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The Integration of Educational Game for Collaborative Learning

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ABSTRACT

A large body of literature has discussed the benefits and the shortcomings of the use of games in education. Studies in this area of inquiry have indicated that games are not significantly correlated to student academic performance. Rather, they facilitate knowledge acquisition and sharing among students. However, implications from existing literature on the use of games in education suggest that futher research needs to be done to explore how games are used to enhance students' social and problem-solving skills. This study attempts to investigate the kinds of game platforms that are the most suitable to encourage collaborative learning, the kinds of learning models for collaborative learning with games, and students' perception of the games and the use of games for collaborative learning. In this study, we will design and create game prototypes. Embedded in these prototypes are knowledge sharing templates that students will use to construct knowledge of various subject matters through collaborative activities. Participation of each team member to seek information and create questions for group problem-solving and discussions will encourage active learning. In this collaborative activities, individual's perspectives are paramount in constructing knowledge and later in understanding the subject contents better. To address the research questions in this study, we used several stages. In year one, we are planning to build alpha prototypes, develop knowledge sharing templates, test the games, and conduct survey, In year two, we will conduct workshop, implement the project, administer survey, and then disseminate the learning models. We will employ both qualitative and quantitative methods.

Kata Kunci: collaborative learning, educational game, game-based learning, peer-assessment, serious game

Chapter 1. Introduction

1.1 Background

The use of games for learning has been studied extensively. James Gee, a proponent of the use of games in learning, argues that games allow people to use their collective intelligence and non-cognitive skills that are important for people to succeed. For instance, people can learn patience, discipline, and preserverance from game playing. These skills are often learned outside of traditional schooling. Games can incorporate some of the learning principles such as identity, interaction, production, risk-taking, and customization. Games provides learners opportunities to take on a new identity, that is to be committed and appreciate his work. Unlike textbooks, games can be interactive. This particular characteristic attracts people to choose games. Learners can interact with other players and the game itself. In games, players are producers. They create and not just consume and enjoy the game. Many games allows players to create their own virtual worlds and characters. Another strength of games is the opportunity for players to take risks. Failure in game playing often does not bring bitter consequences. Therefore, players feel at ease when playing games since they can always try new or difficult challenges. In addition, when playing games, learners customize their games to match their needs and learning styles. Games possess attractive features such as images, animation, and sounds. Young generations nowadays are more attracted to such features in learning and games provides the characteristics that learners need (Gee, 2007).

Recent literature on the role of technology to enhance learning uses the term "net generation" to refer to the younger generation (Oblinger, 2003). This term is used to describe how well younger generations nowadays adjust to the technological gadgets. Research on the use of gadgets in North American universities has shown that university students have positive perceptions of the use of technological gadgets to enhance their learning, but the study also shows that the influence of technology on students' course engagement is moderate (Eden Dahlstrom, Brooks, & Bichsel, 2014). Although more and more students believe that they are more familiar and more prepared compared to their counterparts in the past, students reported that the use of technology should be more integrated to improve the learning process. Students reported that in order to take the most

advantage of technology to improve learning outcomes, training or guidance is necessary (E Dahlstrom, Walker, & Dziuban, 2013). This corroborates the findings of a previous study on learning strategy. Brown & Volts (2005) found that students preferred a learning strategy which allows them to actively engage and participate in current global issues. This study showed that students felt comfortable in incorporating visual aids and technology to better understand the teaching materials.

Lehtinen (2008) stated that universities have a vital role in "learners for participation in a networked, information society in which knowledge will be the most critical resource for social and economic development" (Lehtinen, Hakkarainen, Lipponen, Rahikainen, & Muukkonen, 1999). Hence, universities should apply innovative teaching method that enables learners to interact with others in a much more meaningful way. Lehtinen (2008) further argued that for the past ten years, studies on the role of information technology and communication on education have looked at how technology can be integrated to enhance social interactions between student – teacher and among students themselves. One of the pedagogical strategies that provide ample rooms for students to improve the social aspect of learning and teaching process is collaborative learning.

Some scholars distinguish the notions of collaborative versus cooperative learning based on the description of tasks that learners have to accomplish. In collaborative learning, the accomplishment of tasks and problem solving require group's concerted efforts, whereas in cooperative learning, tasks are divided among group members and each member has specific responsibilities. Thus, collaborative learning supports the idea that learning is a social activity whereby knowledge-seeking inquiry is accomplished through synchronized efforts of everyone in the group (Lehtinen et al., 1999).

For the past ten years or so, scholars have attempted to investigate ways to improve students' learning experience by designing carefully-crafted collaborative learning activities that integrate the use of online or heldheld games (Cabrera et al., 2005; Wheeler, Yeomans, & Wheeler, 2008). These studies reveal that while games are not statistically significant in increasing students' academic achievement and performance, they have strong motivational impact for knowledge sharing and authoring. The findings of such studies have indicated

that educational institutions need innovative and non-traditional learning strategies that provide students ample opportunities to explore, construct, and apply their knowledge as well as to internalize and share their knowledge and skills with others. Even though there is a rich body of literature on the use of games to enhance collaborative learning in other countries, there is a lack of such literature in Indonesia.

1.2 Rationale

Literature on the effectiveness of serious games for learning shows that they they have a positive effect on learning. Although there is a weak evidence that games affects students' academic achievement, recent studies have indicated students can improve their problem solving and interactional skills (Backlund & Hendrix, 2013). Students also showed high level of engagement (Piirainen-Marsh & Tainio, 2009) and motivation (Yang, 2012).

This study will explore the use of educational games to foster collaborative learning among students. The overall objective of this study is to find the most suitable game platforms for collaborative learning, to look at the most workable knowledge sharing design, to investigate students' perception of the game, and the collaborative learning. Unlike other similar research, this study will explore the most suitable platforms for collaborative learning and the models of such learning strategies as well as students' perception of the learning strategies. In this study, we will design collaborative activities for students in the form group discussions based on the subject materials they are currently being taught. Recent studies suggested that students have high preference in the integration of subject matters in games (Barkley, Cross, & Major, 2014). Each student in group discussions will present questions which later are used in constructing a game. Students are expected to learn the subject matters well and then create questions that can be used for games. This kind of approach is expected to increase students' engagement in task accomplishment (Challco, Moreira, Mizoguchi, & Isotani, 2014). After designing questions for the games, students are required to design a game that other students can use to learn and understand the subject matters. Game platform should be easy enough for students to allow different types of students to engage in the activites. In other words, the process of game design should not leave out students who are less inclined to use technology. To obtain the purpose of this study, RPG Maker VC Ace, Adventure Maker, Construct 2 will be some the most appropriate platforms to create games. This platform does not require students to master

programming language. It possesses user-friendly features in which users can do just drag and drop contents (Sanjaya, Soekesi, & Sitohang, 2015).

1.3 Problem Formulation

1. What is the most appropriate learning model?
2. What are students' perception of the benefits of collaborative game-making?
3. In what way does the collaborative game-making help students in learning?

1.4 The objective of the study

The objectives of the study are to find the most appropriate learning model, to investigate students' perception of the use of collaborative game-making, in what way the collaborative game making help students in learning?

Chapter 2. Literature Review

2.1. Learning as a social activity

Social constructivism approach to learning believes that knowledge construction takes place through interaction with other people. Social constructivists employ several terms to describe this kind of approach such as Situated Learning and Zone of Proximal Development. The premises of these approaches stem from the notion that learning process should take into consideration of the social interaction among learners as well as between students and teachers. To some extent, Gee's notion of Situated Learning resonates with Vygotsky's ZPD and space. Gee (2004) contends

> "*If any variety of language is to be learned and used, it has to be situated. That is, it has to be brought down to concrete exemplifications in experiences learners have had (repeatedly, since learning is partly a practice effect). These experiences need to be guided by "masters" (whether teachers or not), so that learners pay attention to the right things amidst the myriad flux of any experience and form good and useful generalizations*" (Gee, 2004).

Like Vygotsky (Vygotsky, 1980) who believes that a person can achieve his/her level of potential development through interactions with peers or adult, Gee also stresses the rol e of interaction in the learning process. He views learning as a process of apprenticeships. A person learns how to accomplish an activity by looking at and observing the more advanced peers. More advanced peers can accomplish more complex tasks given that they have more experiences in dealing with them. The longer the new comers interact with the more advance peers, the more knowledgeable and experience they become. From the interactions with other peers, a person can adjust their pace, extract useful information for their particular contexts, and choose information that is the most useful for them. In other words, a learner has more freedom and more opportunities to determine the learning pace and the knowledge that they want to gain. Gee calls this process of learning as the cultural process. .

Vygotsky's space is in line with Gee's cultural process. In Vygotsky's view, learners take many inputs from the social/public arena, internalize their knowledge, and reuse it later in communication. The process of acquiring knowledge, internalizing it, and recycling it for future communication to some extent is similar to Gee's cultural process. Even though Vygotsky does not stress the expertise level of the people or the level of commitment, such process of learning is cultural as learners are involved in common practices and customs.

2.2. Collaborative Learning

Collaborative learning has a special characteristic on the activities to engage several people in collaborating and sharing the knowledge (Hsiao, Chang, Lin, Chang, & Chen, 2014). It will have a social interaction to do some activities in a group to gain some knowledge from different thinking perspective. Some benefits from those activities are improving the critical thinking of the participants, involving the student to be active on the learning process, increasing the quality of the discussion in the class, and fostering the problem solving between them (Roberts, 2005). However, the person who involve in the activities on collecting the knowledge are not merely the expert, but also the students who want to learn something from each person in a group (Dillenbourg, 1999). Each person could contribute their thinking that might not be thought by the others. It might enrich the insight of every person in a group because of the new perspective (Gokhale, 1995). Wiki is a popular platform on the internet for the collaborative learning. Several people use Wiki that published on the internet to accommodate their need to have a different ideas on the learning collaboration (Cress & Kimmerle, 2007). The involvement of technology on the learning collaboration will stimulate the usage of comput er in the collaborative learning. It is called as Computer-supported Collaborative Learning (CSCL) but not only limited to the usage of Wiki or internet as the tools (Stahl, Koschmann, & Suthers, 2006). Game as a part of the computer program is also possible to be used for supporting the learning. It could be useful for collaborative learning but the requirement for collaborative learning should be investigated (Collazos, Cauca, & Stahl, 2007; Hämäläinen, 2011; Papastergiou, 2008). .

2.3. Peer-assessment

In the collaborative learning, the knowledge sharing is not only the main activity. A member in the group could give an assessment and a review for other members in order to improve their understanding about a topic as a peer-assessment. The peer assessment between members are usually done by them who are in the same degree, same interest, same year, or same course (Topping, 1998). The peer-assessment in the collaborative learning might have a same meaning with peer learning or learning from each other by giving the assessment to upgrade their friends' knowledge (Boud, Cohen, & Sampson, 2014). However, the main factor in the learning element to transform the peer-assessment to be the peer learning should be the peer-feedback. The assessment from the other students should bring also the answer as the feedback to get the understanding of the problem solving in the chosen topic (Liu & Carless, 2006). Collaboration between peer-assessment and peer-feedback will enhance the student learning (Falchikov, 1995).

