals, and related publications that discuss the analysis of Islamic education and strategies for facing global challenges. The selected literature must be relevant to the research objectives and of high quality. After the literature was collected, relevant data and information about the definition of gamification, types, and principles, student learning motivation, the role of game-based learning in increasing student learning motivation related to the research topic.

RESULT AND DISCUSSION

Definition, Types, and Principles of Gamification

According to Sanchez et al., (2020) a technique that is now being considered for development in conjunction with the e-learning Learning Management System is gamification. However, many people are still unaware of the nature of gamification in education. This post will go over several key points that should be understood in order to create gamification. LearnTech defines gamification as the application of game features in non-gaming contexts to enhance positive learning behaviors, while according to Floryan et al., (2019) gamification integrates game elements and techniques in the e-learning process. "Programs use game-based work patterns, aesthetics, and game thinking to get others involved, motivate them to take action, promote learning, and solve problems" is another viewpoint that goes into deeper detail on gamification (Palová, D., & Vejcka, 2022). It is true that using gamification in the classroom should motivate students to engage with the material and participate actively, but it's important to keep in mind that gamification is frequently created with short-term memory retention in mind. The way that game features are used in gamification will essentially keep evolving in tandem with people's tastes in games, which will also be impacted by the advancement of information technology. In addition, there is no

minimum standard for the use of elements in gamification. The use of game elements in gamification must at least be adjusted to the needs analysis of students or instructional. Although the term gamification has begun to be widely discussed, not many people know the types of gamification. There are two types of gamification according to Christopoulos, A., & Mystakidis, S. (2023), the following is a description of the types of gamification that can be used in e-learning-based learning.

1. Structural Gamification.

Structural gamification is gamification that incorporates game aspects into a collection of digital and online learning resources to motivate students to access them all without altering the way the resources are presented. In structural gamification, learning materials are created without following a game design pattern; instead, gaming features are introduced to the learning structure on the e-learning LMS platform. The main focus of this type of gamification is to motivate students to access learning materials and involve them in the learning process by giving awards for student achievements after accessing the learning materials provided. Kapp gave an example of structural gamification with students who will get points in learning because they have watched the videos provided or they have completed the tasks given, while the videos and tasks do not have game elements. Structural Gamification can be used without the need for media development in game format, all materials that an Educator already has can be managed into a structural gamification by combining the tools available on the LMS e-learning platform. For example, the development of gamification on Moodle can be done by presenting learning materials in power point, video or pdf format and combining the gamification components available on Moodle.

2. Content gamification

The goal of content gamification is to make the way that learning materials are presented look like a game display by including game components and game thinking patterns into the resources. For instance, rather than giving students an explanation of the learning objectives (as is typically done in every learning opening process in general), the presentation of learning materials is done by adding story elements to the material that must be accessed or by starting learning by giving challenges to students. It should be noted, adding this element makes the learning material resemble a game program, but does not change the learning material into a real game. The process of creating learning materials for content gamification involves

creating learning materials with game elements. These elements may include levels, a plot, or other game elements integrated into the learning material file.

Referring to the results of research conducted by Landers ET AL., (2018) stated that there are at least 4 principles that must be present in gamification, namely freedom to fail, fast feedback, progress, storyline.

1. Freedom to fail

In order for gamification to meet the learning objectives, it must take into account the varying speeds of students as well as different risk profiles and multiple "lives" for them. This way, students won't be afraid to fail and will be encouraged to try new things, take calculated risks, and try again if they don't succeed the first time.

2. Fast feedback

Students must receive immediate feedback and rewards after they complete the challenges given. Games should be set to provide targeted feedback immediately when the game has been played, either after completing individual tasks or at the end of each level.

3. Progress

Students must be able to visually assess their progress on their way to the game's final goal. When the game is divided into several levels, learners as players have the opportunity to practice what they have learned previously in the final stage, and at this stage often built the requirement to apply all the skills or mastery that have been achieved in the previous levels to be used at once in completing the final level.

4. Storyline

A good game involves an interesting storyline. The material is arranged in a narrative and asks learners as players to participate in completing the story.

