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STUDENTS' ATTITUDE AND TEAMWORK

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Abstract: This research has a purpose to give contribution about the effectiveness of gamification on changing students' attitude towards teamwork and attitude components in attitude toward teamwork. This study was designed to measure the effectiveness of the use of gamification, especially board game. The researcher collected the primary data by conduct experimental research with compare the result of before-after experiment. The tools that used for treatment is the Forbidden Island game. Then the questionnaire of pre-test and post-test that given as treatment refer to preliminary research for question guidelines components of attitude (affect, behavior and cognition) and for question guidelines of attitude toward teamwork. Gamification especially board game is one of method that popularly used in education world. However, the study that measure effectiveness of board game as apparatus for learning and achieve desirable attitude and behavior was still limited. Therefore, researcher conducted this research to prove whether the board game can achieve certain level of attitude toward teamwork and the components of attitude toward teamwork which is affect, behavior, and cognition. In order to answer the research objective, the results showed there was a significant difference between the pretest and posttest result after treatment for attitude toward teamwork and components of attitude toward teamwork.

Keywords: Gamification, Attitude, Teamwork.

INTRODUCTION

Sophisticated technology makes companies look for ways to achieve their vision and can compete in a very volatile and rapidly changing era (Saleh et al. 2010). To solve this problem, besides having to pay attention to financial and technology aspects, the role of human capital is also very important because human capital is the main subject that regulates everything in the company (Nassazi, 2013). Refers to the result of the Chief Executive Officer Survey by Pew Research Center (2018) which shows that talent is the most priority for company to growth. This situation generates an increase in demand for human capital that has criteria that match the needs of the organization (Salleh et al. 2010). One of the main criteria that is very important in qualified human capital is soft skills, because not like technical skills, soft skills are a side of human abilities that cannot be replaced by advanced technologies such as automation and artificial intelligence (Hes, 2017).

Higher education as one of the main providers of talent needed by the labor market continues to focus on developing soft skills as early as possible in accordance with Indonesian education goals to provide professional talent with relevant skills to contribute to the society (Ministry of Research, Technology, and Higher Education, 2017). Unfortunately, the goal of higher education has not been fully achieved because technical skills are still preferred over soft skills, thus higher education must evaluate this condition to can produce more qualified talent and meet labor market demand criteria (Handayani, 2015).

Among the various soft skills that must be mastered by talent, one of the skills that is very important for talent is the ability to collaborate and teamwork (Workplace Learning Report, 2018). Therefore, in the world of education various methods emerged to develop teamwork. One of effective learning trends methods to obtain better results from learning, developing a positive attitude towards the course and achieving the desired behavior is to use gamification (Forbes 2018). Gamification is applying game elements and gameful experience to learning (Deterding, 2012). Research problem, objective and limitation

Based on paper from publication trends in gamification by Kasurinen & Knutas (2018), there were only 3.6% paper about gamification related to social behavior and education (non-computer science related). Meanwhile, research about the effect of gamifications on attitudes is very important to support higher education, organization or company to improve the attitude and validate the method. This research has a purpose to give contribution about the effectiveness of gamification on changing students' attitude towards teamwork and attitude components in attitude toward teamwork.

LITERATURE REVIEW

Teamwork

Teamwork is an activity of people as a team that gives shared behavior and thoughts to achieve certain shared goals. (Morgan et al. 1993). According to previous research (Salas et al. 2014), teamwork can be defined as a process of conformation among teams to communicate and share about ideas, sense, and behavior in dynamic and episodic activity to achieve the goals. There are so many benefits from teamwork such as being able to stimulate new innovations from various individuals with different backgrounds, skills, information and experiences (Fay et al. 2014); help for self-development (Beal, 2003); expand social relations

(Jin, 1993) and also help to all team members develop the organization and achieve common goals effectively (Brown, 1995).

Gamification

Gamification is the application of game elements to non-game activities (Nistor & Iacob 2018) by utilizing mechanics, aesthetic and a sense of fun in games to inspire users to learn and solve problems in real life (Zichermann & Cunningham, 2011). The use of gamification is expected to be a stimulus to change behavior (Huotari & Hamari, 2012) and provide user new experiences through value (Tansley et al. 2016).

Game mechanics that can be used in gamification according to Huotari & Hamari (2012) are points, leaderboard, leveling, stage challenges, bonuses, and rewards. Meanwhile, the function of gamification is to make an activity more enjoyable, meaningful, entertaining while being able to improve skills (Squire & Jenkins, 2003). There have been many various fields of management such as marketing, human resource management, and information technology (Walz & Deterding, 2015).

In the world of education, gamification is done to provide gameful experience in a learning process that aims to motivate and engage students to learn, form a mindset, and build a desire to compete and cooperate (Buckley & Doyle, 2016).

