

Gamified Education Practice: Designing with E-commerce and ilearning Concept

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Abstract

Purpose: This research discusses two problems that often occur in the learning process in general: first, students often have difficulty understanding, and it is challenging to participate in discussions until then no solution successfully resolves their doubts, and second, the boring e-learning website.

Design / methodology / approach: SPSS analysis method using Ms. Excel 2007 and SmartPLS 3.2.8

Findings: Therefore, we have a solution to overcome this problem through e-commerce oriented learning practices, as a means for learning to use the Learning Management System.

Practical implications: Having a focus on the principles of Analysis and Design of Information Systems, with the concept of computing-oriented e-commerce embedded in the game to motivate the iLearning process.

Originality/value: Significance lies in reducing perceptions of gamification and components that are liked or disliked by users and the efficacy of our hybrid approach in system development.

Keywords: E-Commerce, Learning Management System, Gamification

i. INTRODUCTION

Teaching and learning systems that were run in educational institutions have an essential role in the process of forming thought patterns and creativity in students' personalities. Competition between State Universities and Private Universities, universities are deemed necessary to improve quality in all fields, especially education. This has significant continuity towards the industrial era 4.0 or what is commonly called the era of disruption [1]. Learning methods that are currently running in several universities in Indonesia still use conventional methods in the teaching and learning process using paper as a medium for assignments given by lecturers, discussing in class directly, collecting assignments by giving assignments to lecturers, continuously every day. Of course, using such a method in the era of evolution 4.0 or the disturbing era now would be so saturated that students would become lazy and not want to explore the learning process. Thus students will become more advanced but will be increasingly left behind in the learning process so that students do not have a sense of satisfaction with what is learned. Educational institutions or, more precisely, universities must see the impact that makes the weight of students when graduating will have stock in the world of work.

At present, gamification has become not only famous in the world of education but also in many fields. As one example, in the world of e-commerce, the gamification method is widely used to attract the interests of consumers.

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However, we have discussed the method of combining e-commerce gamification in the world of education, one of the means to attract students' learning interests in terms of design, methods, and ease of access that is very by the interests and satisfaction of students in conducting the learning process. Although the trend of gamification of e-commerce is more skewed in the business world, universal studios in Indonesia related to gamification in education and e-commerce itself are still relatively small. One such international studio (Hsu & Chen, 2018) created an online bookstore as the subject of their research [2]. Hsu and Chen (2018) stated that the customer experience of gamification in online bookstore marketing, which is the subject of their research, affects the user's perception of the online bookstore. This value perception has significant importance on user satisfaction and loyalty. However, the data used in the research of Hsu and Chen (2018) are data from respondents who reside in Taiwan. Other social studies explain gamification on loyalty programs with American community respondents (Hwang & Choi, 2019; Kim & Ahn, 2017) [3] [4]. There is only one gamification study on e-commerce in Indonesia, namely research conducted by (Siswanto & Chen, 2016) [5]. Little social research related to the implementation of gamification in the marketplace in Indonesia is not comparable with the growing trend of gamification itself. In fact, companies that want and have applied this concept of gamification need to determine furthermore about user loyalty and aspects of gamification that can increase the user's perceived value of their business. Because by considering these things, companies and developers can determine the most appropriate strategy to implement gamification in their loyalty programs, so that the experience provided by the loyalty program makes gamification can increase user loyalty and also the intention of users to reuse their markets.

ii. LITERATURE REVIEW

2.1 Gamification Concept

Gamification is a concept of combining elements of online games, such as the presence of badges, points, leaderboards, to enhance the role of students with education. Gamification can be applied in the fields of education to business/e-commerce, which has an essential role in increasing motivation and contributing to learning gamification applications [6].

Gamification is defined as the use of game mechanics and game design techniques in the non-game category to involve people [7]. The number of significant improvements in the literature on gamification in various sectors, especially in education [8-10].

Gamification is a layer of games that help users find personal connections to involve motivation with more specific contexts in the long run [11]. With the 6 (six) concepts, namely reflection, exposition, choice, information, play, and involvement, to guide the design of the gamification system of the elements.

