

## Gamification of Learning in the Perspective of Constructivism Philosophy Lev Vygotsky

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### Abstract

*The industrial revolution encouraged teachers to change traditional learning systems into modern ones. The media used in learning certainly changes according to the characteristics of students. One approach that is suitable for 21st century education is through gamification. Gamification in learning support students in understanding the material in an easier and funnier way. The aim of this study is to describe gamification learning media in the perspective of Vygotsky's constructivism philosophy. This study uses library research based on library data, namely examining the learning media of gamification and Vygotsky's philosophy of constructivism which is carried out using literature in the form of rules that support in analyzing research topics. The approach that is used in this research is descriptive qualitative approach. In this study, exploration and providing arguments related to gamification learning media are carried out with the analysis of Vygotsky's constructivism philosophy. The result of this study examine that gamification learning media can be viewed from the perspective of constructivism philosophy according to the three components of Lev Vygotsky's theory. The three components of Vygotsky's theory are Zone of Proximal Development (ZPD), Scaffolding and More Knowledgeable Others (MKO). This research is hoped to become a solution to the problem of low learning motivation of students and help students to solve their own problems, thus forming the character of students who think critically.*

### Keywords

Gamification; learning;  
constructivism philosophy



## I. Introduction

In the development of the world of education, especially after the rolling reforms, new phenomena have arisen in educational institutions, which are schools that use the term Integrated Islamic Schools (Titik, 2010: 42). The school is essentially aimed at helping parents teach good habits and add good character, also given education for life in society that is difficult given at home. Thus, education in schools is actually part of education in the family, which is also a continuation of education in the family (Daulay in Ayuningsih, W. et al. 2020).

Education is the foundation of a successful career, financial freedom, the ability to think and reason critically and to make informed decisions. Without education we will be limited to perform tasks and we will be ignorant to the things that are happening in and around our surrounding, and according to Martin Luther King, a people without knowledge is like a tree without roots. For education to be of great value, curriculums should be implemented. (Philips, S. 2020)

The industrial revolution 4.0 changes the paradigm in acquiring knowledge (Putra et al., 2019). Knowledge is not only obtained from books or teachers but also makes the internet a source of knowledge. The 21st century generation is the generation born at the

same time as the internet, preferring to acquire knowledge in a practical and fun way. The nature of digital native makes this generation always want to try something new, like to learn creatively, interactively and think according to technological developments. Students can use the internet anytime anywhere to gain knowledge. 21st century teachers are required to create interactive learning with students, which can encourage creative and solutive students in thinking to solve problems (Dwijayani, 2019). Teachers follow the industrial revolution by applying interactive learning media (Saputra et al., 2018). Media is a tool used to advance the quality of the learning process and will make students more enthusiastic and easy to remember the learning that is being done (Puspita Sari & Setiawan, 2018).

Teachers in the 21st century are required to master the use of learning media that are relevant to the characteristics of the students. One approach that is in accordance with 21st century education is through gamification. Gamification is the process of using elements or design techniques in a game to be applied in a non-game context (Safapour et al., 2019). In other words, gamification is learning through games or game-based learning. Gamification can be applied as a learning medium for 21st century students. According to Panis et al., (2020) gamification is said to be an alternative in the motivating process and is able to achieve the demands of learning experience needs to form appropriate learning characteristics as a result. On the other hand, Gamification is a creative learning model that has a tremendous impact in increasing students' learning independence (Udjaja et al., 2018). In addition, the application of gamified learning media allows students to compete with friends in their class to get the best position during teach (Sailer & Homner, 2020). This triggers students to build their own knowledge to understand the material in order to achieve the goal of victory like a game. Gamification in learning makes students motivated to complete or achieve game success, which in the end the results of student learning can increase.