Attitude toward Teamwork

Attitude is a combination of some information from thoughts, feelings and experiences (Pooley, 1996). Meanwhile, attitude toward teamwork is a person's tendency to like or dislike teamwork activities and this is very important to learn because of the effect of attitude on a person's action during teamwork (Rudawska, 2016). Many factors can influence the attitude toward teamwork, especially in learning activities such as the role of the leader in the team, the percentage of team values, team size, team workload, time pressure, ability to work together, team member assessment and the presence of free riders (Pfaff & Huddelston, 2003).

Attitude is built by several components that refer to the concept by Breckler (1984) such as cognitive (knowledge and information), affect (combination of feelings), and behavior (past experiences). First, affect is a combination of emotions, feelings and moods that become one of the determinants of attitude (Eagly & Chaiken, 1998). Furthermore, behavior (referring to the past behavior) is a verbal or non-verbal action that can be observed as an expression of attitude (The Wicker, 1969). Lastly, cognition is a combination of information and knowledge about something related to the attributes of an object (Fishien & Ajzen, 1975).

Research framework and hypothesis

Gamification can be implemented for various purposes such as stimulating changes in attitude and behavior (Dicheva & Dichev, 2015). Furthermore, one of the literatures that support the existence of a relation between gamification and attitude toward teamwork by Robert (2014) which states that teamwork activities accompanied by gamification will effectively improve participant's attitude toward teamwork.

RESEARCH METHODS

This study was designed to measure the effectiveness of the use of gamification, especially board game. The researcher collected the primary data by conduct experimental research with compare the result of before-after experiment. The tools that used for treatment is the Forbidden Island game. Then the questionnaire of pre-test and post-test that given as treatment refer to research conducted by Mohammed (2010) for question guidelines components of attitude (affect, behavior and cognition) and Kiffin-Petersen & Cordery (2003) for question guidelines of attitude toward teamwork.

The first stage for treatment design is pretest with questionnaire developed by Mohammed (2010) and Kiffin-Petersen & Cordery (2003). Then, researcher give explanation about game, gameplay, and rules. After that, respondents given the treatment which is playing the board game, one game can be played by maximum six respondents. Last, after treatment, researcher give posttest with the same questionnaire in pretest stage.

FINDINGS AND DISCUSSION

According to the table. 1 that provide information about paired sample test, the result showed attitude toward teamwork has the Sig. (2-tailed) with value .000 which means less than $p = .05$ that indicated there were positive significant differences on attitude toward teamwork result between pretest and posttest after treatment.

Table 1. Paired t-test result for attitude components

	Paired Differences			t	Sig. (2-tailed)
	Mean	Std. Devi-ation	Std. Error Mean		
Attitude toward teamwork	-3.224	3.749	.536	-6.021	.000
Affect	-3.122	3.683	.526	-5.934	.000
Behavior	-3.367	4.885	.698	-4.825	.000
Cognition	-3.122	4.161	.594	-5.252	.000

This result might be happen because the gameplay of the game promote teamwork and collaboration. It re-quires respondents to discuss about strategy for mutual decision in every turn. Therefore, H1 is supported, there were a positive significant difference on students' attitude toward teamwork before and after treatment using Gamification.

According to the result of paired sample test, the components of attitude such as affect, behavior, and cognition has the Sig. (2-tailed) with value .000 which means less than $p = .05$ that indicated there were a positive significant differences on all of components of attitude toward teamwork result between pretest and posttest after treatment.

For affect result, it might be happen because respondents felt satisfied and happy when they could work together and accomplished the challenge in game with satisfactory results. Therefore, H2 is supported. The subjects exposed to a gamification will give positive significant difference on students' level of affect.

Therefore, for behavior result, this condition probably happen because respondents practice to respect each other, responsible as a team, and give opinion and contribution in every turn of game. Then, H3 is supported, the subjects exposed to a gamification will give significant difference on students' level of behavior.

Lastly for cognition result, it might be happen because during playing the games, there was an exchange of thought and knowledge sharing. That information can be formulated as new insight for respondents. Then H4 is supported, the subjects exposed to a gamification will give significant difference on students' level of cognition.

CONCLUSION AND SUGESTION

Gamification especially board game is one of method that popularly used in education world. However, the study that measure effectiveness of board game as apparatus for learning and achieve desirable attitude and behavior was still limited. Therefore, researcher conducted this research to prove whether the board game can achieve certain level of attitude toward teamwork and the components of attitude toward teamwork which is affect, behavior, and cognition. In order to answer the research objective, the results showed there was a significant difference between the pretest and posttest result after treatment for attitude toward teamwork and components of attitude toward teamwork.

Although it can be said that gamification, especially board game, can effectively improve the positive attitude toward teamwork, certainly, each method has advantages and disadvantages. The use of gamification to im-prove positive attitude is not something that can be obtained instantly, it takes time to build a positive attitude permanently. So, assistance during play is needed. Giving explanations and emphasis about importance of teamwork during playing can provide more insight and understanding for participants. Other than that, play-ing more than one game with different themes and with different people can also train participant about adaptations.

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