2.4. Game-maker platform

Currently, game developers are able to create several games even though they do not have ability on the programming (Chamillard, 2006). It could be happened because they use game engine as the game-maker platform. Most of game engines are provided on the internet for free without limit features and with limited features. The game engine brings the easiness on the creating a game that makes everyone could create a new game (Schroeder, 2011). Some famous game-maker platform such as RPG Maker, Unity, Construct 2, and Adventure Maker are providing the drag-and-drop feature to design and develop the game (Dahlberg, Barnes, Rorrer, Powell, & Cairco, 2008; Sanjaya et al., 2015). It could motivate the users to create their own game related to their needs, especially in collaborative learning.

2.5. Educational Games

Educational games has a specific function on constructing knowledge using their stories, challenges, and rewards (Kiili, 2005). Players are able to learn history, health, ethic, or science while they are playing. Each challenges and reward in a game will bring the

player to the other learning activities continuesly. Sometimes, the knowledge are presented abstract in the game and they are not always formed as questions that players should answer. It promises the interesting ways for people to learn something (Prensky,

2005). The interactivity on the games will motivate the students to learn and gain knowledge (Tang, Hanneghan, El Rhalibi, & El-Rhalibi, 2007). The gradual challenges are triggering the students to find another hidden knowledge in the game.

2.6. Research Roadmap

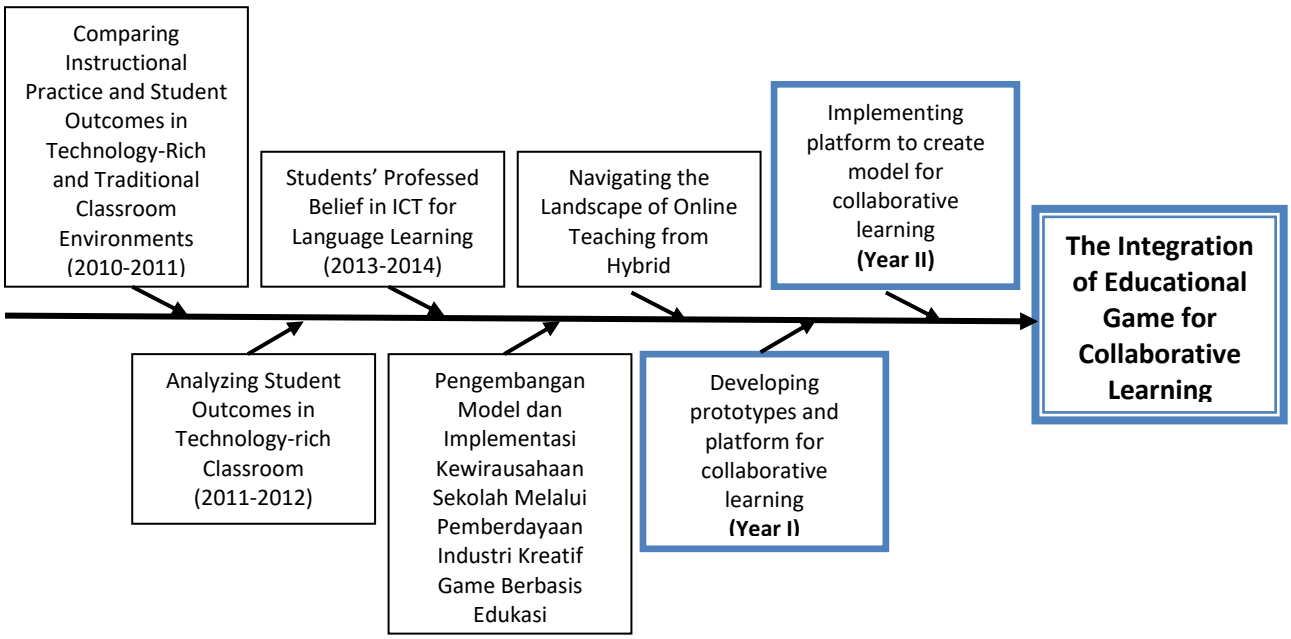


Figure 1. Roadmap

Chapter 3. Objectives and Significance of the Study

This study focuses on the use of educational games to enhance collaborative learning. We are interested in finding out the most appropriate learning model, students' perception of the benefits of collaborative game-making, and in what way the collaborative game making helps students in learning. To address the problem formulation, this study employs both qualitative and quantitative methods. Quantitative method is used for surveys, whereas qualitative method is used for the testing of prototypes. In addition to survey, we used focus group discussions, interviews, and observation during the testing to gain more in-depth information about how the prototypes runs and whether they are compatible with the knowledge sharing templates.

Recent studies on the use of games for learning usually use ready-to-use games whereby users only play with them and be tested. In this study, however, we asked our respondents to create a game by themselves. Collaborative learning takes place when students create games for other people to use. The findings of this study will be of importance and significance in the scholarly discussion of collaborative learning and the use of serious games for learning.

Chapter 4. Research Method

This study will focus on the use of game making activities for knowledge sharing. We will investigate the learning model is the most appropriate to foster collaborative learning, what learning model is possible and feasible to be implemented. We would also like to know how students perceived the benefits of educational game for knowledge sharing. To address the problem formulation, this study employs both qualitative and quantitative methods. Quantitative method was used to assess students' perception of the benefits of group-based game making for will primarily be used for surveys in both Year One dan Year Two, whereas qualitative method will be used for the testing of prototypes. We used interviews and observation during the testing to gain more in-depth information about how the prototypes runs and whether they are compatible with the knowledge sharing templates.

4.1. Participants

The participants in this stage were students of Semarang State University and 17 Agustus University. Participants were selected based on convenience sampling. For the time being we managed to recruit 62 students for two workshops. We broadcasted our workshops through our colleagues in those two universities. Participation was completely voluntary. Out of 62 students, the majority of the participants was female (69.35%) while the rest was male (30.65%).

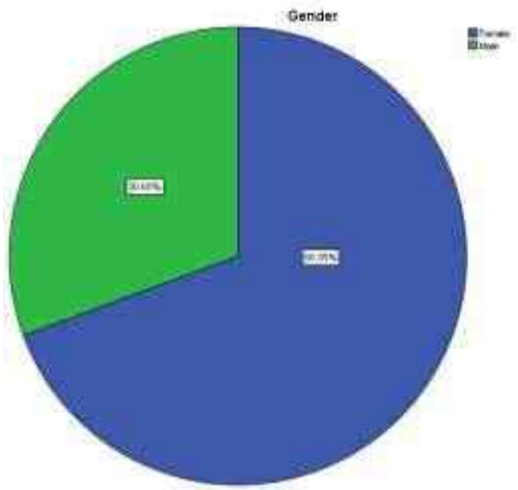


Figure 2. Gender

4.2. Instruments

Questionnaires

To gather information about students' perceptions of the benefits of game making activities for collaborative learning and knowledge sharing, the researchers used questionnaire. The questionnaire consists of two parts. The first part is used to obtain data about students' personal information and students' level of familiarity of game playing and game creating. The first section had 8 questions. The second part consists of 18 questions. The second part used Likert scale. Each item had four options from positive to negative. The participants of this study were required to choose answers ranging from 4 (the most favorable) to 1 (the least favorable).

Observation

To examine closely the collaborative task of game making, we took observation data. We used observation protocol to record the atmosphere, student interaction, and team work dynamics.

4.3. Data collection method

In the second year, our research will focus on the following activities:

a) Conducting workshop using the knowledge sharing template

The purpose of the workshop was to introduce the approach and train students to use the knowledge sharing template. The participants in this study were students private and public universities in Java. Participants were selected based on convenience sampling. In the workshop, we managed to recruit 62 students from Semarang State University and 17 Agustus 1945 university, and Soegijapranata Catholic University. Participation in this study is voluntary. The students from Semarang State University were majoring in Economics while the rest of the students (from 17 Agustus 1945 and Soegjipranata Catholic University) were majoring in English.

Overview of the game workshop

The workshop was done in the computer lab of Soegijapranata Catholic University on the months of June – September 2017. The purpose of the game workshop was to introduce students how to create a game while at the same time share their knowledge on specific issues. The workshop lasted approximately 3 hours. In our research, Christanti, Sanjaya, & Murniati (2016) created a game template using RPG Maker MV for the workshop.

RPG Maker MV is a software many game designers used to create a role play game (RPG) for anyone, even for those who do not possess programming knowledge. In its website, the game was cited as “Simple Enough for a Child. Powerful Enough for a Developer.”. In RPG Maker MV, game creators can modify the maps, the characters, and other features as to accommodate the needs of novice game creators. Advanced or experienced users can modify the game by modifying the game’s Javascript.

The participants of our workshop were college students who did not major in Computer Science and had limited knowledge of game-making. To accommodate the different levels of game creating ability and digital literacy and to accommodate the technology comfort level of our participants we provided templates to make it easier for students to modify the game. The template we provided was designed in such a way that students could modify the game easily and concentrate more on designing their storyboards. To create the game and the activities for the game, students had to work in groups of three. They were asked to make a game with a content they were good at or have a lot of knowledge of.

Figure 3. Template

Figure 4. An example of game result

b) Administering the survey

After the implementation, we will administer the actual survey to the participants. This survey aims to investigate students' perceptions on the game-making for knowlede shaing and collaborative learning. The survey consists of two parts. The first part was intended to ask questions related to demographic information, game-making and game playing experience. The second part was intended to elicit information about students' perception of their experience in creating the game for knowledge sharing. There were 18 question items in this part. The options for the question items were based on Likert scale ranging from Strongly Agree, Agree, Disagree, to Strongly Disagree. The scores for the question items were 4 to 1, one being the most favorable and 1 for the least favorable.

c) Disseminating learning models.

Dissemination of model has been done through international conferences and Scopus-indexed proceedings. In this second year, we an International Conference in collaboration with Youngstown State University. We invited experts on learning technologies from Assumption University, Silliman University, and the University Teknologi Malaysia on September 14 – 15, 2017. The table below shows our events in disseminating our learning models:

Date	Conference	Team members	Participate as
July 27 – 29, 2017	SEAMEO Conference in Ho Chi Minh, Vietnam	Cecilia Murniati Ridwan Sanjaya	Presenters Presenters
September 11,	5th CELT International	Cecilia Murniati	Keynote Speakers

2017	Conference 2017 in Semarang		
September 14 – 15, 2017	International Conference on Learning Technologies in Semarang	Cecilia Murniati Ridwan Sanjaya	Keynote Speakers Keynote Speakers
December 12, 2017	MITICON in Thailand, 2017	Ridwan Sanjaya	Presenters
December 17, 2017	AP Elearning in Thailand	Cecilia Murniati	Presenters

4.4. Data analysis method

Data from the different data source were combined and crosschecked. For the survey, we used descriptive statistics. For the Likert Scale, we used 1 for favorable answer to 4 for the least favorable answer. Then we used SPSS to analyze the data. For the qualitative data, we took observation notes to look at the group dynamics.

