Learning and Teaching System Innovations Through Gamification Methods in Increasing Motivation in the New-paradigm

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Abstract: The transformation of learning methods from offline to online in the post-pandemic with the new paradigm requires adjustments so that it does not feel boring and motivated. Therefore, strategies such as gamification are needed, namely playing while learning as an effort to innovate the learning process. This study aims to review the role of gamification in increasing learning and teaching motivation. This study uses a qualitative approach to describe the data and facts of the conditions that occur. Data collection was carried out through literature studies in several reputable journals and strengthened by in-depth interviews with students and teachers using the Random Sampling Technique of 56 informants who discussed the application of gamification. The data is coded using the Nvivo 12 application through Word Similarity, then conclusions are drawn using sentiment analysis. This study examines gamification methods, namely points, levels, badges, and leaderboards in increasing motivation, namely cognitive motives, self-expression, and self-enhancement. The results of this study explain that the gamification method can be applied to post-pandemic which overcomes the new paradigm in increasing motivation as an effort to innovate learning and teaching. The gap in this study was that the learning process would be difficult to apply with the same method in changing systems and there was no certainty. This study can provide benefits for students and teachers in the learning and teaching process with a simple and fun method.

Keywords: Gamification; Motivation; Learning and Teaching Innovation; New-paradigm

A. **INTRODUCTION**

Online learning methods can be done from home or from anywhere, in fact it is not as easy as the practice. This method has become a material for the minds of teachers and parents because one of the reasons is that it is quite difficult to arouse students' learning motivation. In fact, the teaching and learning system that runs in an educational institution has an important role in the process of forming mindsets and creativity in students' personal factors (Saputra, Rahmatia, & Muslimah., 2021) and cognitive motives (Notten et al., 2015). The learning method currently running at several universities in Indonesia is currently still using conventional and monotonous methods. By using a method like this in a post-pandemic with the current new-paradigm will be very saturated and to face pandemic era (Saputra, Rahmatia, & Surwanti, 2021). So that students will become lazy and unable to explore the process of self-expression of learning (Lee & Durksen, 2018). Thus, it will be difficult for students to develop and will be left behind in the learning process. The educational institutions must see the impact to prepare the current generation's motivation to learn.

Currently, the implementation of monotonous learning methods makes students more easily stressed and bored, so many students choose to play games as a means of self-expression to vent their boredom and stress. Because it can be proven that when someone has played the game, it can improve students' feelings. With this, various educational institutions in Indonesia are aggressively looking for learning methods that are not boring and make students' self-enhancement active and enthusiastic in participating in the learning process (Chung et al., 2016).

Then there was a learning method that adapted from the elements contained in a game, namely the gamification method (Saputra et al., 2021). The gamification method in education management is a new learning method by adapting the characteristic elements in the game that can increase student motivation in the learning process. So that students who feel bored with learning methods that have been applied previously can increase learning motivation with game features that are applied in the gamification learning method.

According to research conducted by Hamari et al. (2014) gamification is the application and use of game design elements into non-game contexts (Hamari et al., 2014). Meanwhile, research conducted by Saputra et al. (2021) suggests that gamification is a dynamic application based on cognitive motives for educating games. From some of the definitions of gamification above, the writer can conclude that gamification is a method that uses component elements in a game that is applied to a system that was previously a non-game context (Saputra, Rahmatia, Wahyuningsih, et al., 2021).

The situation will be more difficult if this continues without any efforts to resolve and provide solutions. Coupled with adjustments from the educational institutions, educators and students who will always be involved in it. Based on the description above, the researcher tries to review the role of gamification in increasing the motivation of learning and teaching motivation. The goal is to find the right learning method in the post-pandemic that overcomes the new-paradigm.

B. **METHODS**

This study uses a qualitative approach by giving in-depth meaning to the facts or existing data. This approach is used because this study aims to describe data and facts from existing conditions, as well as analyze what must be done to achieve the desired conditions in the future. The method used in this research is descriptive research method, which is a research method that describes an object according to existing conditions without changing it.