Student's Motivation to study

Motivation is an effort that has the power to motivate an individual or a particular group of individuals to take action in order to fulfill their goals or feel good about what they have done. Accordingly, motivation is defined as an inborn process that initiates, directs, and sustains behavior for a predetermined amount of time. To put it another way, motivation is what spurs us to action, sustains it, and helps us choose the context in which to act.

Motivation can be defined as the impact of wants and desires on an individual's intensity and direction, which propels them to reach objectives at a particular degree. Gaol, R. L., & Sitepu, A. (2020) define motivation as a shift in an individual's energy that is typified by the appearance of affective

responses, activities to accomplish goals, and internal encouragement that serves as the driving force. As a result, a person's motivation, which is an internal psychological process, is highly influenced by both external (the environment) and internal (nature) variables, such as education level, prior experiences, ambitions, and aspirations for the future.

Meanwhile, the definition of learning motivation according to Abou El-Seoud ET AL., (2014) is the general motivation that students possess that gives rise to learning activities, ensures that learning activities continue, and gives learning activities direction so that learning objectives can be met.

The desire pupils have to accomplish learning objectives, such as comprehending the subject matter or developing their learning, is known as learning motivation. When students are motivated, they will constantly be eager to learn new things without outside pressure. In the context of education, motivation can be defined as the drive that drives learning actions or other educational actions. This can be done by organizing learning activities and learning environments to develop children's potential to become actual.

The characteristics of learning motivation according to Boström, L., & Bostedt, G. (2020) are:

1. Diligent in facing tasks (can work continuously for a long time and never stop before finishing).
2. Persistent in the face of difficulties (not easily discouraged).
3. Showing interest in learning
4. Showing interest in various adult issues (e.g. development issues, politics, economics, etc.)
5. Preferring to work independently.
6. Making decisions about what to do and what not to do to achieve the goal.

Students can be said to have high learning motivation if they have the following characteristics:

1. Diligent in facing tasks
2. Persistent in facing difficulties
3. Does not require external encouragement to achieve
4. High enthusiasm for learning (happy, diligent in learning, and full of enthusiasm)
5. Likes new knowledge

Thus, the best way to build learning motivation that can be done to achieve good learning motivation for children (Yilmaz et al., 2017) is to increase the teacher's ability to improve the quality of learning. The teacher is the one who determines whether or not students will learn during the

process. The primary determinant of learning quality is the instructor. High-quality education will lead to high-quality learning results. Second, selecting an appropriate learning strategy. It is necessary for teachers to be able to select the most effective teaching strategy. Learning objectives will be more easily attained if teachers are able to select the most effective teaching strategy. A pleasant learning environment will be produced by selecting the appropriate teaching strategy, which will help boost student enthusiasm and interest in learning. Third, making the most of educational resources. The utilization of quality learning resources influences learning motivation during the process of learning. Facilities that support learning such as the internet, computers or gadgets, etc. Good use of facilities will maximize the material that will be delivered by maximizing the function of existing facilities. The school is expected to provide optimal support to support learning so that what is carried out by the teachers can be achieved properly and optimally.

The Role of Game-Based Learning (Gamification) in Increasing Student Learning Motivation

Game-based learning, as an interesting innovation, has successfully transformed the educational landscape by utilizing game elements to enhance students' motivation and learning achievement. This new paradigm not only presents information in an attractive format but also designs a fun and interactive learning experience (Al-Azawi et al., 2016). Through this approach, learning no longer feels like a routine obligation, but rather an educational adventure that provokes curiosity and a spirit of exploration (Wangi et al., 2018).

Intrinsic motivation, which is the main focus of game-based learning, encourages students to learn with dedication and enthusiasm. By presenting relevant and immersive challenges, games can provide intrinsic satisfaction that motivates students to pursue deeper understanding. This high level of engagement creates a dynamic learning environment, where students feel in control of their own learning process. Furthermore, game-based learning has been shown to have a positive impact on student achievement (Zabala-Vargas et al., 2021).