Chapter 5. Findings and Outputs

5.1 Findings

For this study, we were able to recruit 62 participants. We gave a workshop to create a game. Participants had to work in groups of two to design a game using the template provided. Since students had different majors (Economics and English), they were allowed to create a game using their subject matter knowledge to create activities. Students worked collaboratively to create questions, design the games, and modify the characters. The workshop lasted 3 hours. During the workshop, we took notes of the activities happening in the classroom. After that, we distributed questionnaires to find out students' perception on the usefulness of the game. The following section describes the findings of the questionnaires and observation.

The result of the descriptive statistics

Table 1

Descriptive statistics on students' perceptions

Statements	Mean	Std. Deviation
1. I feel satisfied with the game I created.	3.0323	.59966
2. Creating the game is easy for me.	2.4032	.66430
3. The template is helpful for me to create the activities.	3.2097	.44857
4. This game is helpful for me to understand the subject matter better.	3.2097	.44857
5. I am interested in creating a game for different subject matters.	3.0806	.66031
6. Creating a game to share my subject matter knowledge is exciting.	3.1613	.70580
7. This game meets my needs to understand a subject matter better.	3.1613	.54902
8. I am interested in creating group-based games to share my subject matter knowledge.	2.9839	.55786

9. I am interested in sharing the game I created with other people.	3.2097	.60428
10. The game I created is useful for other learners who want to learn about a particular subject matter.	3.1935	.64880
11. I feel that group-based games are more appealing if they can be played on various gadgets.	3.2419	.50198
12. I feel that the game I created is interesting.	3.0968	.71768
13. It is possible to use the game to share other subject matters knowledge.	3.1935	.56796
14. Games should be included as a learning medium in schools/colleges.	3.3226	.59435
15. We distribute the writing tasks equally.	3.0323	.51111
16. The team members shared their ideas in creating the activities.	3.2581	.47686
17. Creating the activities is more difficult than creating the game itself.	2.9032	.67045
18. It is better to create this kind of game on my own.	2.7903	.72738

From the means, we can see that question items 2, 8, 17, and 18 have means below 3. This means that students slightly disagree with those statements. The statement that had the highest mean was statement 14 (3.3). Students believed that games should be incorporated in schools/colleges, while the statement that had the lowest mean was statement 2 (means = 2.4). Students reported that they thought creating game was not as easy as they expected to. Out of 18 statements, only four statements received mean score less than three. Students' responses were mostly favorable.

In this study, to better understand the factors that play important roles in shaping students' perception in the use of games for knowledge sharing, we examined several variables such as gender, game playing frequency and game playing ability.

Gender

Using Independence Sample T-Test to examine how gender affects students' responses, we found differences of gender for Statement 7 (This game meets my needs to understand a subject matter better.).

Table 2.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
S7	Equal variances assumed	2.673	.107	2.095	60	.040	.30845	.14721	.01399	.60291
	Equal variances not assumed			2.118	35.407	.041	.30845	.14565	.01288	.60401

"There was a significant difference in the scores for female (M=3.2, SD=0.53) and male (M=2.9, SD=0.52) conditions; t (60)=2.095, p = 0.040."

Female students are likely to believe that the game-making activities helped them understand the materials better.

Game playing ability

To examine whether game playing ability affects how students behave, we conducted One-way Anova to test the differences of means. The result shows that there was a difference of means for statement 11 and 12.

Table 3.

One way ANOVA for Game Playing Ability

		Sum of Squares	df	Mean Square	F	Sig.
S11	Between Groups	2.518	4	.630	2.792	.035
	Within Groups	12.853	57	.225		
	Total	15.371	61			
S12	Between Groups	5.541	4	1.385	3.051	.024
	Within Groups	25.878	57	.454		
	Total	31.419	61			

There was a significant effect of game playing ability on the belief of multi-platform games at the $p<.05$ level [$F(4, 57) = 2.7$, $p = 0.35$. Game playing ability also has an effect on the belief that the game is interesting at the $p<.05$ level [$F(4, 57) = 3.01$, $p = 0.24$.

Table 4

Result of One Way ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
S13	Between Groups	1.397	1	1.397	4.587	.036
	Within Groups	18.280	60	.305		
	Total	19.677	61			
S14	Between Groups	1.762	1	1.762	5.342	.024
	Within Groups	19.787	60	.330		
	Total	21.548	61			

Another closer examination, we found that there was a significant effect of game creating ability on the belief of game potential to learn a subject matter at the $p<.05$ level [$F(1, 60) = 4.5$, $p = 0.35$.

Game playing ability also has an effect on the belief that the game should be used as a learning media in college $p<.05$ level [$F(1, 60) = 4.587$, $p = 0.24$.

Observation result

During the game workshop, the researchers and student assistants observed how students interacted and created the game. The findings from the observation indicate that students were engaged in all stages of game-making process, from the installment of the game until the finished product. During the initial phase of the game, students looked uncertain of what to expect and do. Once the instructors explain the purpose of the workshop, they began to make plan. In order to make students understand what game we were about to create, we showed examples of past projects.

From our first year finding, we found that creating a storyboard for the game was not an easy task. Therefore, we asked students to allocate 30 – 45 minutes to think about their stories for the game. During this task, we observed that students shared ideas and all of them contributed to their stories. Students were enthusiastic to learn from the others and decide what kind of knowledge they would like to share with other people through the game.

Students who majored in English created games such as Guessing Game, Discover Semarang, and many other games that cover a wide range of topics. Students in Economics Department created games covering materials related to their majors such as accounting term definitions.

Figure 5. Lost in Definition

Figure 6. Directions for “Lost in Definition”

Figure 7. Exercises in “Lost in Definition”

During the workshop, students created games that other people can play. They worked collaboratively to make activities and layout for their game. Students give suggestions and received inputs from other people. Some students whose majors were Economics even make question and comments in English. Thus, in this case, students were also exposed to English language.

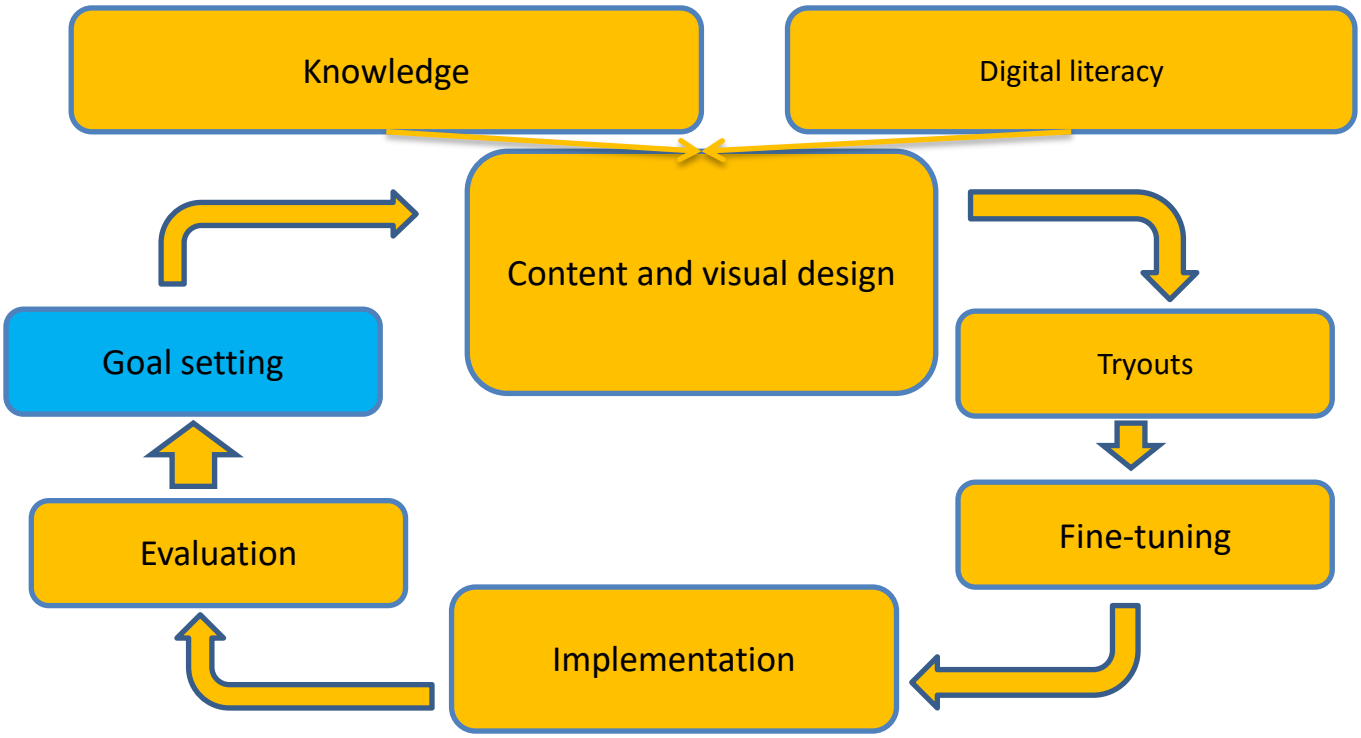
The findings of this study suggest that game-making activities enable students to foster their sense of creativity and to understand a subject matter better. Game-making activities provided students

opportunities to become knowledge creator. They not only gather information but also transform and expand their newly acquired knowledge. Creating games was considered difficult for some students; however, the product that students submitted proved otherwise. Working with other people might not be easy, as evident during the workshop, but working in team was indeed helpful for students to build on the knowledge they possess and also to obtain feedback. For instance, in creating the game called Lost in Definition, students had to retrieve their basic knowledge of accounting terms, a subject matter they had probably learned during their freshmen years. For some groups, to make directions in English, students had lengthy discussion whether their English sentences were correct or incorrect. They had prior knowledge of English, but once they were required to create a game that any players can use, they worked hard not to make errors.

Game-making has the potential to improve students' the skills, creativity, ingenuity, and engagement. Being able to work with other people to create a game product that people can use will give a sense of achievement and satisfaction. This feeling is important for an individual on a personal level since it can build confidence and self-esteem. Being a knowledge creator, students transform acquisition model of learning into a learning community. They greatly contribute to the development of knowledge in the community.

