

Integrating Gamification in a Blended Learning Entrepreneurship Course: Discussing Student Learning and Achievement Motivation

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Abstract--- *Purpose* 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 run 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, blended learning, entrepreneurship course, achievement motivation, student learning.*

I. INTRODUCTION

Education is a human need that must always develop according to the changing of the age. The growing development in the world of education and technology is very reference to the quality of education in Indonesia.

This development took place quickly and continuously so that the Ministry of National Education (Kemdiknas) emphasized on the provider of the Prime service of national education to form Indonesia's intelligent comprehensive human beings. Each innovation was created to provide positive benefits for human life [1]–[3]. Successful education will create appropriate and qualified human beings in the community so that it is important to be an education to print

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qualified and competitive human beings[4], [5]. In this vision can be said if online learning is the only learning media that can make it easy for anyone who wants to continue to the Diploma or bachelor level without having to struggle to place the learning process. The form of information technology developments applied in education is eLearning in gamification and blended learning.

Gamification and blended learning are innovations that contribute greatly to the changing process of learning, where the learning process no longer only listens to material descriptions of the teacher but the students also do other activities such as observing, doing, demonstrating and others[6]–[8]. The teaching materials can be visualized in a more dynamic and interactive format and form so that learners or pupils will be motivated to be further involved in the learning process [9]–[11]. The college has adopted a method of online learning system called gamification and blended learning which is a learning flexibility that can save time, cost and energy[12], [13]. This online learning system has learned materials and tasks that every student must work with.

eLearning is a modern learning methodology that integrates a blend of learning, playing, praying and working. Combined with these 4B elements, the functions of the right brain and the left brain work in synergy. In this method of learning gamification and blended learning requires supporting media as a bridge between lecturers and students in the delivery of lecture teaching materials [14]. This system makes it easy to understand the material presented along with all the explanations. Because gamification and blended learning are packed with in such a way with supporting content [15].

There is one problem that must be solved, namely the lack of student motivation to carry out online learning and the purpose of this study is to increase student motivation in online learning systems. Motivation is one of the important determinants in the learning process. Motivation in learning plays a role in growing passion, feeling happy and passion for learn [16], [17]. According to Bomia, learning motivation refers to the willingness, needs, desires and necessity of students to participate and succeed in the learning process[18], [19][20].

AI. LITERATURE REVIEW

Gamification

According to Shea, Pickett and Pelz[21], effective online learning environments should encourage: interaction between students and lecturers, interaction and cooperation between students, rapid feedback, time assignments, active learning techniques, high communication and respect for differences and how to learn from each student. There are several recommendations for teachers and organizations to organize content in platform guidelines[22]–[24]: fast and positive feedback, formulating tasks based on skill levels, experiments and task repetition, smaller classes, different paths to destination, use of different game mechanism, and fun activities although current failures still exist. The main purpose of e-learning is the high efficiency, effectiveness, involvement, satisfaction and motivation of the students. These objectives can be achieved through the use of game mechanism and gamification.

The strategy that is presented in Fig. 1, and comprises the following key elements: e-learning management, essential factors in e-learning, user experience elements, development phases (analysis, planning, development, implementation and evaluation), game mechanics, game dynamics, elements gamification in e-learning and its effects on students.