High engagement and intrinsic motivation driven by game elements provide a strong foundation for achieving optimal academic outcomes. Through challenges, simulation scenarios, and instant feedback, students not only understand concepts theoretically, but also apply their knowledge in practical contexts (Figueroa-Flores, 2016). The result is students who not only achieve high levels of achievement but also have skills that can be applied in

real life. However, while these positive impacts are highlighted, it is important to continue to examine the implications and challenges that may arise along with the implementation of game-based learning. Thoughtful curriculum planning, appropriate technology integration, and ongoing monitoring are needed to ensure that game-based learning not only provides short-term benefits but is also sustainable in the long term. With a deeper understanding of the relationship between motivation and learning achievement in the context of game-based learning, we can design more effective approaches to shape a skilled, innovative, and highly competitive generation in the future (Camacho-Sánchez et al., 2022). Game-based learning has proven itself as an effective tool to increase student motivation through various mechanisms designed to trigger active engagement (Cózar-Gutiérrez et al., 2016). The integration of game elements, such as challenging challenges, motivating rewards, and competitive elements, effectively creates a more engaging and enjoyable learning atmosphere. In this context, intrinsic motivation, which is the internal drive to learn, becomes stronger because students are engaged in a learning experience that is not only informative but also entertaining. The challenges presented in the game Motivate pupils to hone their critical thinking and problem-solving abilities (Herout, 2016). Rewards given as a result of achievement or progress provide positive incentives that strengthen intrinsic motivation. In addition, the competitive element encourages healthy competitiveness among students, creating a group dynamic that encourages each other to achieve better results. More than just achieving the end result, students involved in game-based learning enjoy the learning process itself.

Interactive and dynamic experiences create a learning environment that allows students to explore concepts in a deeper and more personal way. Thus, learning motivation is not only external, such as praise or rewards, but also comes from the intrinsic satisfaction gained from deep and meaningful learning experiences (Dahalan et al., 2024). However, it must be recognized that game-based learning is not a one-size-fits-all solution. Game design must be tailored to student characteristics and learning goals in order to provide maximum impact. Therefore, a holistic approach that understands student diversity, together with ongoing efforts to improve game design and curriculum, will support the success of game-based learning as an innovative and effective educational strategy. The competitive element in games plays an important role in supporting the development of students' sense of achievement and learning goals. When students engage in competitive situations, they have extra motivation to achieve better results and achieve

their set learning goals. Through games, students can measure their progress, receive rewards, and overcome various challenges, creating experiences that strengthen their motivation to continue learning (Chen et al., 2023). When students can see positive developments in their achievements, such as increasing their scores, skill levels, or passing certain levels of difficulty in a game, they feel a sense of personal satisfaction and accomplishment. Rewards in the form of points, medals, or further levels provide additional incentives that increase the sense of accomplishment. This creates a positive cycle, where students feel encouraged to continue improving their performance because they see tangible results from their efforts.

In addition, the competitive element can also stimulate a greater sense of responsibility and involvement. In the educational context, the competitive element in games can be applied carefully so as not to create excessive pressure or harm the collaborative aspect (Dabbous et al., 2022). It is important to ensure that the competition is positive, supports personal growth, and does not put pressure on students. In this way, students can feel the satisfaction and motivation that comes from a sense of personal accomplishment, without feeling burdened by unhealthy competition.

The motivation and learning of students can be greatly enhanced by the use of game-based learning achievement. By creating interactive, immersive, and fun learning experiences, this approach can stimulate students' interest and improve the quality of their understanding of the subject matter. However, it is important to remember that the success of game-based learning lies in careful design, proper integration into the curriculum, and careful monitoring of student responses to ensure success in achieving learning objectives.

CONCLUSION

Game-Based Learning (Gamification) has become one of the latest technological paradigms that plays an important role in education. This concept integrates game elements into the learning process to increase student motivation. By using educational games, students can be actively involved in learning, which in turn can increase their interest and learning achievement.

Gamification contributes significantly to creating a more interesting and interactive learning environment. Through the application of games in education, students not only learn in a fun way, but can also increase their involvement in the subject matter. Research shows that the use of educational

games can increase student learning motivation, especially at the elementary and secondary education levels.

In addition, digital game-based learning can raise students' motivation and interest in learning, so that learning materials can be learned optimally. Thus, gamification in education not only increases student motivation, but also creates a more enjoyable and effective learning experience. Educators are expected to be able to utilize this technology to create an innovative and engaging learning environment, so that students can learn better in today's digital era.

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