H1. Gamification significantly with the concept of online game elements to be motivated to do something behavior.

2.2 Gamification in Education

Gamification provides a significant contribution that affects the exploration of literature results and institutional mechanisms, namely providing excellent services for students in providing gamification assessment information that increases student behavior to be motivated [12].

Furthermore, according to the Gamification Survey conducted by Talent LMS (2014), 79% of participants have shown a positive attitude towards the integration of gamification in universities or institutions. Of the 75%, participants have played by themselves while 50% of them play quite casually, and 27% of them quite often. Besides, more than 60% of participants will be motivated by leaderboards so that increased competition between students and 89% are involved significantly with e-learning applications if they have a point system [13].

The learning process before entering the industrial era 4.0 still uses conventional learning methods, thus making the students' interest in learning at that time is still classified as the spirit in the learning process [14]. Information technology has supported the development of school services in the world. However, when it entered the era of industry

4.0, where the development of information technology is very rapid to make students increasingly reduce the interest of students with learning methods that are still conventional. Collaborative Filtering is one of the popular algorithms used to build recommendation systems [15]. Some students face difficulties in learning mathematics so that it does not manage to complete, and also a boring e-learning website. Then formed computing-oriented e-commerce for informal learning. It has significant results on the gamification component that is liked by users and the success of the approach in system development [16].

H2. Gamification provides significant educational performance in a short amount of time.

2.3 Gamification in e-commerce

Gamification is increasingly in demand as a design strategy for improving behavioral outcomes in the e-commerce realm. The use of gamification marketing activities (GMAs) is an important part of a successful online marketing strategy. Then show a significant effect on consumer behavior that has five elements, namely entertainment, interaction, trendiness, intimacy, and novelty [17].

Charles, et al. (2016), Interest with gamification of e-commerce opportunities for mobile users. A systematic review of gamified mobile and notes the principle of gamification of cellular marketing, with the Game Tetrad Model element influencing e-commerce results [18].

H3. There is a significant positive effect of e-commerce gamification on education.

iii. METHODOLOGY

3.1 Context

The research instrument used in this study was a questionnaire consisting of two parts. The first part contains questions related to the respondent's profile. While the second part contains 35 questions for testing. The questions for testing are based on the proposed research model and adjusted to the variables contained in the model. Sampling using "Simple Random Sampling." The calculation of the number of samples from a normally distributed population can be done by selecting the sampling method with the Slovin formula. And analysis techniques using SPSS. Then the system testing is only done on the use of features that can increase the speed and timeliness of lecturers at PT provides test scores to create student satisfaction information obtained.

3.2 Study Design

The media used to distribute questionnaires is a form of google. Dissemination is carried out within a period of two weeks starting from April 29, 2019, to May 13, 2019, in order to achieve the minimum target sample required. Data collected from the distribution of the questionnaire were presented and analyzed using Ms. Excel 2007 and SmartPLS version 3.2.8. The results of the distribution of questionnaires that have been done, researchers managed to get 76 questionnaires from direct distribution and 159 questionnaires from indirect distribution.

3.3 Measurement

Hourly behavior measurement resulting from a participant's entry into the system during the test period lasts for 14 days. Intrinsic motivation is measured by pre-validation of the Intrinsic Contextual Motivation Inventory (IMI) [19]. This scale is a measure of intrinsic motivation that is considered well established and has been validated in experimental studies (for example, Ryan et al., 1991). IMI items are ranked on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), with an undetermined midpoint response. This scale is used to measure the level of intrinsic motivation for the use of gamification applications in education and e-commerce. This measurement is carried out at the time point before initial exposure, as well as the short term time point (one week after exposure) and the medium-term time point (three weeks after exposure).

3.4 Sample

In this study, we used [20] sampling using the "Simple Random Sampling" method. Calculation of the number of samples from a normally distributed population and can be done by selecting the sampling method with the Slovin formula, as follows:

$$\begin{aligned}
 n &= \frac{N}{(1 + N \cdot e^2)} \\
 &= \frac{2136}{(1 + 2316 \cdot (0,1)^2)} \\
 &= \frac{2136}{(1 + 23,16)} \\
 &= \frac{2136}{(24,16)} \\
 &= 95,86\%
 \end{aligned}$$

The number of samples, if you follow the Slovin formula of the total population (N = 2136 people), will produce a sample with a minimum of 96 people.