Learning Model

The learning model for this type of learning is as follows:



From the series of workshops we conducted in the first and the second year as well as the data we obtained, we came up with the learning model for the integration of game and collaborative learning. The first step in this diagram is the goal setting whereby teachers set the goals of the game-making activity, the steps, groupings, and assessment. Learners select their team members and decide what they would like to produce. The next step is to make content and visual design. This step is very much influenced by students' prior knowledge and digital literacy. Learners who are comfortable using technology are likely to be able to modify the features provided in the game template. The next step is to try out the games they created. In this stage, teachers need to try the games that the students created for a group of players to make sure that the games work well and that the activities in the games are correct. After the tryout phase, teachers and students received feedback from the users. The feedback is used to refine and improve the game. The next step is the implementation step. In this step, the game is ready to be implemented for any class. The last step will be the evaluation step. In order to see whether the game has

impacts on students' learning, they need to be evaluated. Teachers need to design some kind of evaluation criteria or conduct action research to examine in what ways game helps students achieve their potential. The cycle ends with the goal setting again because the evaluation process is used to determine what kind of activities, lesson plans, and course contents that match with the game design.

5.2 Outputs

Table 5

Output

The outputs of this study are:

1. Scientific publications
   a. *Developing educational game for collaborative learning* (IEEE Proceeding, Indexed in Scopus) – 2017 http://ieeexplore.ieee.org/abstract/document/7873800/
   b. *Students' Perception of Collaborative Game-Making Projects* (submitted to Journal of Hypermedia and Multimedia in October 2016, no response until June 2017)
   c. *Integrating Technology for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education* (final draft to be submitted to International Journal of Educational Technology, October 2017)
   d. *Students as Producers: A Case Study of Technology-based Project* (submitted in Celt Journal, accredited B, green tick in DOAJ) – October 2017
   e. *Technical Aspect of Game-making for Collaborative Learning (*submitted and accepted in MITICON Proceeding, IEEE Proceeding, indexed in SCOPUS*)*- December 2017

2. Learning models

   The learning model is disseminated through the following conferences

   a. **International Conference on Learning Technologies** as **Keynote Speaker** "*Game-making for Learning: Pitfalls, Advantages, Opportunities*" – September 2017 in Grand Candi, Semarang (Cecilia Murniati, first author)

b. **International Conference on Learning Technologies** as **Keynote Speaker** "*The Role of Game Technology in Education and Entrepreunership*" – September 2017 in Grand Candi, Semarang (Ridwan Sanjaya, first author)

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d. **International Conference on Leadership and Management in Higher Education: Challenges, Opportunities, and Ways Forward** as a speaker "*Game-Making as Collaborative Learning Method*" – July 28 – 30, 2017 in Ho Chi Minh, Vietnam (Ridwan Sanjaya, first author)

e. **MITICON Conference** as a speaker *"Technical Aspect of Game for Collaborative Learning"* – December 12, 2017 in Thailand (Ridwan Sandjaya, first author)

f. **eLearning AP** as a speaker **–** December 17, 2017 in Thailand (Cecilia Murniati, first author)

3. HAKI

   HAKI for this program is a guide for a game called "O, That Drama?".

   The book "Walkthrough and Tutorial of" O, That Drama? " is a guide book for playing the game" O, That Drama? ". This guidebook aims to provide direction for anyone interested in playing the game "O, That Drama?". This game is a role-play game whose topic revolves around Korean dramas. The handbook contains an explanation of how to play, which places a player should visit, and the characters in the game, and how to continue to Level 2. The guidebook is attached.

4. Books

   a. *Mudah Membuat Game Edukasi Berbasis Android* published by Elexmedia – 2017 (on sale)

   b. *Learning Technologies in Education: Issues and Trends* published by Soegijapranata Catholic University, 2017, ISBN: 978-602-6865-40-3 (editing and proofreading), 200 +

pages, Editors: Cecilia Murniati and Ridwan Sanjaya, the authors are from Indonesia, USA, Malaysia, and Phillipines.

5. Product
   a. The product from this study is the games created by students. One of the finished games was entitled “O, That Drama?”. The game is a collaborative work from the students in English Department Soegijapranata Catholic University. Consisting of two levels, this game revolves around trivia questions on Korean Drama.

Chapter 6. Conclusions and Suggestions

6.1 Conclusions

In the second year of our research, we found that students had favorable responses regarding the use of game for collaborative learning and knowledge sharing. In this progress report, we reported on the findings from the second and the third research questions— students' perception towards the use of group-based games for knowledge sharing. Overall, the findings suggest that students perceived that the game had potential to be used a learning medium. In our second year, we recruited students who were majoring in economics. Our participants mostly agreed that games were useful for them to understand subject matters better. They were interested in creating a similar game and shared it with their friends.

Just like the findings of our first year, students stated that the template was useful for them as a start to create the game. During the workshop, we did not see significant problems. Students were engaged and the majority of them did not have technology issues.

6.2 Suggestions

This study aims to examine the learning model using group-based game making for knowledge sharing and students' perception of the game. For the next step of the project, it would be better if students had the time to create and more varied templates to accommodate different subject matters.

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APPENDICES

A. INSTRUMENTS

A. INSTRUMENTS

Youngstown STATE UNIVERSITY

Unika SOEGIJAPRANATA
Talenta pro patria et humanitate

QUESTIONNAIRE

STUDENTS' PERCEPTIONS OF GROUP-BASED GAME MAKING FOR KNOWLEDGE SHARING

I would like to thank you for your willingness to participate in this research. The purpose of this questionnaire is to investigate your opinions about group-based game making for sharing subject matter knowledge. Your participation is completely voluntary and the information you provide in this questionnaire is confidential.

==========

Direction:

Check (√) the most appropriate answer for each of the statement below.

Part One

Background Questions

1. Gender : ☐ Female ☐ Male

2. How often do you play games?

☐ Very often ☐ Often ☐ Sometimes ☐ Seldom ☐ Never

3. Where do you usually play games?

☐ On my laptop ☐ On my smartphone ☐ On my console

4. How do you rate your game-playing ability?

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

5. What kind of games do you often play? (You may check more than one)

☐ Real time strategy ☐ Role play games ☐ Massive multiplayer online

☐ Simulation ☐ Puzzle

6. Do you play your games with friends or on your own?

☐ With my friends (multi-player) ☐ On my own (single-player)

7. Have you ever created a game before?

☐ Yes ☐ No

8. If Yes, please rate your game creating ability.

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

Part Two

Perception of group-based game making for subject matter knowledge sharing.

No.	Question Items	Strongly Agree	Agree	Disagree	Strongly Disagree
1	I feel satisfied with the game I created.				
2	Creating the game is easy for me.				
3	The template is helpful for me to create the activities.				
4	This game is helpful for me to understand the subject matter better.				
5	I am interested in creating a game for different subject matters.				
6	Creating a game to share my subject matter knowledge is exciting.				
7	This game meets my needs to understand a subject matter better.				
8	I am interested in creating group-based games to share my subject matter knowledge.				
9	I am interested in sharing the game I created with other people.				
10	The game I created is useful for other learners who want to learn about a particular subject matter.				
11	I feel that group-based games are more appealing if they can be played on various gadgets.				
12	I feel that the game I created is interesting.				

13	It is possible to use the game to share other subject matters knowledge.				
14	Games should be included as a learning medium in schools/colleges.				
15	We distribute the writing tasks equally.				
16	The team members shared their ideas in creating the activities.				
17	Creating the activities is more difficult than creating the game itself.				
18	It is better to create this kind of game on my own.				

~ Thank you for your participation ~

B. SCIENTIFIC PUBLICATION

1. *Developing educational game for collaborative learning* (IEEE Proceeding, Indexed in Scopus) – 2017
   http://ieeexplore.ieee.org/abstract/document/7873800/
2. *Integrating Technology for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education* (final draft to be submitted to International Journal of Educational Technology, October 2017)
3. *Students as Producers: A Case Study of Technology-based Project* (submitted in Celt Journal, accredited B, green tick in DOAJ) – October 2017
4. *Technical Aspect of Game-making for Collaborative Learning (*submitted and accepted in MITICON Proceeding, IEEE Proceeding, indexed in SCOPUS*)*- December 2017

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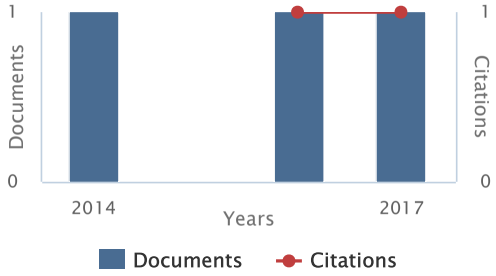

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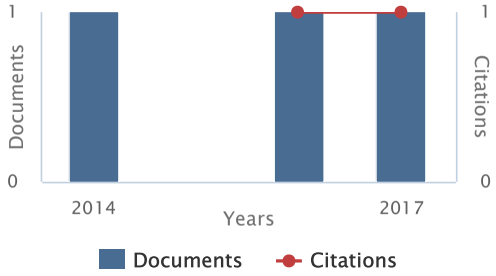

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Game-Making for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education

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Digital technology has been changing the landscape of higher education teaching and learning. Existing literature on students' attitude on technology in the classroom shows that students are highly adaptable in using sophisticated technology for communication and for educational purposes. However, in order to be able to make the most of technology, students need guidance. Research on technology-based projects for knowledge sharing indicates that students had highly favorable opinions toward active learning strategies where students ~~can~~[R1] ~~—~~contribute significantly to the collective knowledge. While the impact of technology on ~~the~~ academic achievement shows mixed results, numerous studies highlight the benefits of the use of technology on students' retention rate, class engagement, teamwork skill, and students' undergraduate education satisfaction. This paper discusses the results of a collaborative technology-based project and its implications on undergraduate educational policies. We examined students' perception of the group-based game-making in a language classroom. The participants showed interest~~s~~ in creating a game because it allowed them to share their language skills knowledge with their classmates. The c~~C~~lassroom is viewed as a community of practice because students are mutually engaged. They work together to achieve a common goal and to establish their identity and membership. In the classroom, every student has equal status. Through group-based game-making, they were able to contribute significantly to the development of ~~self-authorship~~knowledge creator. The more students interact, the stronger the membership become, and the more ~~information~~ knowledge they obtain and ~~they can~~ share. The results of the interviews underscored the power of collaboration on students' learning experience ~~and self-authorship.~~ .Thi~~s~~e article~~paper~~ delineates the transformative values of technology in higher education, institutional policies, administrative support, and the infrastructure needed to encourage the creation of more technology-based projects, supports state-of the art education technologies. The challenges and the opportunities of technology for undergraduate learning experience will also be discussed.

Keywords: digital technology, game, collaborative learning, ~~self-authorship~~knowledge creator, community of practice

1. Introduction

Digital technology and the Internet have unarguably changed~~ing~~ the landscape of higher education teaching and learning. The availability of various kinds of gadgets and digital media has transformed the delivery of courses, the interaction between teachers and students, the design of curriculum, and the outcomes of the learning process. While findings of the studies on the impact of technology on academic achievement shows mixed results, numerous studies highlight the benefits of the use of technology on class engagement (Piirainen-Marsh & Tainio, 2009), interactional skill (Backlund & Hendrix, 2009), motivation (Yang, 2012).

