

# CHAPTER I

## INTRODUCTION

This chapters describes the introductory part in which it describe the background of the study, problem formulation and research question, purpose of the study, significance of the study, clarification of the key terms, and organization of the paper.

### **1.1. Background of the study**

Indonesian government released Education Ministerial Regulation no. 41 the year 2007 about process standard which stated that teaching-learning should integrate technology systematically regardless of the goal. Moreover, Education Ministerial Regulation no. 16 the year 2007 regulated that all teachers should utilize communication information technology to scaffold learning.

The government had passed the law to answer the challenge of 21<sup>st</sup> century teachers, in which the teachers must be able to creatively develop their teaching method (UNESCO, 1998). On the other hand, utilizing a game for teaching methodology has been increasing in the number of popularity (Takeuchi & Vaala, 2014). Since playing a game is popular among the young generation in Indonesia today (Kementrian Komunikasi dan Informasi, 2015); exploring the utilization of game in the classroom can benefit the teachers.

Education has been applying video games for learning since digital technology developed (Gee, 2004; 2005; 2008; 2012). However, game-based education has rarely been implemented, especially in Indonesia. It has been a phenomenon that makes an unexamined gap for the present education in which lecturing is still dominating, and presentation is still the most popular method in higher education. Nevertheless, technology has been available for mediating teaching and learning.

A traditional method such as teachers' lecturing has been questioned due to the nature of learning by many practitioners. Gee (2004) opposed the school's practice by contrasting the role of multimodality in learning. In his book, he argued that optimal learning would be achieved in a multimodal environment

(Colby, 2017). Learning through video wherein students are engaged in visual and aural content is claimed to be better than relying only on a single modality.

It is generally accepted that games provide multiple representations in many forms of modalities (Gee, 2008). Unfortunately, in reality, many teachers are reluctant to use video games despite their enormous potential that foster learning.

Utilizing games for teaching encounters some obstacles for the implementation. Joan Ganz Cooney Center (2018), for example, had conducted a major survey of 694 teachers to find why some teachers are reluctant to using video games. They admitted that the implementation of games for teaching encountered several problems ranging from the insufficient time, cost, lack of teacher resource, difficulty in finding games that fit curriculum content, emphasizing on standardize test scores, not sure where to find quality games, unfamiliar with the technology, lack of administrative support, lack of parental support, and no barrier. Notwithstanding, according to the survey, the most benefit of using video game for teaching was the low-performing students with 47 % of respondents and English learner with 21% of respondents.

In 2002, Salies studied the effect of game-based instruction on writing skill. She found that the study was successful. The research was able to improve students' attendance, punctuality, and motivation. However, Salies admitted that students were lack of accuracy and organization (Salies, 2002).

In 2007, Barab, Sadler, Hickey and Zuiker studied the effect of game-based on writing biology concept. They found that the study was significance compared to the non-game group. Moreover, after two months of the research, the students were tested. The students in the experiment group can answer the biology question better than the control group, which indicates the long-term effect of the method (Barab, Sadler, Heiselt, Hickey, & Zuiker, 2007).

In 2017, Chang, Liang, Chou, and Lin measured the effect of game-based instruction toward the students experience with Flow theory. The finding revealed that the students in GBL group experienced flow, in which they were immersed in the activity, focused. The students experienced the disruption of time as they engaged with the content of the learning (Chang, Liang, Chou, & Lin, 2017).

A meta-analysis had also revealed that game-based learning outperformed control group in some ways. Three out of four research that compared game-based to the control group received significant difference, an indication of the value within game-based instruction (Wouters, Spek, & Oostendorp, 2009).

Moreover, a greater meta-analysis by SRI (Angelo, et al., 2014) reported that simulation (game) potentially outperformed non-simulation condition by 23% gaps in the outcome, which means that using simulation can increase understanding by 23% compared to the non-simulation environment.

Although research about game-based revealed positive outcome that improves conceptual understanding, the use of games on teaching writing is rarely being examined (Colby, 2017).

Instead, writing teachers did not empower writing itself, leaving the students demotivated to write. The term 'reluctant writer' is describing how demotivated they are about writing. Though, as technology develops, writing can be fun with technology tools (Salies, 2002; Mills, 2011; Batsila & Tsihouridis, 2016; Yamac & Ulusoy, 2016; Howell, Buttler, & Reinking, 2017). Collaborative technology Web 2.0, for instance, can be an entertaining tool to teach writing (Li & Zhu, 2017). Students welcome innovation in teaching, and they do not welcome writing as a rigid rule.