This study examines gamification methods, namely points, levels, badges, and leaderboards in increasing motivation, namely cognitive motives, self-expression, and self-enhancement (Saputra & Rahmatia, 2021). Data collection was carried out through literature studies in several reputable journals and strengthened by in-depth interviews with students and teachers using the Random Sampling Technique of 56 informants who discussed the application of gamification. The data is coded using the Nvivo 12 application through Word Similarity, then conclusions are drawn using sentiment analysis (Hilal & Alabri, 2013).

In general, the steps for implementing gamification in learning can begin with identifying learning objectives in order to determine ideas and create game scenarios. The next step is to form groups that can use the game's dynamics. The steps illustrated in Figure 1 will explain the trends that occur in the use of the gamification method in the motivation review.
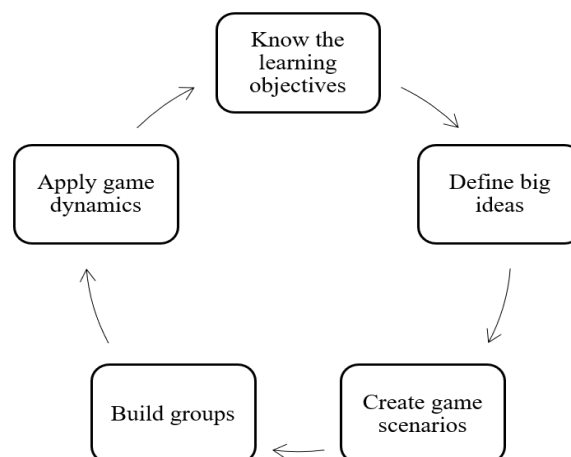

Figure 1. Gamification Metods Process

Source: Adapted from Saputra et al. (2021)

C. **RESULT & DISCUSSION**

Results

The application of gamification in this study was carried out by giving points, levels, badges, and leaderboards to increase motivation in the learning process. Points are carried out as a marker of the progress of each player, because sometimes there are more than one plot or mission completed by players, so to make it easier for players to see the progress that has been made, progress is made. Levels are applied to receive information in the game more easily gradually from easy to higher or more difficult levels. Badges are badges as awards that are displayed to show an achievement or symbol of the authority given. The leaderboard is used as a marker of player rank in a gamification. Through the leaderboard players can find out their abilities compared to other players.

In addition, this study also describes an increase in motivation through the gamification method with indicators of cognitive motives, self-expression, and self-enhancement. Cognitive motives show intrinsic symptoms involving individual satisfaction in humans and usually take the form of mental processes and products. Self-expression will present itself as a result of human behavior on individual needs. In addition, self-enhancement through self-actualization and competency development will increase motivation.
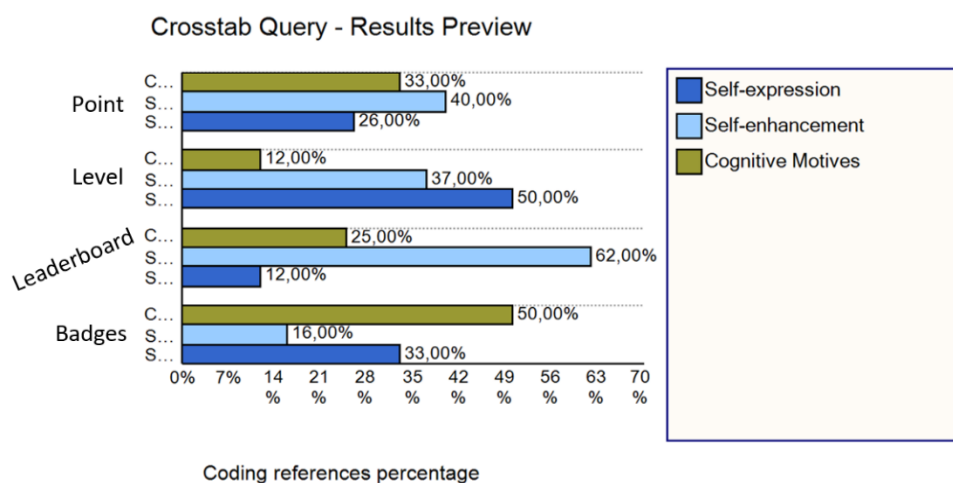

Figure 2. Word Similarity

Sources: Nvivo 12 AnalysisThis study examines the exploration of the role of the gamification method in increasing motivation in the new-paradigm which has been analyzed using Nvivo 12 with Word Similarity at a total percentage of 100%. Word similarity is used on the tendency of similarity of words from the coding results in the calculation of numbers. The review is carried out using word similarity with linkages based on cluster analysis to see the role of each indicator in practice. The gamification method applied, namely points, levels, badges, and leaderboards in increasing motivation, namely cognitive motives, self-expression, and self-enhancement.