Gaming~~e~~ is one of the most important innovations~~ventions~~ in this century. Gaming~~e~~ is defined as a system whereby players were engaged in rule-governed and artificial conflicts (Salen & Zimmerman, 2004). Literature on games for learning shows that games, when adopted properly, ~~brought about~~ positively ~~-~~impacts ~~such as~~ strategic thinking, technical language, and problem solving skills (Gee, 2003; Gros, 2007; Shaffer, 2006; Squire, 2005) and student engagement (Connolly et al., 2012; Perrotta et al., 2013). However, studies on the use of games for classroom purposes have focused on the game playing instead of game-making. Research on the impact of game-making for learning indicated that game-making improved the use of deep learning strategies (Vos et al., 2011) and engagement (Quinn, 2005). In addition, Bermingham et al. (2013) suggested that studies on game-making focus on individual assignments where a student creates his or her game individually. Very few studies used group-based game-making activities where students create a game in groups instead of individually (Bermingham, 2013). As a result, t~~T~~his study aims to explore students' perception of the game-making for knowledge sharing. In particular, w~~ we would~~ e ~~like to~~ investigate how our research participants make sense of their game-making activities and how they perceived the potential of the group-based game-making for knowledge sharing.

2. Review of Literature

Social constructivist approach to learning

A s~~S~~ocial constructivism approach to learning posits that knowledge construction occurs when a learners interact with other people. The proponents of social constructivism use different terms to describe the social nature of learning, such as Situated Learning, Community of Practice, and Zone of Proximal Development (ZPD). These approaches highlight the importance of social interaction among leaners and teachers. In his Situated Learning approach, Gee (2004) suggested that in learning a language, a learner has to use his own experiences from his interactions with other people. Language "has to be situated." ~~.~~ His notion resonates with Vygotsky's ZPD. ZPD is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). A learner often needs help from teachers or peers to accomplish a certain task that he cannot do on his own. Interaction and assistance from teachers and peers are important for learners to achieve independent capability. Vygotsky's ZPD is often used to explain the effectiveness of peer-teaching (De Guerrero & Villamil, 2000) and is associated with scaffolding. Wenger's Community of Practice (CoP) consists of three interrelated terms: ~~. *They are*~~ *mutual engagement*, *joint enterprise*, and *shared repertoire*. CoP underscores the importance of interaction, common goals, and repertoire. To accomplish work, people interact with others who have the same

interests. Members establish norms and common practice of their group. Members are also subject to the group's common goals that guide their actions. Finally, to maintain the development of their community, members share repertoire or resources.

Group-based game-making for learning

Gee (2008) suggested games incorporate the principles of learning. Games can be adjusted to enhance player's ability, increase motivation, and encourage collaboration and team work. Video games are made to be doable for players, yet customizable. They can be adjusted according to the player's level of competence. Motivation is another important principle of learning found in games. For many people, games are motivating. Players obtain recognition in terms of points or rewards. Obtaining higher scores through competitions motivates players to beat others and learn the tips and tricks of the game. Games allow people to work together in teams and share knowledge, skills, and values. Game-based learning has been grounded on what scientists call situated learning, where learning occurs through experiences and social interactions (Squire, 2005). Many games allow people to immerse in virtual worlds, assume different identities, and interact with others.

[KLB2]Researchers have suggested creating games collaboratively can improve students' creativity and interest (Berrenberg and Prosser, 1991) and encourage students to contribute their knowledge more actively (Baytak & Land, 2010). In their Making Games in Collaboration for Learning (MAGICAL), Bermingham et al. (2013) investigated the impact of collaborative game-making activities on student's 21st century skills. In their project, they developed MAGO, a special fantasy-themed authoring environment in which authors of the game work together to modify the game through 'magicial powers.'~~.~~ Each author was in charge of a certain task such as game level design, implementation of physics, creation of visuals, integration of sound effects and music. In their MAGICAL project, Bermingham et al. (2013) designed a training program for teachers and student teachers on the use of game-making for developing transferrable skills. The findings of their study, teachers were highly engaged on designing and making a game. However, some were unsure of how to apply their game-making experience in actual classroom experience. In another study, Cheng (2009) conducted a study on students' perception of game development process using Game-making Pedagogy (GMP). He found that game-making increased students' learning motivation, problem solving ability, and creativity. Students had a strong sense of ownership towards their creation; and thus, are more motivated to engage in the process. These two studies underscore several salient issues in game-making for learning such as the examples of game-making environment and actions, support from teachers and peers, and models of classroom use for game-making projects.

3. ~~Methods~~Research Question

This study employed naturalistic inquiry. We were interested in learning how our research participants made sense of their game-making activities and how they perceived the potential of the group-based game-making for knowledge sharing.

4. Methods

Participants

~~The participants in our study were undergraduate students in a private university in Semarang. These students attended our game workshop training sessions held in a city in Central Java.~~

~~Participation in this study was voluntary. Out of 78 students who attended our game workshop, five people agreed to do interview.~~

[KLB3]

Overview of group-based game-making workshop

The group-based game-making workshop was intended to examine the potential of group-based game-making activity to increase students' engagement in learning and knowledge sharing. In our research, Christanti, Sanjaya, & Murniati (2016) created a game template using RPG Maker MV to examine whether group-based game-making activity helps students understand certain subject matters through knowledge sharing.

RPG Maker MV is a software designed to create a role play game (RPG) for anyone, even for those who do not possess programming knowledge. The tagline of the game was "Simple Enough for a Child. Powerful Enough for a Developer."~~.~~ In order to accommodate its users, the game developer provide user friendly sample maps, characters generator parts, and many other features that make it easier for beginners to create a role play game. Advanced or experienced users can take advantage of the game's Javascript to create a game for their liking.

In our workshop, to accommodate the technology comfort level of our participants we made~~ke~~ it easier for students with limited game background knowledge by providing a game template for~~, a game template was provided in~~ RPG Maker MV. The template ~~we provided~~ was designed in such a way that students could modify the game easily and concentrate on designing their storyboards. The most important requirement in the game creation was that student had to work in groups to design activities for the game and that student had to use their knowledge of a certain topic to create those activities.

Participants of the study

The participants in our study were undergraduate students in a private university in Semarang who majored in English. These students attended our game workshop training sessions held in a city in Central Java. Participation in this study was voluntary. Out of 78 students who attended our game workshop, five people agreed to do interview.

~~The participants for our study majored in English~~. The workshop took three hours. Students were divided into groups of three. As we have previously stated, students' major task in the game workshop was to design a game ~~from scratch~~ using the game templates provided. The template had several maps, characters, and other features that students could use to ~~,~~ create storyboards and activities~~.~~

INSERT FIGURE 1 HERE

Figure 1. Game Template

INSERT FIGURE 2 HERE

Figure 2. Maps

After the end of the game workshop, it was expected that students would~~were~~ be able to create a game that other people could~~can~~ use. During the workshop, students created games such as

"Name the Drama,"~~,~~ "Who Are You,"~~,~~ "Jeopardy,"~~.~~ "Jumbled Words,"~~,~~ and many other activities with the game template provided.[KLB4]

INSERT FIGURE 3 HERE

Figure 3. "O, That Drama?" Game

~~Procedures~~Instruments

Interview

To collect data, we conducted semi-structured interviews. We invited all participants for interview. Only ~~and~~ five students responded and agreed to participate in the interview. We used an interview protocol that contained questions about participants' experience in making a game or playing a game, technology comfort level, and how they perceive game-making for knowledge sharing. All interviews and focus group discussion were then transcribed. After we transcribed the audio files, we coded our transcripts based on the emerging themes.

Observation

To establish trustworthiness, we triangulated our data with the notes from observation during the workshop. Triangulation is a key aspect of a qualitative research (Lincoln & Guba, 1985). In triangulation, a qualitative researchers need to use data from multiple sources in order to establish trustworthiness. We conducted peer review to make ensure that our interpretation~~-~~s were valid~~were not off base~~. [KLB5]

Reflective journal

During the game workshop, we made some reflective journals to self-assess our interpretation of the data. We made notes of students' interactions with their peers and workshop assistants. Our reflective journals also serve to self-assess whether the workshop worked as we expected.

4. Findings and Discussion

In this study, we examined students' perception of the group-based game-making. Three major themes emerged from the interviews, observation notes, and reflective journals. The first theme underlines the potential of games to learn a subject matter or a topic. The second theme described the collaborative nature of the game-making. The third theme described the participants' reflections of the creative process during the game-making.

Overarching themes

Games are~~is~~ a powerful tool for knowledge sharing

All of the participants in our study explained that during the game-making, they worked together to create the storyboards. They said they worked on the questions for the puzzles collaboratively. From the observation, we noticed that some groups made the storyboards, instructions, questions, and feedback together, while some other groups divided the tasks equally among team members. In both situations, most of our participants said that they were able to practice their language skills when they created their storyboards. During the workshop students created a game focusing on certain language skill such as making questions, arranging jumbled words, making trivia, or describing things or famous people. In the interviews, our participants reported that designing questions for the game itself was a good way to practice the materials they had learned in their language skill courses. When asked about the possibility of the game to be used in another subject matter, all of them agreed that the RPG game could be used for other English language related skills. In general, students had favorable attitudes towards game-making to learn their English language skills.

Group dynamic is key in creating a game

When we asked about the collaborative nature of their game-making, our respondents reported that in general they worked well together since they were allowed to choose their team members. Most of students had worked together with the same people in other class projects, so they felt comfortable working together. From the observation, we noted that one student was in charge of working with the laptop, and two other members helped in case he missed the instructions from the game trainer. In terms of creating storyboards or designing activities for the game, they said they discussed the question items, answers, feedback, and reward points together. From the observation, a few students, especially male students, looked slightly disengaged, but overall students were engaged in the activity and contributed to the game project. Some students who used to be silent during regular classes participated in creating the game. From the interviews and the observation notes, it was apparent that group dynamic is key in task accomplishment. This is in line with the findings of a study of an active learning classroom (Van Horne, et al. 2014). In their study, they found that a technology-infused classroom, reluctant students showed higher level of participation. Ratih, a freshman, stated that creating a game was something new, yet fun for her and her group members. They found the activity challenging; therefore, everybody was invested in the task. She wished that more teachers were willing to integrate technology in their classes. She said "it is unfortunate that not many teachers were eager to create projects integrating technology in the subjects they teach" (personal interview, June 2016).

Working in group can also emphasize students' strengths and weaknesses. Dani, a freshman, was in charge of the installation and the game modification since she was more technology savvy compared to the other group members. In addition, the laptop used for the

game workshop was hers, so her group decided that she had to be the one in charge of the game installation and modification.