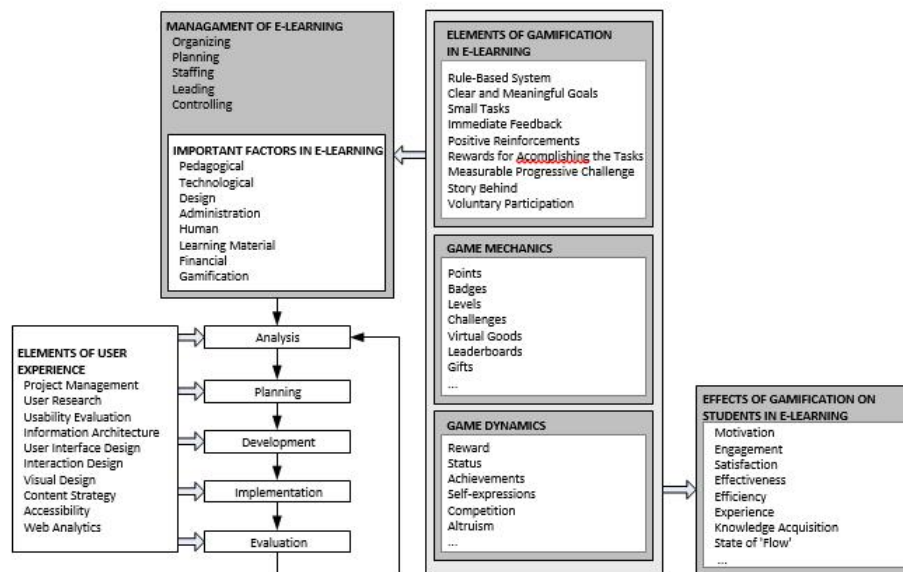


Figure. 1 The model to introduce gamification into the field of e-learning

The model of e-learning in higher education, including the elements of gamification should be based on appropriate management. The good e-learning management means organizing, planning, managing staff, leading and controlling are essential elements of e-learning. the important elements in e-learning are: pedagogical elements, technology, design, administration, human, finance and gamification[25].

Kapp[26] in [27] defines Gamification as a strategy for applying mechanisms, aesthetics, and game thinking. The form of the strategy is to include, motivate people to achieve, organize learning, and solve problems. Glover concludes that gamifications provide additional motivation to ensure learners follow full learning activities[28], [29].

Based on these two opinions can be concluded that the gamification or gamification is a learning strategy that implements the elements of the game in non-game applications with the aim of binding and motivate users to solve a problem in the learning activities completely.

Blended Learning

Theoretically, the development of blended learning is based on learning models according Srisakdi [8], [30], in the handbook of Web-based teaching materials published by the Ministry of Education, learning models generally are divided into four groups. See Table 1.

Table 1.

Learning Models

The Percentage Of Web-Based Learning Materials	Learning Models	
	Models	Descriptions
0%	Traditional	Learning activities without using the online facilities of learning set brought into classroom and face-to-face-based learning.
1-29%	Web facilitated	Web facilitated Web utilization in the learning process to improve the mastery of uncompleted teaching materials in face to

		face based learning (giving additional material by using web) in which, frequently it was used in the task submission
30-79%	Blended	The learning process that uses a combination of web-based teaching materials and face-to-face. Online learning had greater portion than faceto-face based learning. In teaching and learning process, discussion was frequently conducted.
100%	On-line elearning	or The whole teaching and learning process was conducted through online. There is no face-to-face learning

Notably, 30% of one semester period, the development of blended learning used in one semester was 5 effective months, face to face-based learning was done in 2 to 3 weeks. at 4 months and 1 week students will learn web-based learning independently and semester exams. In the independent study period (4 months and 1 week), students will meet several times with the lecturers on the web or face to face due to the schedule. Face-to-face based learning is intended to facilitate any problems faced by students during the learning process. The development of blended learning leads to teaching materials. These materials were used as modules in the electronic package. In blended learning, a not only module of electronic teaching materials was used in the learning process for students but also web-based teaching materials. The other development of teaching materials is the use of media or technology as one of the characteristics in the web-based learning process, including the use of text, audio, video, and multimedia to enrich practical materials and strengthen students to study the topic.

The learning method used is self-learning and collaborative learning methods that use information and communication technology facilities. The strategy in the development of blended learning has a wide base of learning objects in each stages of learning and was designed and determined the interaction patterns or learning strategies that can be taken by students.

The development of blended learning-based learning on the learning media course of teacher training and education faculty, UNISDA Lamongan helps students learn a various ways of learning. In order the interaction in Blended learning-based learning development can be effective, it needs to be designed carefully by the developer or lecturer[31]. Learning objects can be obtained from its collection of teaching materials for face to face based learning and will be combined with PowerPoint and internet.