3.5 Analysis

Instrument This study uses a closed type questionnaire that makes it easy for respondents to answer questions easily. So the data from the questionnaire can be easily analyzed statistically, and the same questions can be repeated easily. The survey questionnaire research will be designed using a Likert scale type, then the measured variables are translated into dimensions, these dimensions are translated into sub-variables, and sub-variables are translated back into measurable indicators. The questions asked will have answer choices that are easily processed quantitatively and presented in a representative manner. The questionnaire will be displayed in table 1 below:

Variable	Dimensio	Indicator
Quality of Gamified ducation E-Commerce	Accurate	Assist
		Convenient
		Properly
	Readiness	Assist
		Convenient
		Performance
		Properly
	Timelines	Communicatio
		Convenient
		Performance
iLearning Method	Accurate	Performance
		Properly
	Readiness	Assist

		Convenient
		Performance
		Properly
	Timelines	Communicatio
		Communicatio
		Convenient
		Performance

Table 1. Research instrument

Scale	Value
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly agree

Table 2. Variable research instrument
 (Sumber: Vagias dan Wade, 2006)[21]

Likert scale can be said as a psychometric scale because the statement strongly agrees to have a level of preference that is "higher" than agree. While agreeing "higher" than a neutral or hesitant statement [22].

iv. RESULTS AND DISCUSSION

In this section, we will discuss [23] validity related to instrument problems intended to measure an object. The instrument is expected to be able to measure accurately against the object to be measured. In short, it can be said that the validity of a research tool concerning the use of a measuring instrument can measure what will or actually must be measured. There are many ways to consider the level of validity of an instrument. A validity test is done to measure the validity of an instrument in the form of a questionnaire. Reliability refers to understanding whether the instrument that is being used to retrieve data in the field can be used to measure consistently on an object over time. So it can be concluded that the consistency value is important in the instrument used as a measurement tool. In this study, the authors used SPSS, which has facilities to calculate the reliability of instruments using Cronbach's Alpha, which conceptually can be said to be a reliable instrument if Cronbach's Alpha > 0.6. Based on the data distribution of answers received from respondents in accordance with the Quality Assessment and Learning Effectiveness variables derived from questionnaire instruments that have been collected, the following is the result of this data. This data can be explained in detail with 42 Frequency Tables of the SPSS program in sequence from items 1-42 with the histogram data display in Figure 1 below:

Figure 1. Histogram

Based on Figure 1 above, Q9 from the histogram graph has a mean of 5.49. Then 0.72 standard deviations from 300 respondents. The results of the histogram graph output above illustrate normally distributed data. The following is Case Processing Summary is:

Table 3. Case Processing Summary

	N	%
Cases	300	100
Valid	0	0
Excluded	300	100
Total		

Table 4. Reliability Statistic

Cronbach's Alpha	N of Item
.987	42

v. CONCLUSIONS

Finally, this study can be concluded that gamification contributes significantly, which can influence the growth of the exploration of literature and the mechanism of education and business — evidenced by the presence of e-commerce gamification that can increase students' sense of satisfaction in learning, thus creating a fun learning atmosphere from the calculation of 300 respondents. Seen from the students seemed to like learning with e-commerce gamification that also affects motivation. In the X reliability test results, it is known that Cronbach's Alpha is $0.974 > 0.6$ research instruments that can be relied upon. This suggests that the e-commerce gamification method in education significantly increases motivation by involving different factors beyond the intrinsic application of gameplay and providing literature for future research.

Based on the results of the research conducted, there are 3 (three) suggestions addressed to the research object for further researchers so that there is better gamification development, including:

1. The development of ilearning with gamification in other fields.
2. Loyalty program for e-commerce gamification.
3. Gamification of e-commerce with education adds competitive variables, so students are more competitive in learning.

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