Even many research have exclaimed that GBL can motivate the students, the study that examines writing and GBL is still limited (Colby, 2013; Colby, 2017). Nowadays, many game-based research examined the effect of improving students' vocabulary, but not on writing as a whole.

This research aims to see how the implementation of GBL in teaching writing. The hypothesis will tell the significance of GBL groups with certain strategies in teaching writing, namely collaborative and inquiry strategies. Moreover, the examination of the process within GBL will also be revealed. Lastly, how the students perceive writing learning with GBL will be explored in the finding.

## **1.2. Formulating problems**

The research focuses on the implementation of GBL within the inquiry and collaborative strategies in teaching writing. The formulation of the problems includes the outcome of GBL in teaching writing, the process of GBL, and the students' learning experience in GBL.

### **1.2.1. Research questions**

This research aims to see the gaps in game-based learning in teaching writing with inquiry and collaborative strategies. The research questions are stated as follows:

1. Is there any difference between the means in the non-GBL group and the GBL group with inquiry and collaborative learning strategies in writing the narrative text?
2. Is there any difference between the means within the GBL group with inquiry and collaborative learning strategies in writing the narrative text?
3. How is the process of teaching-learning in game-based learning?
4. How is the students' learning experience within game-based learning framework?

## **1.3. Purposes of the study**

1. To find the difference between the means in the game-based learning groups and non-game-based learning group.
2. To find the difference between the means within the experiment groups: GBL with collaborative and inquiry strategies group.
3. To reveal how the process of learning within game-based learning.
4. To explain how the students perceive learning experience with game-based learning.

### 1.3.1. Hypothesis

The hypothesis of the study will be measured from comparison of the means of the groups with one-way ANOVA with error probability at 0.05. The statement of hypotheses is stated as follow:

H0 = There is no significant difference between the control and experiment groups.

H1 = There is a significant difference between the control and experiment groups.

It is generally accepted in many types of research that game-based can improve students' outcome. Researchers who implemented game-based on English as the Second Language teaching had found that their language component improved to some degree.

Additionally, the framework "Transformational Play" in this research had been tested and was found successful to be implemented in classes. Therefore, theoretically, the prediction of the research shall be positive which means that the H1 should be accepted.

Additionally, the design of the teaching-learning will allow students to fall into 'Flow'. At flow state, students will find the time passed subconsciously during learning. The term 'Flow' was first coined by Csikzentmihalyi (1990) to describe a situation when a person immersed in the situation. In other words, the person is engaged in the activity, which makes him fall deep into the thinking.

However, many researchers have also admitted that it is challenging to combine the nature of game and classroom education at the same time. Based on the meta-analysis by Wouters, Nimwegen, Oostendorp, & Spek (2013), they mentioned that one out of four researches with game-based did not reach the level of significant. Moreover, Nadolny and Halabi (2016) predicted that different strategies within GBL can result various outcome. Although there is a lot of evidence that the implementation of the framework has been successful in improving students' outcome, there may be factors that were unexamined in the previous research that may lead to a different result.

#### **1.4. Significance of the study**

Generally, the present research measures the effect of game-based instruction in teaching writing. The research will provide an in-depth analysis of implementing inquiry and collaborative strategies in English writing class. Both qualitative and quantitative approaches are used in the analysis to have an insight into a phenomenon.

Thus, implementation of game-based learning is rarely being applied in teaching learning in Indonesia context. Conducting this research provides insight into how game-based instruction may affect students. In a narrow sense, a riddle game that is not commonly used in teaching writing is being examined as well. Granted, many types of research that examine game-based learning use narrative genre in instructional design. Otherwise, a riddle has more potential at developing student critical thinking and problem solving regarding the problem presented.

Besides, examining games for teaching writing in individual and collaborative are missing from discussions. A lot of research measures vocabulary acquisition after specific treatment without further exploration. Whether students can apply the vocabulary in writing informative genre remains unanswered.

In accordance, writing teacher, English second language teacher, the students, game and software developer, curriculum designer, and education practitioner can make use of this research in taking a further decision about the value of game-based education in the future design of instructions.

#### **1.5. Scope of the study**

The scope is mainly discussing inquiry learning and collaborative learning within game-based instructions. How the result of the implementation is, and how it affects students' writing. The researcher will try to find out students' perspective toward game-based instructions by conducting a survey and interview as supporting the argument for this thesis.

The design of this research in an explanatory mixed method. Description and explanation of a phenomenon may be required to give a clear insight into the phenomenon according to the data gathered. The statistical analysis will be ANOVA to compare more than two means. Instead, there will be three groups in

total: group1, group2, and group3 with a different method. Group1 and group2 are the treatment group, whereas, group3 is the control group. Group3 is taught without using game-based learning.