Blended learning-based learning development emphasizes on how communication occurs between learning source and learners through web communications technology[32]. Communication technology is expected to bridge any person to communicate each other quickly in distances. Computers and networks play an important role in facilitating relationships, both personal relationships, organization or in a broader level. To meet all the needs of the various characteristics of the learning, therefore blended learning approach is most appropriate.

Trough blended learning, it allows learning to be more professional to meet learning needs trough the most effective and efficient ways and has a high attraction [33]. There were some advantages of blended learning based learning for educational institutions as that being developed by the State University of Semarang, called ILMO (Increasing Learning Motivation), including site of Internet-based e-Learning are:

Table 2. *The advantages of ILMO*

setting the syllabus	accessing information and learning materials
uploading the learning materials	uploading the learning materials
giving students assignment	exchanging lecturing assignments
giving students' work	conduction assignment
making test or quiz	conducting test or quiz
Scoring	looking at students learning achievement
monitoring students' activity	looking at students' presence
managing students' score	looking at students' score
communicating with students and lecturers through discussion forum and chat	communicating with students and lecturers through discussion forum and chat

Achievement Motivation

Murray [34] defines achievement motivation as a person's tendency to train strength, overcome obstacles and try to do something as difficult and quick as possible. Heckhausen [35] 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.

To make easier in to do this research, the writer defines the hypothesis of this research as follows:

H1 : Students in the experimental group (Gamification) will perform better in terms of learning the content (post-test scores) than students in the control group (Project Based Learning).

H2 : Students in the experimental group (Gamification) will perform better in terms of Achievement Motivation than students in the control group (Project Based Learning).

This present study is focused on the integration of gamification in a blended learning entrepreneurship course with discussing student learning and achievement motivation of Indonesian Language and Literature Education Study Program of Teacher Training and Education Faculty of UNISDA Lamongan.

Hopefully, the result of this research is useful for entrepreneurship course lecturers and can be used to strengthen the theory that gamification is an effective way to improve the student's competence in learning the content of entrepreneurship course. Also, this study can be used as prior study for future researchers who want to conduct research in the same topic.

BI. DATA COLLECTION

This research used Experimental Research as the research design. Experimental Research was chosen by the writer because the present study focuses on measuring cause-effect relationship of variables. The writer used the level of significance at 5%. If the result of test is higher than t table, it means H_a is accepted but if the result of test is lower than t table, it means H_o is accepted.

The population of this research was the 4th semester student of Indonesian Language and Literature Education Study Program of Teacher Training and Education Faculty of UNISDA Lamongan. Meanwhile, the sample is 70 students divided into 2 groups, experimental group and control group

IV. DATA ANALYSIS

Hypothesis was tested to prove whether it could be accepted or rejected. Hypothesis testing was done to analyze data of entrepreneurial lecture material. The result was calculated using SPSS program with two way analysis of variance (ANOVA) analysis techniques at a significance value of 0.05 are presented in Table 3 below:

Table 3.

Result of analysis *Between Subjects Effects*

Tests of Between-Subjects Effects					
Dependent Variable: Nilai hasil belajar (Post test)					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3532.440 ^a	3	1177.480	16.263	.000
Intercept	401862.439	1	401862.439	5550.318	.000
Strategi.Pembelajaran	2388.197	1	2388.197	32.985	.000
Motivasi.Berprestasi	518.904	1	518.904	7.167	.009
Strategi.Pembelajaran * Motivasi.Berprestasi	302.237	1	302.237	4.174	.045
Error	4778.631	66	72.403		
Total	427200.000	70			
Corrected Total	8311.071	69			

a. R Squared = .425 (Adjusted R Squared = .399)

Hypothesis testing was done by grouping similar hypotheses to facilitate analysis. For hypothesis 1 was based on the learning strategy used. Hypothesis 2 was based on achievement motivation. In this case, it was tested by analyzing the null hypothesis pair (Ho) and the rival hypothesis (H1) as follows:

Student Learning (Hypothesis 1)

The first hypothesis tested was the null hypothesis (H0): There was no difference in understanding entrepreneurship course between students who implemented a gamification learning strategy and students who implemented a project-based learning strategy. Hypothesis comparison (H1): There was a difference in understanding entrepreneurship course between groups of students who implemented a gamification learning strategy and students who implemented a project-based learning strategy.