The research of Saputri et al., (2018) which discusses the assessment of interactive multimedia needs in elementary schools concludes, among other things, that it is necessary to develop game-based interactive multimedia to help students understand and master the material in learning. The results of previous research by Panis et al., (2020) regarding the design of the gamification model in universities concluded that the research showed results in the "very good" category, which means that the learning design is feasible to be applied in learning. The results of Udjaja et al., (2018) research on gamification for elementary school mathematics learning in Indonesia resulted in an interactive learning game to support students in understanding mathematics material. Research results Pambudi et al., (2018) regarding the development of mobile gamification learning applications for learning concluded that the learning media allowed students to be more independent and not only rely on the ability of educators to create conducive learning. This can encourage students to play an active role in their own learning activities.

Based on the explanation above, the industrial revolution 4.0 has an impact on extraordinary scientific progress, so that it affects the learning process. The learning process itself is basically closely related to how students acquire their knowledge in learning. From this problem, there needs to be a change in responding to the development of science and technology through effective learning alternatives. One that is expected to be an alternative that answers this situation is constructivism theory. So that Gamification Learning Media is necessary to understand it in the perspective of Vygotsky's constructivism philosophy to be interesting to study. Because, Vygotsky's constructivism philosophy requires students to use their abilities to adapt to the demands of the development of science and technology according to their era. Learners in obtaining

knowledge not only receive feedback and ready-to-eat knowledge from teachers or friends. So that students are expected to be able to transform complex information into other situations, meaning that students are able to develop the knowledge gained.

## **II. Review of Literature**

This research is in the form of a literature study where the research results are analyzed based on the data from the review of literature references, including research journals, research reports, seminar reports and scientific discussions (Sugiyono, 2014). This study uses a qualitative descriptive method, where phenomena related to learning in the 21st century are described descriptively. The researcher also conducted an argumentative exploration related to gamification learning media and Vygotsky's theory of constructivism philosophy. Exploration data on 21st century learning and gamification learning media were then analyzed based on Vygotsky's theory of constructivism philosophy.

## **III. Result and Discussion**

### **3.1 Constructivism Philosophy**

Constructivism is a philosophical orientation that is very urgent for the process of developing knowledge because this process involves more than just individual understanding that knowledge and thinking reflect the unique external world, but that all of them are constructed by everyone (Mustafa & Roesdiyanto, 2021). Constructivism philosophy emphasizes that one's knowledge is a manifestation of the construction of individual thought itself. Construct in the context of educational philosophy means to build. Woolfolk (2004) says that the constructivism approach in learning focuses on the active participation of students in gathering knowledge and interpreting the events or information they experience. In line with this opinion Donald et al. (2006) explained that the constructivism approach is a way of teaching and learning that aims to maximize student understanding. More specifically, constructivism is an attempt to build a modern order of life. In building or constructing individual knowledge and skills that are part of the social environment, it must be done conceptually and consistently. Constructivists are of the view that in learning students must be given the opportunity to learn in their own conscious way, then the role of the teacher is as a guide for students to achieve higher knowledge (Kukuh et al., 2021). More specifically, constructivism is an attempt to build a modern order of life. In building or constructing individual knowledge and skills that are part of the social environment, it must be done conceptually and consistently. Constructivists are of the view that in learning students must be given the opportunity to learn in their own conscious way, then the role of the teacher is as a guide for students to achieve higher knowledge (Kukuh et al., 2021). More specifically, constructivism is an attempt to build a modern order of life. In building or constructing individual knowledge and skills that are part of the social environment, it must be done conceptually and consistently. Constructivists are of the view that in learning students must be given the opportunity to learn in their own conscious way, then the role of the teacher is as a guide for students to achieve higher knowledge (Kukuh et al., 2021).