Creating storyboards is more challenging than modifying the game features

In the workshop, a simple template was provided because we wanted ~~would like~~ to accommodate students who had limited game-making knowledge. As we previously said, we tried to make the template simple enough to modify, yet powerful enough for students who were willing to use advanced features of the software. Ika, a freshman, said that she had a sister who was a student in the game technology department, so she was quite familiar with the process. However, creating a playable and interesting game needs something more than the ability to modify the game or familiarity with game-making or game playing skill. Some of the respondents noted that the modifying game was quite easy, but making the game interesting and challenging for players was not as simple as they thought. One of the primary reasons was students needed more time to create interesting stories for the game. Ika said "We did not have enough time to discuss our maps.[KLB6] I think the results would have been better if we were given more time to think about the types of questions we would like to use" (personal interview, June 2016). Her response reflected Rina's experience. She said that during the game workshop, it took a while for her group to figure out what kind of English language related knowledge she would like use for her activity. They finally opted for trivia type of questions since it did not take too long for them to make. During the workshop, some groups clearly needed longer time than other groups

Discussion

The study we conducted aims to examine students' perception of the group-based game-making for sharing knowledge. From the interviews, observation note, and reflective journal, we found that our participants showed interests in creating a game because it allowed them to share their language skills knowledge with their classmates. During the game workshop, the students were mutually engaged. Many students in the game workshop were not familiar with game-making, yet they were engaged with the process of game-making and knowledge sharing. They did not feel that technology was a hindrance. Our data sets indicated that students participated in completing the task collaboratively because they could create a game that other people would use. In other words, students could become a creator of knowledge. Technology, thus, highlights the voice-sharing in a community. In a sense, it allows students to identify themselves as members of the community and recognize the importance of voice sharing for their benefit. In community of practice, participants involve in the negotiation of meaning and this requires continuous interaction. In their community, members share what they know, and learn from other members about things they are not familiar with. This is in line with Wenger's notion of mutual engagement. He suggested that "Mutual engagement…draws on what we do and what we know, as well as on our ability to connect meaningfully to what we don't do and we don't know---that is, to the contributions and knowledge of others" (Wenger, 1998: 76). Thus, knowledge or competence is the result of "voice-sharing" in a community. Interactions that take place in the classroom allow the multiplicity of social and cultural voices to emerge and reverberate. In the beginning of an activity, mutual engagement is challenging, especially for students who are shy and not out-spoken. However, once they get to know each other, their sense of belonging

becomes stronger and participation becomes more voluntary. When students have established close relationship with one another and acknowledge the value their mutual interaction, they are more open and more willing to collaborate. In this aspect, technology plays a key role in transforming students' learning. Students were much more invested in the creation and sharing of knowledge than they were in a traditional classroom. In addition, the collaborative nature of the game-making benefits students who were not outspoken to be more active, especially when the team decided to distribute the task equally.

Conclusions and Implications

The findings of this study generated three overarching themes. The first theme is that game~~s~~ ~~are~~ is a ~~neat and~~ powerful tool for sharing knowledge. The second theme is that group dynamic plays a key role in accomplishing the task. The third theme we found from our study was that task design is necessary to guide students, so they can balance their attention to both game design and knowledge sharing.

The implication of our study lies in the pedagogical approach when teachers decide to use group-based game-making for other subject matters. Our data indicated that it is necessary for teachers to adjust the activities and the goals of the tasks according to students technological comfort level, and at the same time, setting a clear guideline of what features may and may not be used. The fact that students, especially those who were more technologically savvy, felt challenged to use advanced features indicates that technology can be distractive and makes students going astray if teachers do not provided clear instruction of what students had to accomplish and prioritize.

The second implication of this research is the institutional role in encouraging teachers to use the available technology to increase student engagement in class activities. In Indonesia, setting up an active learning classroom (ALC) or technology-infused classroom may still be a long way to go, but integrating available technology in classrooms should not be viewed as complicated and useless. There have been contrasting views concerning the role of technology to improve students learning outcomes; however, many studies indicate that technology does benefit students in terms of the engagement, motivation, and problem solving skills. The unpredictable nature of technology serves as a test for its users. In other words, users of technology need to be prepared when technology doesn't go as planned. This requires patience, perseverance, and trouble-shooting skills. Our participants' reflections are in agreement with what Brown & Volts (2005) suggested in their study that students preferred a learning strategy in which they are allowed to engage and contribute their knowledge in solving numerous issues. Students are more comfortable in using various technological tools and incorporating multimedia in their class projects. Therefore, teachers should be aware of their students' needs, capabilities, and expectations. [R7]

The third implication of this study is the need for teachers' professional development in regard to the integration of technology. Studies on teachers' predisposition in using technology suggested that environmental barriers as well as individual barriers played a key role in the successful integration of technology in the classroom (Mueller at al.,2008). To a great extent, the lack of professional development and support has acted as a barrier to the effective use of technology in education. In many schools, teachers feel unprepared to learn and integrate technology in their classrooms. Yet for students, they have the knowledge of using this technology for educational purposes. There is a lack of training programs to teach these teachers on ways they can use technology to simplify their job and also make it easier for their students to

learn better. When it comes to remote schools or low level classes, teacher will act as a link between students and technology, because these students are not well informed on how to use technological tools like computers in the classroom. So if teachers have no training skills on using technology for educational purpose, then students will also miss out on these skills. This is a common practice in public schools, because private schools are business entities which are operated on competitive advantage, so they emphasize the use of technology in the class and their teachers are well trained and well equipped with technological tools for education.

[KLB8]

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Fortune Magazine in 2014 [16] mentioned that Dropbox was more popular compared to OneDrive and Google Drive because it has 300 million users. Meanwhile OneDrive has 250 million users and Google Drive has 240 million. Dropbox was used as a representative of online storage to manage game project files centrally. Dropbox desktop application was used to save and synchronize the same project files between students and online storage. In addition, to utilize SVN repository, assembla.com was used as a repository hosting and Tortoise SVN as a client application.

For the first experiment, the game prototype that the research team created for collaborative game making was copied to the Dropbox folder after the Dropbox desktop application had been installed and the team leader logged in using his account. Those files were synchronized to the Dropbox server as the initial game project for the team members. Then, all the team members installed the Dropbox desktop application and logged in using the team leader's username and password.

Each member modified a map and added some questions inside the map without creating more characters and more maps. Every modification was automatically synchronized to the Dropbox server. Some files overwrote the existing files. These processes were completed after all of team members finished their tasks. At the end, all team members had exactly the same files in their own Dropbox server. Therefore, they could run the program. This stage was considered successful if all team members could run the game project in their computer.

The second experiment used the assembla.com and Tortoise SVN. The team leader installed Tortoise SVN in his computer and logged in using his assembla.com account. The game prototype was copied in subversion folder on the computer. Then, the team leader approved all of the files to the server. Then, he invited all of members to assembla.com. All team members installed Tortoise SVN, logged in using the team leader's account, and copied the project files to SVN folder at their computers.

Each member modified a map and added some questions in the map, without creating more maps and characters. After each member finished their job, they uploaded the modification to the server. After all modified files in all members were uploaded; the team members had to run the game project. The game was viewed as successful if members could run it from their own computers.

The research team then recorded and compared the results of the experiments and made notes of the differences and challenges of those online storages. The comparisons would be beneficial for the team to assess whether collaborative game making was feasible to be conducted virtually.

IV. Results

After the members modified a map, Dropbox desktop application would upload four files to the Dropbox server. The files were the rpgproject file, Mapinfos.json, System.json, and json file of its map. Even though four files were stamped as modified files, only json file of its map had modified content. As long as there were changes in the system configuration and number of maps, the overwritten rpgproject file, Mapinfos.json, and System.json would not affect the game. In that case, the students had to agree that system configuration and number of maps were to be changed in the beginning in order to avoid conflict on Mapinfos.json and System.json in team members' computer. Each student had a role to modify a different map. In order to see the whole changes and run the game, each team member closed the game editor, reopened the game project, and ran the game project. This was especially needed when the group members added or modified any content inside the event.

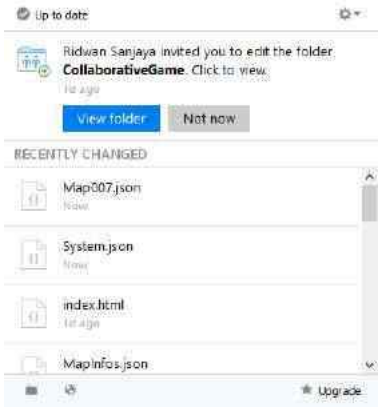

Fig. 2. Synchronizing the changed files to Dropbox server

By using Tortoise SVN and SVN repository, each member received a red icon on every modified file. The member chose which files would be synchronized to the server. Even though four files were declared modified, a member could synchronize only the json file of the map. The three files which were rpgproject file, Mapinfos.json, and System.json, could be synchronized after the project was done. In other words, each student decided which files were synchronized to the server or from the server. Because of the version control feature of SVN repository, the team leader could restore the previous files when there was a conflict in the project. However, to see the whole changes and run the game, each team member had to reopen the game project. This process was required because the game editor needed to reload the modified files, especially when the other members added or modified the contents inside the event.

Both options could be used to facilitate the collaborative game making, but there were some rules to be followed in order to avoid the conflict. First, the team leader was required to install Dropbox desktop application, copy the game project files inside the Dropbox folder, and invite the team members to create a Dropbox account. Second, the team members installed the Dropbox desktop application, accepted the invitation from the team leader, and synchronized the project files from the server to their computer. Third, team members had to determine the system configuration and number of maps in the game project before they started creating the game. Fourth, the game editor needed to be reopened to see the whole changes and run the game project. Fifth, each team member could only modify his/her own maps which were different from other members.

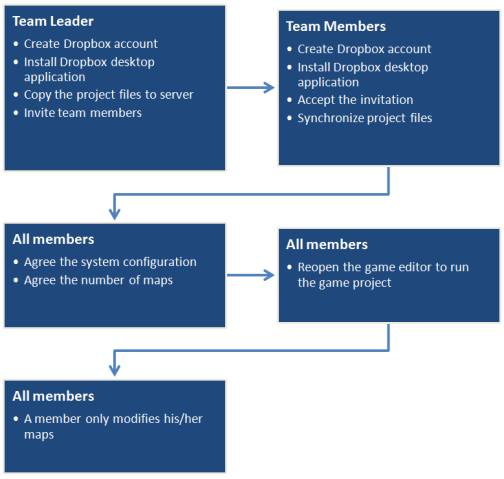

Fig. 3. Rules in Dropbox usage for collaborative game making

This allowed each member to contribute his/her knowledge equally. All the maps created reflected their shared knowledge. In other words, each member had an opportunity to share knowledge through game activities and game design.

