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Research paper

Gamification Framework and Achievement Motivation in Digital Era : Concept and Effectiveness

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Abstract

Students' passive activities, such as reading and watching activity make learning process can't run well. Only active communication with their colleagues, facilitators, and other learning resources make process run well. In this case, we use gamification to improve student's learning motivation. This study used four scales to obtain consistent and measurable data. Scale 1 and 2 were to analyze the level of knowledge about gamification framework, Scale 3 for concept and effectiveness and Scale 4 for fun learning. In conclusion, entrepreneurship courses through gamification runs effectively because students are interested in gamification because it is new for them and able to establish good communication patterns as well as makes students more literate on technology.

Keywords: *Gamification Framework; Achievement Motivation; Digital Era.*

1. Introduction

Students' passive activities, such as reading and watching activity make learning process can't run well. Only active communication with their colleagues, facilitators, and other learning resources make process run well. This is because active communication is an important factor required by the learning approach in achieving learning objectives [1].

Students with low learning outcomes can be caused by the weak ability to think and understanding the concept that affects the students' skills in solving life problems. If ones have problem-solving skills, one can solve similar or different problems in everyday life [2]–[5].

This research will develop gamification strategy on Entrepreneurship course for semester five students of Indonesian Language and Literature study Program, FKIP UNISDA Lamongan. The developed Gamification Strategy has four basic components, namely gamification rules, feedback (leaderboards, prizes, and medals), goals, and challenges. Through gamification strategies, it is expected to (1) provide students with choice and control, (2) foster self-confidence in their ability to solve challenges, (3) provide material and key answers, (4) reward to additional learning taken, and (5) help students establish social interaction through leadership or other social interactions. In addition to the five items described above, this research was also expected to present a number of benefits, such as being input for lecturers to develop learning strategies and help students in learning activity and pay attention to the concepts developed by the university.

2. Theoretical Framework

2.1. Gamification Framework

Gamification is a process aimed to change non-game context (eg learning, teaching, marketing, etc.) to be more interesting by integrating thinking game, game design and game mechanism [6]. Octalysis Framework (Octagon Analysis) is a framework that helps game and software design to have game mechanism[7]. Within this framework, there are eight elements that can improve game elements, especially for games and software. The eight elements are: (1) epic meaning and calling; (2) development and accomplishment; (3) empowerment of creativity and feedback; (4) social influence and relatedness; (5) ownership and possession; (6) scarcity and impatience; (7) unpredictability and curiosity; and (8) loss and avoidance (Fischer, et al., 2016). Gamification framework is presented in the figure. 1.
These eight elements can be implemented in a web 2.0 or mobile learning platform. Each element will be implemented through one or more activities and tools. It should be noted that gamifications were not just playing games, but also competitions that involve many people. Therefore, gamification should be contained in a network that all users can connect with other users.

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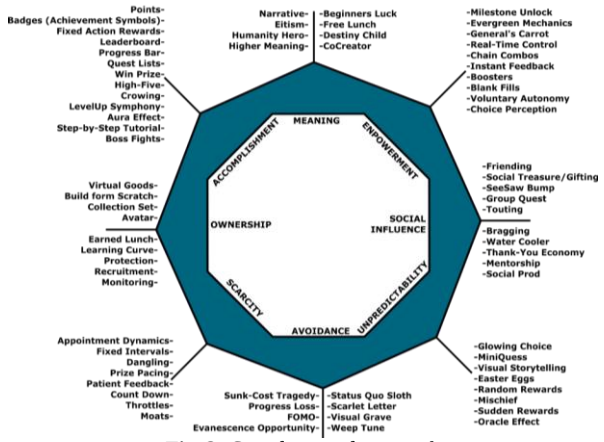


Fig. 2: Gamification framework

2.2. Achievement Motivation

Murray defines achievement motivation as a person's tendency to train strength, overcome obstacles and try to do something as difficult and quick as possible[8]. Heckhausen defines achievement motivation as the tendency of a person to improve and maintain competence in all areas of quality standards as a guideline, the standard is: (1) task related standard of excellence, must be good in performing tasks, (2) self related standard of excellence, comparing with self-achievement with previous achievements, (3) other related standard of excellence, comparing with the achievement of others[9].