In constructivism, learning is a freedom. With the freedom of learning given, students will be able to capture and express the results of their interpretation of the real world they face. The concept of constructivism learning is based on an understanding of the student's learning process in constructing a knowledge that he does. The knowledge that is built by students is not a series of facts, concepts, or rules that are ready to be

remembered, but to be understood. This learning theory (constructivism) supports students in constructing new knowledge based on the prior knowledge they have previously. This theory encourages students to be more active and so that they are able to adapt and interact with the environment in which they are located (Mustafa & Roesdiyanto, 2021). Students must construct the knowledge gained and give meaning through real experience by themselves. Vygotsky stated that humans are different from animals that only interact with their environment, but humans have more than that the ability to change their environment according to their wishes. Vygotsky's philosophy gave birth to the theory of social constructivism which means that children can build their cognitive skills through social interactions that children do themselves (Adam, 2017). From this description, it can be concluded that the essence of constructivism theory is an act of constructing something meaning based on something that is learned. The creation of a meaning is what causes a person to have dynamic knowledge. Vygotsky emphasizes and discusses constructivism learning on the social dimension which is better known as the Sociocultural Constructivist.

### **3.2 Lev Vygotsky's constructivism**

One of the well-known figures of constructivism is Vygotsky, a psychologist from Russia whose full name is Lev Semyonovic Vygotsky. He was born in Russia in 1896. Vygotsky's view of education stems from his assumptions that underlie the theory of social constructivism. The assumption statement is what a child can do in cooperation today, he can do alone tomorrow. Whatever children learn together at that time can be done independently in the future. Knowledge cannot be simply transferred but must be interpreted by oneself. Active students build their own knowledge structure based on the cognitive level of students. The famous works of Vygotsky, among others, though and Language (1962), Mind in Society (1978). Both works suggest the concept/nature of learning from constructivism theory, which is better known as social cognitive learning theory. There are 3 components of Vygotsky's concept, namely:

#### **a. Zone off Proximal Development (ZPD).**

Vygotsky states ZPD as a gap between a child's actual developmental stages which is determined by problem solving which depends on a higher potential developmental stage determined through problem solving guided by the teacher or collaborating with peers who have more abilities (Erbil, 2020). The development of abilities is divided into two, the development of actual abilities and the development of potential abilities. At the level of actual development lies in the ability of students to do each task given independently. Meanwhile, the level of potential skill development is the child's ability to do exercises in a guided manner or in collaboration with peers. The gap between the two levels of competency development is called the Zone of Proximal Development (ZPD).

#### **b.Scaffolding**

The form of task difficulty experienced by students is different, scaffolding is the process of providing assistance to students (Kukuh et al., 2021). Vygotsky defines scaffolding as a model of assistance or support provided by teachers or other people who have competence on an ongoing basis that is adjusted to the ability of students to achieve a higher level of ability. The teacher is the key in the implementation of scaffolding. The teacher only provides guidance in stages with the aim of students being able to solve the problems themselves. Learners build their own knowledge so that their actual abilities reach their potential abilities. What the teacher can do is provide assistance in the form of instructions, encouragement, warnings, or giving examples.

### **c. More Knowledgeable Others (MKO)**

This form of interactive learning allows children to develop or construct new understandings with the help of teachers or what Vygotsky calls More Knowledgeable Others (MKO). MKO are adults or peers who have the competence or knowledge to collaborate in developing their skills. Generally, MKOs are teachers, but currently it is not only humans who act as MKOs (Shaikh et al., 2017). Teachers in learning as MKO deliberately do not provide complete solutions and let students solve the problems given.

It can be concluded that based on Vygotsky's theory there are several things that must be guided during learning: (a) Learners have the freedom to acquire knowledge from the zone of proximal development, (b) The level of potential development of children in the ZPD is more dominant than their actual level of development, (c) Learning media is used to develop children's potential/ability in understanding learning material, (d) Students are given the full opportunity to utilize the knowledge they have acquired to solve problems, and (e) The learning process carried out by students is more constructive than transferal.