V. Conclusions

Dropbox and SVN are commonly used by software developers in creating computer applications. However, not many studies have discussed whether it was possible to use those online storages for collaborative game-making. Virtual collaborative game making might be a feasible option for individuals who are interested in game making yet are limited by the physical resources and equipment (such as computers or laptops) and individuals who do not major in computer science but are interested in making their own games. Virtual collaborative game making should be easy to use and manage. From the experiment, the writers found that Dropbox is easy to be used for collaborative game making by the students who do not major in computer science. However, mutually overwritten files in Dropbox created by team members might cause the game to inoperable. This can be solved by creating the maps in the beginning and avoiding system configuration modification. This means students could not add more maps and modify the system configuration in the development. Otherwise, the new maps would be lost and the changed system configuration would be replaced by other members.

SVN repository is more complex for the students who do not major in computer science. But this is the best choice for collaborative game making. Students can add more maps and system configuration during the game development process. The team leader was able to choose the right files when the files were mutually overwritten due to its version control feature.

In order to accomplish better collaborative game making, Dropbox offers better solutions, especially for students who do not major in computer science. To prevent file conflicts, team members need to agree on the fixed system configuration and maps for the collaborative game making.

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Walkthrough and Tutorial of

“O-That Drama?”

RPG Trivia Game

O, that drama?
K DRAMA
New Game
Continue
Options

A. TUTORIAL

1.1. MENU UTAMA

1. New Game: untuk memulai permainan.
2. Continue : untuk melanjutkan permainan.
3. Options : untuk mengatur Always Dash
4. Command: Remember, volume Background Music, volume Background Sound, volume ME dan volume SE.

1.2. TOMBOL KONTROL

1.1. Untuk PC/Laptop

- Z/X/Enter/Spaces : melanjutkan/enter/action button
- ↑ : berjalan ke depan atau utara
- ← : berjalan ke arah kiri
- ↓ : berjalan ke belakang atau selatan
- → : berjalan ke arah kanan
- Esc : resume/exit

1.2. Untuk Android

- Tekan obyek atau peta untuk berjalan, action button, memilih jawaban dan memilih pengaturan permainan.

1.3. CARA MENJAWAB PERTANYAAN

Bacalah pertanyaan dari setiap karakter pemberi soal yang berada di map Desa, Home 1, Kota dan Home 2. Kemudian jawablah dengan memilih pilihan jawaban yang tersedia untuk Android dapat langsung tap pilihan jawaban yang diinginkan, sedangkan PC/Laptop dapat menggunakan up arrow dan down arrow button lalu tekan Enter/z/Spaces untuk memastikan pilihan jawaban yang diinginkan. Berikut contoh cara menjawab suatu pertanyaan :

1.1. Jawaban Salah

	Screenshot game	Action
Pertanyaan		- **PC/Laptop**: Tekan Enter/Z/Space untuk melanjutkan - **Android**: Tekan layar untuk melanjutkan

Memilih pertanyaan		- **PC/Laptop**: Tekan tombol atau untuk memilih jawaban and tekan Enter/Z/Space untuk memilih jawaban yang menurut Anda benar. - **Android**: Tekan salah satu pilihan jawaban yang menurut Anda benar

Jawaban Salah		- **PC/Laptop**: Tekan Enter/Z/Space - **Android**: Sentuh layar untuk melanjutkan

1.2. Jawaban Benar

	Screenshot game	Action
Question		- **PC/Laptop**: Tekan Enter/Z/Space - **Android**: Sentuh layar untuk melanjutkan
Memiliih jawaban		- **PC/Laptop**: Tekan tombol atau untuk memilih jawaban and tekan Enter/Z/Space untuk memilih jawaban yang menurut Anda benar. - **Android**: Tekan salah satu pilihan jawaban yang menurut Anda benar

Wrong Answer		- **PC/Laptop**: Tekan Enter/Z/Space - **Android**: Sentuh layar untuk melanjutkan

Soal dengan pilihan jawaban gambar

	Screenshot game	Action
Question		- **PC/Laptop**: Tekan Enter/Z/Space - **Android**: Sentuh layar untuk melanjutkan

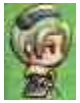
Select the Answer		- **PC/Laptop**: Tekan tombol ⬆ atau ⬇ untuk memilih jawaban and tekan Enter/Z/Space untuk memilih jawaban yang menurut Anda benar. - **Android**: Tekan salah satu pilihan jawaban yang menurut Anda benar
Right Answer		- **PC/Laptop**: Tekan Enter/Z/Space - **Android**: Sentuh layar untuk melanjutkan

Walkthrough

- Background Story

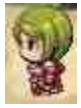
Leela iyang sedang berulang tahun akan diberi hadiah oleh keluarganya namun, Leela harus melewati tantangan yaitu menjawab pertanyaan dengan benar dan mengumpulkan 50 point agar bisa melewati level 1 kemudian temuilah Dian untuk menuju Level 2.

- Level 1
  - Informasi Karekter *Non Playable*
    - Rute Peta

1. 

   Robin

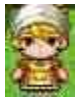
   Pria yang akan menunjukan jalan ke desa ketika Leela baru sampai di Rute Peta. Robin memiliki rambut berwarna abu-abu dan menggunakan jubah. Dia berada pada sebelah kiri dekat laut.

2. 

   Dian

   Dian adalah bibi Leela yang selama di level 1 akan memperbolehkan Leela menuju level 2 setelah berhasil mendapatkan 50 point.

- Desa

1. 

   Marie

   Ibu Leela yang tinggal di desa dan bekerja mengurus pertenakan bersama sang ayah, Eric, Marie juga sangat menyukai Drama Korea. Dia berada di belakang rumah saat di desa.

2.

   Eric

   Dia ayah Leela. Dia pemilik pertenakan Pop Farm. Eric sangat sederhana dan menyayangi ketiga anaknya yaitu Leela, Julie, dan Jack. Dia berada di belakang rumah bersama Ibu.

3.

Jack

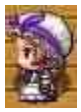
Adik laki-laki terkecil dalam keluarga Leela, dia membantu ayahnya walau pun lebih sering bermain di sekitar kolam di sebelah kanan rumah. Hobinya memancing dan juga suka menonton Drama Korea. Dia sering berada di pinggir kolam di sebelah kanan rumah.

4.

Julie

Adik pertama Leela ini sangatlah menyukai Drama Korea. DIa biasanya membantu ibu dan bibi Debie memasak serta bersih-bersih, Mereka sering menonton drama korea bersama-sama. Julie berada di dalam kamar di dalam rumah.

5.



Debie

Pembantu di rumah Leela di desa, punya rambut pink yang menawan, sangat periang dan giat. Dipanggil bibi Debie dalam keseharian, Debie mengurus semua pekerjaan rumah saat, Ayah dan Ibu keluar di ladang. Mempunyai hobi yang sama dengan Ibu,

Julie, Jack, dan Leela. Debie sering berada di dapur di sebelah kanan saat masuk ke rumah.

- Kota

1.

Icha

Teman Leela dari kecil ini sangat lugu dan lucu. Orang tuanya tinggal di kota dan bekerja di kantor. Icha yang sering sendirian bermain dengan Leela di taman kota di dekat pasar. Icha sering duduk di kursi taman dekat kolam di sebelah kiri bawah kota.

2.

Julius

Julius adalah K-Drama Addict, Julius berdandan seperti prajurit di drama kolosal korea. Julius sangat enerjik. Dia selalu memberikan pertanyaan yang sangat sulit, Julius juga sangat usil karena menghadang Leela di jalan utama menuju ke rumah kakek dan nenek Leela.

3.

Rebbeca

Musuh bebuyutan Leela dari Leela masih anak-anak. Memiliki hobi yang sama yaitu menonton K-Drama, Rebbeca selalu mencoba mengungguli Leela dalam pengetahuan tentang K-Drama. Rebbeca sering berada di pasar, di sebelah kanan bawah kota.

4.

Robert

Robert adalah kakek Leela, walau sudah tua Robert juga menonton K-Drama. Walau tinggal di kota Robert sering pulang ke desa untuk menemui Eric dan keluarganya di desa. Rumah Eric berada di pojok kanan atas di kota. Robert sering berada di perpustakaan di sebelah kiri saat Leela masuk ke rumahnya.

5.

Annie

Nenek Annie adalah Nenek Leela. Annie masih sering keluar untuk berbelanja walau tidak setiap hari. Annie juga memiliki hobi menonton K-Drama seperti Leela. Annie dan Robert sering pulang ke desa untuk berkumpul saat tahun baru dan menonton K-Drama bersama-sama satu keluarga.

- Map And Route Info

Gambar 1.1 Route Map

Pada peta utama terdapat 2 NPC dan 2 wilayah yang dapat dituju yaitu wilayah perkotaan dan pedesaan. Pejalanan anda akan dimulai dari desa di mana lima (5) pertanyaan awal, akan di berikan. Berikut adalah penjelasan wilayah-wlayahnya.

Legenda :

1. Posisi Pertama karakter pemain / Leela
2. Robin
3. Dian
4. Wilayah Desa
5. Wilayah Kota

5
2
1
4
3

Gambar 1.2 jalur di Route Map

Rute yang disarankan adalah sebagai berikut :

1. (2) Robin
2. (4) Wilayah Pedesaan
3. (5) Wilayah Perkotaan
4. (3) Dian

Rute yang diberikan pada gambar 1.2 diatas adalah rute sesuai rancangan pertanyaan yang di muali dari paling mudah sampai yang paling susah.

Tips & Trick

Bicaralah pada NPC atau karakter disebelah kiri Leela kemudian pilihlah option “Yes I want to go to the Village” maka secara otomatis Leela akan berjalan menuju dan masuk ke desa.

Gambar 1.3 Village Map

Rute yang dtampilkan adalah rute terbaik melalui dan sesuai urutan pertanyaan yang telah di desain dari mudah hingga susah.

Rute yang dilewati sebagai berikut :

1. (1) **Marie** dengan pertanyaan : “The protagonist of this drama is a girl who often gets into unfortunate situations because of her pretty classmate who has exactly the same name. The male lead’s name is Park Do Kyeong who works as a sound director.”
2. (2) **Eric** dengan pertanyaan : “She is famous for her role in a classic sageuk drama Dae Jang Geum, and as a revenge seeking single mother in Park Chan-wook's crime thriller film Sympathy for Lady Vengeance. She was inactive for several years, but she is said to make a come back in a drama called Saimdang, the Light’s Diary. Who is she? “
3. (3) **Jack** dengan pertanyaan : “This classic movie was produced in 2002. It brought Choi Ji Woo and Bae Yong Jun into popularity. They played high school friends who fell in love with each other but then got separated. They met again ten years later under very different circumstances. The shooting location of this movie is very popular among tourist. Where is it ?”

Kemudian Leela harus menuju rumah di desa tersebut, didalam rumah tersebut akan ada 2 NPC yang akan memberikan pertanyaan kepada Leela.