From the figure 1 above, it can be seen that Self-expression indicator takes a role to the element of point at 26%, to the element of level at 50% in which the most role is here, to the element of leaderbroad at 12%, and to the element of badges at 33%. Self-enhancement indicator takes a role to the the element of point at 40%, to the element of level at 37%, to the element of leaderbroad at 62% in which the most role is here, and to the element of badges at 16%. Cognitive Mootives indicator takes a role to the the element of point at 33%, to the element of level at 12%, to the element of leaderboard at 25%, and to the element of Badges at 50%.

Overall, Self-enhancement takes the most role at 62% on leaderboard element, while Self-expression and Cognitive Motives takes the most at 50% on level element and badges element respectively. The picture below describes the relationship between one and another. The bolder the line, the stronger the relation. Badges has a solid relation to Level and Cognitive Motives, Self-

expression   has   enough   bold   lines   to   Badges   and   Point.
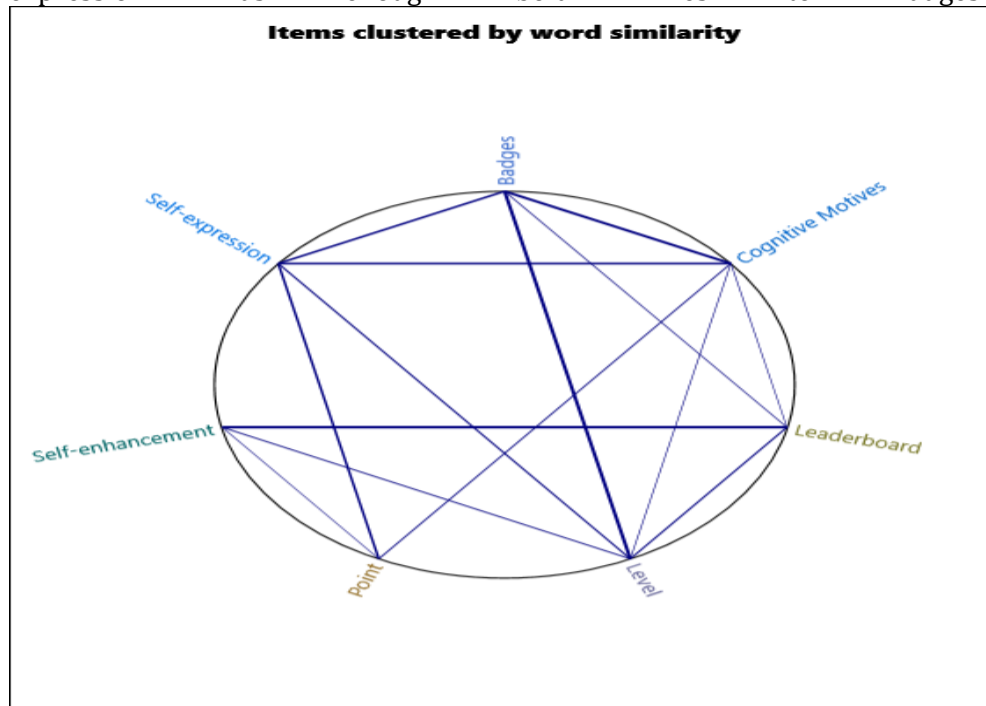

Figure 3. Cluster analysis
Sources: Nvivo 12 Analysis

Discussion

In a game method in the learning process, it requires leveling in the mechanism. With the level, the cognitive motives (12%) of players will receive information more easily gradually from easy to higher or more difficult levels. It also aims to encourage self-expression (50%) of players to participate actively. Because if a game does not have a level mechanism in it, it is very likely that self-enhancement (37%) players will have difficulty playing the game. In addition, the use of levels in a gamification is also intended to provide information sequentially, so that players can learn from the gamification process step by step. If a player does not know the extent of the cognitive motives, the level of difficulty encountered and this immeasurable level of difficulty causes self-enhancement, the player will estimate how far he has played and at this stage the player will begin to lose his enthusiasm to continue playing based on Putz et al. (2020) (Putz et al., 2020).