3.3. Digital Era

Digital era also known as the Third Industrial Revolution is the shift from mechanical and electronic technology to digital electronics which began anywhere from the late 1950s to the late 1970s with the adoption and proliferation of digital computers and digital record keeping that continues to the present day [10].
Digital can perform all processes such as production, distribution and consumption processes in one system. based on perspective of digital communication, communication is a means through media, then the communication media can be done by telecommunication or internet media. Digital technology is a technology that is operated using a computerized system, the system is based on the form of information as a numerical value of 0 and 1 that identifies the switch on and off [11].

3.3. Concepts and Effectiveness

The concept of gamification design in the entrepreneurship course is defined as follows(1) Rule is used as a basis in a game. Generally, it is used to explain what games users can and can not do, (2) Feedback is a reward for reaching or completing something. Feedback can be associated with rewards and points, (3) Goals are the main things students have to accomplish in the game. Therefore, goals can be defined as multiple or single based on their targets. Usually, when students manage to reach the destination then a game is declared to end, (4) The challenge is used to test the player's proficiency level. Therefore, the plant is an important component in game formation.
Effectivity of gamification on entrepreneurship course can be done by combining face-to-face learning in class with online learning, student are interested in gamification concept because it is new for them, and there is nurturant effect during during concept gamification is implemented in the class.

3. Method

This research uses survey and questionnaire to obtain consistent and measurable data. the four scales used are explained such as; Scales 1 and 2 adapted from MinecraftEdu by Sáez-López and Domínguez (2013) was to analyze the level of knowledge about gamification framework. Scale 3 was for concept and effectiveness that consisted of 4 questions shown in Hiltz[12] . Scale 4 was for a fun lesson consisted of 5 questions adapted from Laros and Steenkamp [13].

the obtained descriptive data were analyzed through a quasi-experimental design with the Wilcoxon test. The significance level of α was 0.05. The reliability coefficients calculated using Cronbach was 0.73 at different levels, greater than 0.6, meaning that it was acceptable [14]. The exploratory factor analysis used main component method to determine the elements and factors that was the most significantly different at the various scales.

From the data triangulation approach [15], and to provide greater consistency and validity for the study, we only accepted and interpreted significant improvements through Wilcoxon test. This triangulation was done using different analyzes, tests, quantitative and qualitative (open questions), was likely to determine that there was evidence to support the validity of the results and minimize the error variance [16].

The population of this research was the 4th semester student of Islamic university of Darul Ulum Lamongan in the faculty of education sciences. Meanwhile, the sample is 32 students in the morning and 33 students in the afternoon class of Indonesian language and literature study program. This group was quite homogeneous because students of all ages but education levels were the same.

4. Result and Discussion

In 1st scale analysis of "knowledge of gamification," the students' response was possitive on using this approach and the importance of early treatment. its value was higher than 91%. The game was recieved positively (agree and strongly agree) more than 90% of sample. in the early reatment and skills in this field, a quarter of samples have worked with gamification in college applications.
In 2nd scale of "Gamification in Educational Contexts", 100% of students score that creativity with positive values (agree or strongly agree). Over 97% of students also emphasized collaborative excellence, development skills and educational innovation. Finally, over 94% showed that communication, interaction and motivation in the learning process were positive aspects.
In 3rd scale of "concept and effectiveness of learning", fould that 100% of students gave positive values on gamification that create more interesting course. Over 96% of samples believed that game-based learning maded students active in learning. And over 80% assumed that joining content course was better using this approach. Finally, in the 4th scale of "Exciting learning", it was found that over 90% of the students said that they were happy, passionate and enjoy the activity. 80% of them felt relaxed and comfortable in the process. Therefore, the scale was valued quite positive, almost 90% on most items.
In this section you should present the conclusion of the paper. Conclusions must focus on the novelty and exceptional results you acquired. Allow a sufficient space in the article for conclusions. Do not repeat the contents of Introduction or the Abstract. Focus on the essential things of your article.

5. Conclusion

Based on the results of data analysis and discussion, it can be concluded several things as follows: 1) the learning process of entrepreneurship course through concept of gamification run effectively in which only 2 of 65 students who did not get B; 2) students in learning process thought gamification concept are mostly interested because it is new for them; 3) as long as the concept of gamification is implemented in the classroom, the communication patterns among students can become more real again. the students are more literate towards the technology and the students' perception

on the pedagogic ability and the lecturer's performance also increases; 4) there are some obstacles such as limitations in the internet connection owned by each student are different. furethermore, students' location also affect the internet network.

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