The research includes the experiment of game-based learning in the two groups which are inquiry focused strategies and collaborative focused strategies. The group1 uses an inquiry approach which emphasizes students to figure out the right solution for the particular in-game problem, with modification as to make it suitable with game-based instruction. The modification in inquiry includes the limit of collaboration and a real problem. The collaborative group is modified in the task, discussion, and instruction by following collaborative learning framework in game-based instruction.

#### **1.6. Clarification of the key terms**

In this research, the term of the ‘game theory’ is not a theory by John Forbes Nash (1994). The term game theory is not about Nash equilibrium or its cooperative and non-cooperative theory. The game in this research refers to the video game in a console such as PC, Play Station, X-Box, mobile phone. Due to the many definitions in an academic setting, the terms in this research is limited to the following definition:

Game or video game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome (Salen & Zimmerman, 2004). Game is a rule-based formal system; with variable and quantifiable outcomes; where different outcomes are assigned different values; where the player exerts effort in order to influence the outcome; the player feels emotionally attached to the outcome, and the consequences of the activity are optional and negotiable (Juul, 2005). Game in this research refers to the digital application with certain mechanics that encourage the player to play with procedurality of the choice that leads to understanding mechanics and the content itself.

Game-based learning is defined as specific problem scenarios that are placed within a play context for learning (Tsai & Fan, 2013). Another definition of game-based learning refers to the borrowing of certain

gaming principles and applying them to real-life settings to engage users (Trybus 2015). Among many definitions of game-based learning, perhaps, the upmost definition of game-based learning is stated by Squire (2008). He stated that game-based is built on the number of principles: (1) create emotionally compelling contexts for learning; (2) situate learners in complex information management and decision-making situations where facts and knowledge are drawn on for the purpose of doing; (3) construct challenges that confront and build on users' preexisting beliefs; (4) construct challenges that lead to productive future understandings; (5) anticipate the users' experiences from moment to moment, providing a range of activities to address learners' needs; (6) invite the learner to participate in constructing the solutions and interpretations; and (7) embrace the ideologically driven nature of education and training. Based on the synthesis of the definition, game-based learning or GBL in this research refers to the game as the teaching medium for developing schemata around the topic which instills learning content to build academic contextual understanding through a digital application as it embeds the game factors that attracts the students in engagement.

Inquiry strategy is a process of teaching and learning with discovering causal relationship through active experimenting or observation in order to construct knowledge (Pedaste, et al., 2015). On the other hand, inquiry is defined as a quest for truth, information, or knowledge, seeking information by questioning which begins with constructing and gathering information and data through applying the human senses (Exline, 2004). The term of inquiry in this research refers to the process of discovery in which finding logical relational explanation on a phenomenon. Inquiry strategies in this research used the questioning technique in HOTS and LOTS, developing writing schemata, developing a hypothesis for problem-solving, and testing the hypothesis.

Collaborative strategy is an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product (MacGregor, 1990; Storch, 2005; Laal



& Laal, 2012). On the other hand, collaborative learning is an instruction method in which students at various performance levels work together in small groups toward a common goal (Gokhale, 1995). The most popular definition of writing perhaps is co-authoring by two or more writers working together to produce a text (Storch, 2005). In this research, collaborative learning strategies refer to doing writing activity together in a game-based learning environment which aims to improve writing a narrative from drafting, writing, and editing in a process approach.

Writing is a form of expression with a text as a medium of communication (Colby, 2017). Old and classic definition of writing was stated by Troyka (1987) who said that writing is a way to convey a message to the reader in five elements, 1) communicating to send a message from writers to readers, 2) message refers to the content, 3) information carried out in piece of paper, 4) readers as the recipient of the message, and 5) purpose of the writing. Since the writing context in this research is about second language writing, Hyland serves the definition of writing in English as a foreign language. According to Hyland, writing is a cognitive, social and intercultural activity mediated by a text that involves the purpose, the knowledge of the language, the knowledge to construct the text, the knowledge the genre of the text and knowledge the context that involves the reader's expectation (Hyland, 2003). Writing in this research is a receptive skill of English as the second language to communicate with the audience.

### **1.7. Organization of the paper**

The organization of the thesis is following the regulation of Universitas Pendidikan Indonesia writing format with APA sixth citation style. The total of the chapters is five. Chapter one is an introduction which consists of a general overview of this thesis. Chapter two is a literature review which elaborates the theoretical perspective and previous research related to the study. Chapter three is a methodology which mentions the procedural and methodology of this research. Chapter four is finding and discussion, which describes the data from the research

instrument and interpretation. Chapter five is the conclusion of the thesis finding which summarizes the synthesis and analysis of the finding.