Points are made as a marker of each player's progress (Hanus & Fox, 2015), because sometimes there are more than one plot or mission completed by self-expression (26%) so that to make it easier for players to see the progress that has been made, progress is made. Progress points are made as a marker of the progress of each player's cognitive motives (33%), because sometimes there are more than one path or mission that must be completed by self-enhancement (40%) players, so to make it easier for players to see the progress that has been made, progress points are made. From the progress points the player can see the cognitive motives to what extent the missions have been carried out and what missions he has not done. It will also avoid "forgetting" or "missing" on any of the missions which can result in a lower rating process because not all missions are accomplished. An imperfect assessment can also result in a less than optimal engagement level, thus affecting the player's self-enhancement performance later. The results of this study strengthen the previous research by Hanus & Fox (2015).

Badges are badges as awards that are displayed to show an achievement or a symbol of authority given as cognitive motives (50%). Another example of badges applied in the military world is used to indicate the unit, force, contingent or laskar where the wearer comes from and also the level received such as military rank and training. The same applies to badges in gamification (Fui-Hoon Nah et al., 2014). Based on study from Fui-Hoon et al. (2014) that badges contained in gamification are also used as markers of a unitary or group cognitive motive. Badges are used as

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markers if in the gamification there are several different groups or groups. This is to facilitate the identification process of self-expression (33%) of one player with another. Because according to studies, visuals are processed faster by the human brain than text.

On the other hand, badges are also used as symbols to show an achievement that has been achieved by the player. With the badge obtained as a symbol of appreciation for cognitive motives for what has been achieved by the player. This will give self-enhancement (16%) players a boost to continue to earn other badges as proof of the player's abilities. The results of the same study were presented by Sailet et al. (2017), this is what is applied in the gamification process, that in an activity cognitive motives need a symbolic presence to show what achievements have been achieved by players. This will provide encouragement for players to follow the gamification to the end (Sailer et al., 2017).

The leaderboard is an element in gamification, this is to provide information on the success rate of cognitive motives (25%) of one player with another and can compare his abilities with other players. The leaderboard is used as a marker of the self-expression rating (12%) of players in a gamification. Through this leaderboard, players' cognitive motives can find out their ranking position compared to other players (Rahmatia et al., 2021). This can also be an encouragement for players to make more efforts to improve their performance so they don't fall behind with other players' cognitive motives. Through the leaderboard in a gamification (Isabelle, 2020), it can also measure the average self-enhancement ability of the players in it, so that the developer or management department can assess the average self-enhancement ability (62%) of the players so that future strategies can be taken to improve the player's abilities by other content.

D. CONCLUSION

The post-pandemic transition of learning methods from offline to online with the new paradigm necessitates adjustments so that it does not feel boring and motivated. According to the findings of this study, the gamification method can be applied to post-pandemic situations to overcome the new paradigm in increasing motivation in an effort to innovate learning and teaching. Gamification was used in this study to increase motivation in the learning process by awarding points, levels, badges, and leaderboards. Points are carried out as a marker of each player's progress, because sometimes players complete more than one plot or mission, so progress is made to make it easier for players to see the progress that has been made. Levels are used to help players receive information in the game more easily as they progress from easy to higher or more difficult levels. Badges are awards that are displayed to demonstrate an accomplishment or a symbol of the authority granted. In gamification, the leaderboard is used to indicate player rank. The leaderboard allows players to compare their abilities to those of other players.

Furthermore, this study describes an increase in motivation via the gamification method, with indicators of cognitive motives, self-expression, and self-enhancement. Cognitive motives in humans exhibit intrinsic symptoms related to individual satisfaction and are typically manifested as mental processes and products. Self-expression will emerge as a result of human behavior in response to individual needs. In addition, self-improvement through self-actualization and competency development will benefit one's self. The gap in this study, on the other hand, explains that the learning process will be difficult to apply with the same method in changing transformations, and there is no certainty. This study can benefit students and teachers in the learning and teaching process by using a simple and enjoyable method.

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