The result of ANOVA test showed the learning strategy influenced student learning outcomes on entrepreneurship course. The F value was 32,985 with a significance $p = 0,000$ which was smaller than alpha 0.05 ($p < 0.05$), meaning that Null Hypothesis (Ho) was rejected. It could be said that there was significant differences in post-test score in understanding entrepreneurship courses between students who were given gamification learning strategies and ones who were given project-based learning strategies. This was also strengthened by average score of entrepreneurship course in two groups of students where average score of students who learned using gamification learning strategies was 83.57 higher than the average score of students with project-based learning strategy with 71.14. Therefore, it could be concluded that in general the ability to understand entrepreneurship course for students who used with Gamification learning strategies were better than students with project-based learning strategies.

Comparison of students' post-test in understanding entrepreneurship course in both learning strategies (gamification and project-based) can be presented in the form of images as follows:

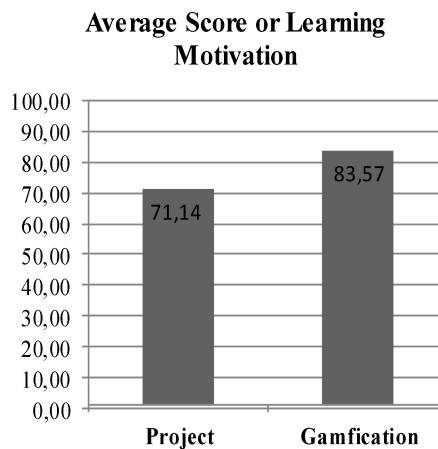


Figure 2. Comparison of students' post-test in entrepreneurship course material in both learning strategies (gamification and project-based)

From picture above, it could be seen that the average score of posttest level in entrepreneurship course of students with gamification learning strategies was higher than students with project-based learning strategies.

In addition, this also could be shown in the form of marginal mean values (estimated marginal means) in understanding entrepreneurial course in both learning strategies (gamification and project-based) as follows.

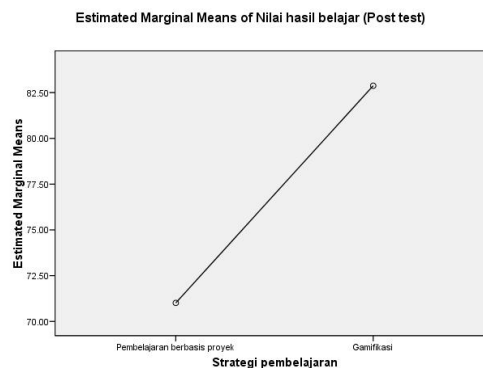


Figure 3. Marginal mean score (estimated marginal means) in understanding entrepreneurship course in both learning strategies (gamification and project-based)

Based on estimated marginal means, it could be seen that the average score of understanding entrepreneurship course in students with gamification learning strategies was higher than students with project-based learning strategies.

Achievement Motivation (Hypothesis 2)

The second hypothesis tested was Null Hypothesis (H₀), namely there was no difference in understanding entrepreneurship course between students who had high and low achievement motivation. for hypothesis Comparison (H₁), there were differences in understanding entrepreneurship course between students who had high and low achievement motivation.'

The result of Anova in Table 3 showed that achievement motivation influenced student learning outcomes in entrepreneurship course. This could be seen from the F value for understanding entrepreneurship lecture based on the ability of achievement motivation was 7.167 with a significance of $p = 0.009$ which was smaller than alpha 0.05 ($p < 0.05$), meaning that Null Hypothesis (H₀) was rejected and H₁ was accepted. it could be concluded that there was a significant difference in the posttest value in understanding entrepreneurship course between students who had low achievement motivation and students who had high achievement motivation. This was also strengthened by the average score in

understanding entrepreneurship course students with high achievement motivation was 79.51 higher than students who had low achievement motivation of 74.31. therefore, it could be concluded that in general the ability to understand Entrepreneurship course for students who had high achievement motivation was better than students who had low achievement motivation.