### **3.3 Gamification of Learning in Vygotsky's Constructivism Perspective**

The success of the application-based game industry, both thinking games and mechanical games, has encouraged the emergence of various desires to apply game concepts in non-game contexts. The adoption of the game concept into a non-game context is known as gamification. In the world of education gamification has been applied in learning. Gamification in learning has become very popular after a lot of teachers who like games. Gamification is a process by using a game mindset and "machine" as a tool to attract interest and solve educational problems (Panis et al., 2020). Gamification in the context of learning can be referred to as gamified learning (Sailer & Homner, 2020). Gamification is the application of game or game-based design elements and concepts in learning using game principles (Safapour et al., 2019). Huotari and Hamari (2019) define gamification as a continuous procedure to enhance learning abilities with motivational abilities to achieve a gaming experience.

From the research results Sari et. al., (2019) which adopted the research of Dicheva et al., the process of applying gamification learning media is classified into the following elements: 1) game elements; 2) application type; 3) education level; 4) academic subjects; 5) application. The game elements referred to above include: a) Points, this point system is used to measure the level of success and achievement. These points become rewards to increase the spirit of achieving goals; b) Levels or stages, this system is used to provide a sensation of game progress to players; c) Medal, is a form of appreciation for the completion of tasks; d) Leaderboard, aims to keep players or students motivated to improve their achievements; e) Prizes, is the most effective way to motivate players or students; f) A good story line can help build interest in reaching its peak at the beginning and end of the learning process, and stay motivated to complete the learning process.

Gamification learning media that applies game elements in learning, one of which is the level element. This gamification in Vygotsky's philosophy of constructivism is related to ZPD which helps educators know the right portion at the time of giving stimulation to students, so that they can gain knowledge. Gamification with ZPD can make students not bored and also have no difficulty. The levels of gamification learning media can be made using ZPD. Gamification learning media creates interactions among students with other students who have higher competencies so that it is very helpful in building new knowledge. Other people who provide assistance in Vygotsky's constructivism perspective are called scaffolding.

Darnanta et.al., (2020) research on the development of interactive mathematics learning media with the gamification concept for mentally retarded students concludes that the results of the analysis of student responses to the development of interactive learning media with the gamification concept are in the very good category (Darnanta et al., 2020). Research that has been conducted by Sari et al., (2019) regarding Interactive Gamification Learning Media Application for Blind Children concludes that, among other things, this gamification learning media application is able to increase the knowledge and understanding of blind children. Based on the explanation above, gamification learning media can create interactive and fun learning due to interactions with other people to build knowledge. Students in learning using gamification learning media become more motivated because of the level that is set according to the level of students. Gamification tends to have a positive impact on learning outcomes such as cognitive, motivation and behavior compared to conventional learning.

#### IV. Conclusion

Constructivism has had a strong impact on modern learning processes as the dominant educational philosophy. Vygotsky's constructivism theory illustrates that learning cannot be separated from the social context. So it is very suitable to be used for gamification learning media because gamification shows the existence of social interactions carried out by students in building their own knowledge. The results of this study indicate that gamification learning media can be viewed from the perspective of constructivism philosophy according to the three components of Lev Vygotsky's theory. The three components of Vygotsky's view are the Zone of Proximal Development (ZPD), Scaffolding and More Knowledgeable Others (MKO). ZPD can be used to set level limits in gamification learning media. Gamification learning media creates student interactions with other people who are more competent so that they can assist students in constructing their knowledge in the perspective of Vygotsky's constructivism philosophy called scaffolding. Gamification learning media in terms of Vygotsky's constructivism philosophy in one of his theories, namely More Knowledgeable Others (MKO) students can solve their problems by collaborating with other people who have more abilities.

Constructivism theory brings students to create meaningful experiences with the process of constructing their knowledge with the help of others. Interactions with other people make us memorable, rather than one-way interactions. After understanding and applying the perspective of Vygotsky's constructivism philosophy which is formulated into gamification learning media, it can be a solution to the problem of low student motivation. In addition, gamification learning media in Vygotsky's constructivism perspective is expected to help students in the industrial revolution era to learn to solve their own problems.

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