Comparison of the average score of post-test in understanding entrepreneurship course between students with low and high achievement motivation could be presented in the form of figure as follows:

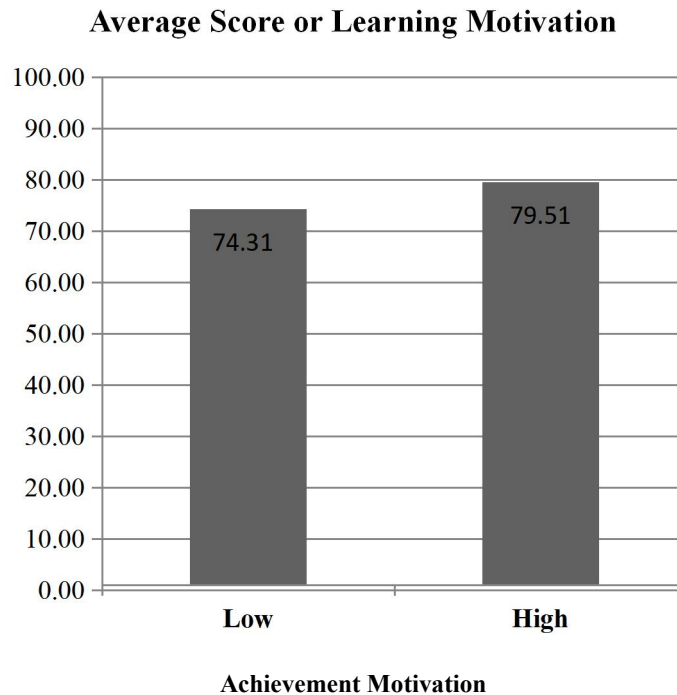


Figure 4. Comparison of the average score of post test in understanding entrepreneurship course between students with low and high achievement motivation

From the figure above, it could be seen that the average post-test score on the entrepreneurship course of students who had high achievement motivation was higher than students with low achievement motivation.

This could also be shown in the form of marginal average score (estimated marginal means) in understanding entrepreneurship course based on achievement motivation (high and low) as follows.

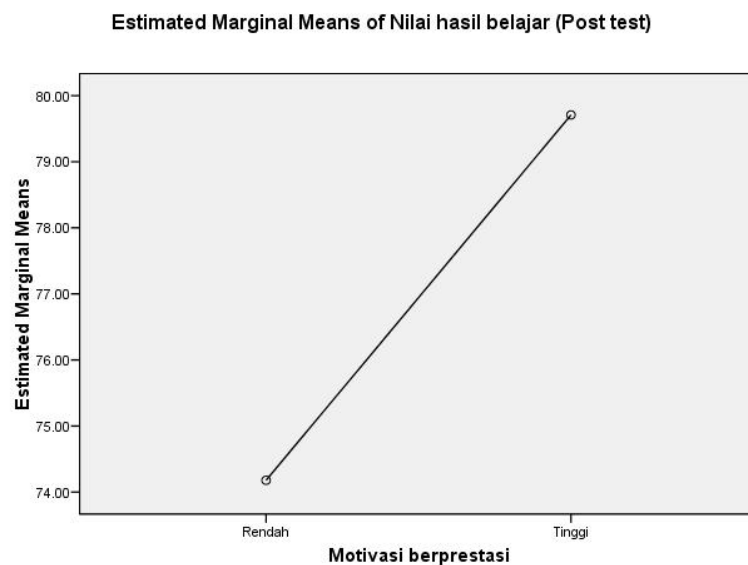


Figure 5. marginal average score (estimated marginal means) in understanding entrepreneurship course based on achievement motivation (high and low)

Based on the marginal average score (estimated marginal means) above, it could be seen that the average score in understanding entrepreneurship lecture for students that had high achievement motivation was relatively higher than students who had low achievement motivation

VI. STUDY RESULTS, SUMMARY AND CONTRIBUTION

Based on the results of data analysis and discussion, it can be concluded that 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. furthermore, students' location also affect the internet network

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