Gambar 1.4 Rute Rumah di Desa

Berikut adalah pertanyaan yang ada di rumah :

1. (1) **Debie** dengan pertanyaan : “In this movie, the female lead is a hardworking girl. She attends the exclusive Shinhwa High School by a scholarship. Because of her prickly personality, she gets enemies. One of them is the leader of a rich-boys gang, Goo Jun Pyo, who often bullies her to no end. However, her persistence and stubbornness slowly melts his heart. He finds her attractive and begins to try to win her heart. Who plays the male lead in this drama?”
2. (2) **Julie** dengan pertanyaan : “This drama is a time travel drama. The male lead is a Joseon scholar, Kim Boong Do, who time travels 300 years into the modern Seoul. Then he met the female lead who is an aspiring actress, Choi Hee Jin. Boong Do accidentally travels into the future and finds himself in Hee Jin’s shooting location. They meet and fall in love. What is the name of the drama?”

Setelah menyelesaikan seluruh pertanyaan Leela harus menuju ke kota dengan keluar melalui jalur desa yang tadi ia lewati.

Gambar 1.5 Rute Town

Rute yang di lalui di kota serta pertanyaan yang akan muncul :

1. **Icha** (Sebelah Kiri duduk di dekat kolam kecil) : “In this 3-episode youth drama, Kim So Hyun plays Yoo Seul, a piano prodigy. Due to an accident, she lost her sight.Yoo Seul may never play the piano again because of the accident. With the help of her friend Cha Shik and Yoo Seul's rival Jin Mok, Yoo Seul begins to live a new life. What is the name of this drama?”
2. **Julius** (di atas Di jalan utama) : “This location is very popular among tourists because many dramas were filmed in this location.My Love from Another Star, Secret Garden, Personal Taste, and Beethoven Virus were filmed in this location. What is the name of this place?”
3. **Rebbeca** (Sebelah Kanan di taman dekat pasar) : “This saguek drama tells about a woman from Goryeo who marries a Chinese Emperor Ta Hwan. She gets into the palace and becomes a court lady because she wants to kill Ta Hwan. She believes Ta Hwan is responsible for the death of her father. However, the Emperor falls in love with her and makes her his concubine. What is the name of this drama ?”

Setelah menjawab 3 pertanyaan ini Leela harus menuju rumah di pojok kanan atas atau rumah yang terdapat mobil sedan hitam di depannya untuk menuntaskan 2 pertanyaan terakhir.

Gambar 1.6 Rute rumah di kota

Rute terakhir dimana menyisakan 2 pertanyaan terakhir sebeum nilai selama Leela bermain akan di hitung nilainya untuk mengetahui apakah Leela memenangkan permainan ini.

1. **Robert** (Kakek-Kakek di perpustakaan): “This drama’s female lead is Na Bong Sun, a skilled chef, but lacks the self-esteem and is detached because of her ability to communicate with ghosts.One day, a seductive ghost possesses her and turns her into a more likeable and confident personality.Soon she becomes a love interest of Kang Sun Woo, the hottest chef in town and Bong Sun's secret crush! What is the name of the drama?”
2. **Annie** (Nenek – Nenek di kamar): “Seo Jung Hoo is so-called "errand boy". For a price, he is willing to do anything unless it involves murder. One day,one customer is asking to find a girl, Chae Yeong Shin,a tabloid journalist. Soon he finds out that the girl has a common past with him. During his attempt to uncover their past, he falls in love with her. Who plays Seo Jung Ho in this drama?”

Setelah berhasil menjawab pertanyaan maka Bawa Leela kepada **Dian** karakter berambut hijau yang berada di world map, untuk check point yang akan membawa Leela menuju ke level 2 setelah berhasil mendapatkan 50 point pada level 1.

- Level 2
  - Background Story

    Leela yang sedang berulang tahun akan diberi hadiah liburan ke Korea oleh keluarganya namun, Leela harus melewati tantangan yaitu menjawab pertanyaan dengan benar pada level 1 dan level 2 agar bisa meneyelesaikan game.

  - Informasi Karekter *Non Playable*
    - Menara

1.

   Fransiskus

   Fransiskus adalah suami dari Dian, bibi Leela. Fransiskus menyiapkan menara ini untuk menantang Leela dalam menyelesaikan serangkaian kuis ini. Fransiskus ada di ujung lorong menuju ke lantai dua.

2.

   Suster Erica

Suster Erica adalah sepupu dari paman Fransiskus. Dia datang ke desa untuk merayakan ulang tahun Leela dan berartisipasi dalam kuis ini. Erica berada di kamar pertama di sebelah kiri.

3.

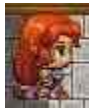
Badut Ned

Badut Ned adalah badut terkenal di kota. Ned diminta untuk menjadi salah satu orang yang akan menanyai Leela, dengan perutnya yang besar dan senyum dan lebar Leela pasti akan selalu tersenyum. Ned berada di kamar pertama sebelah kanan

4.

Pelaut Edy

Salah satu teman kakek Leela semasa kakek masih melaut. Edy sangat mencintai lautan sehingga masih mengguanakan baju kapten nya hampir kemanapun dia pergi. Edy berpartisipasi karena dekat dengan Leela sewaktu Leela masih kecil. Edy berada di gudang pojok kanan atas.

5. 

Giovani

Giovani adalah anak dari Pelaut Edy. Giovani sangat dekat dengan Marie dan Leela, Giovani tidak menikah sehingga sangat suka bermain dengan Leela. Giovani berada di gudang pojok kiri atas.

6.

Amelia

Amelia adalah salah satu teman baik dari Leela. Amelia berasal dari keluarga berada yang sangat dekat dengan keluarga Leela. Keluarga mereka sering berlibur bersama. Amelia berada di lantai 2 menara tersebut, Amelia lah yang mempunyai pertanyaan terakhir dalam kuis ini.

- Informasi Peta dan Rute

Gambar 2.1 Rute Tower Ground Level

Rute yang akan di lalui pada lantai dasar adalah :

1. **Suster Erica** (Kamar sebelah kiri bawah): " What does OTP mean ?"

2. **Badut Ned** (Kamar sebelah kanan Bawah): "Which is the press conference for the drama entitled "Strong Woman Do Bong Soon" ?" (pilihan Jawaban menggunakan gambar)

3. **Pelaut Edy** (Di gudang pojok kanan atas): "What are the missing words of the drama entitled "……. Kim Bok Joo" "

4. **Giovani** (Di gudang pojok kiri atas): “The following scene took place in which drama ?” (pilihan Jawaban menggunakan gambar)

Apabila sudah menjawab semua pertanyaan pada ground level 2, bawalah Leela bertemu **Fransiskus,** dia akan memperbolehkan Leela menuju Final stage untuk dapat memenangkan Level 2 dan game telah diselesaikan.

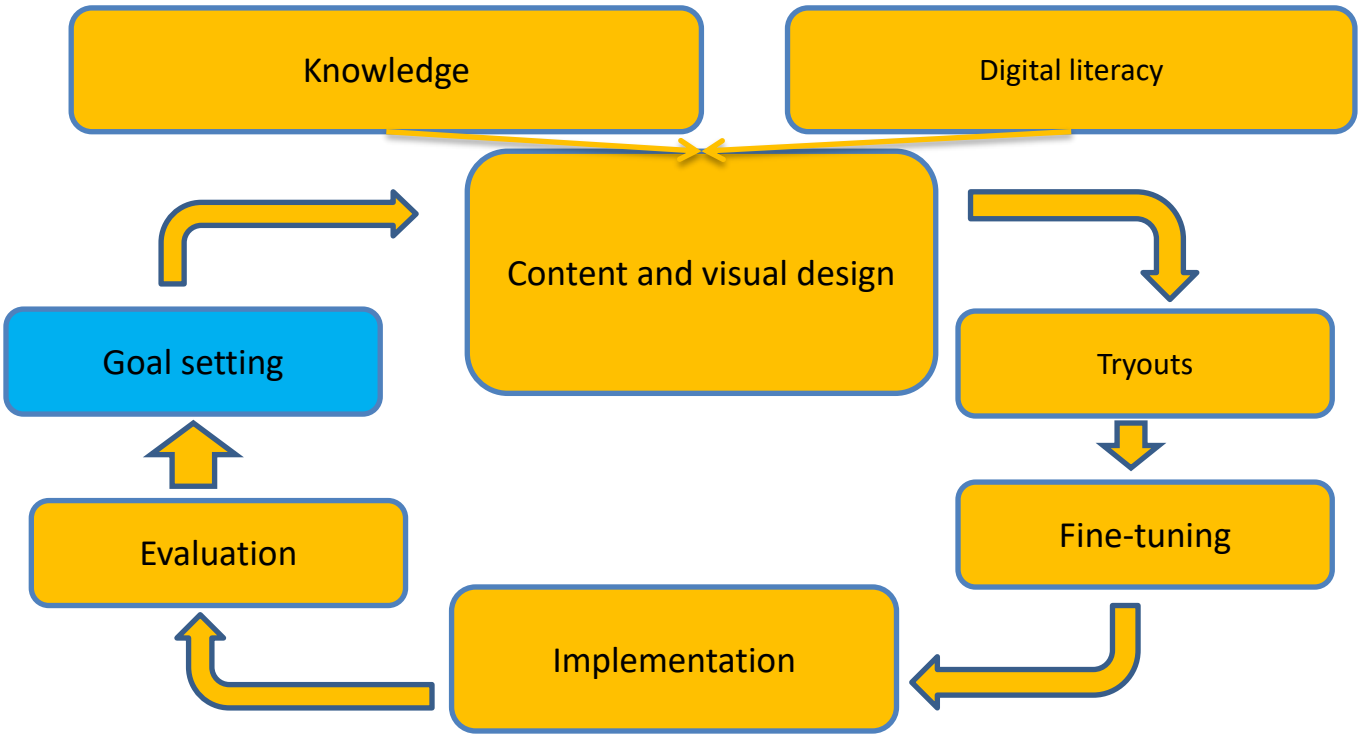
Gambar 2.2 Final Stage

Gambar 2.2 adalah map terakhir yang harus dilalui Leela dengan menjawab pertanyaan terakhir dari **Amelia** (Kamar sebelah kiri bawah): “Which one is the actor of the drama entitled “Healer” ? “(pilihan Jawaban menggunakan gambar).

Jika Leela berhasil menjawab pertanyaan dari **Amelia**, maka game telah berhasil dimenangkan atau diselesaikan oleh Leela dan dia bisa mendapatkan hadiah berlibur ke Korea.

D. LEARNING MODELS

The learning model for this type of learning is as follows:



From the series of workshops we conducted in the first and the second year as well as the data we obtained, we came up with the learning model for the integration of game and collaborative learning. The first step in this diagram is the goal setting whereby teachers set the goals of the game-making activity, the steps, groupings, and assessment. Learners select their team members and decide what they would like to produce. The next step is to make content and visual design. This step is very much influenced by students' prior knowledge and digital literacy. Learners who are comfortable using technology are likely to be able to modify the features provided in the game template. The next step is to try out the games they created. In this stage, teachers need to try the games that the students created for a group of players to make sure that the games work well and that the activities in the games are correct. After the tryout phase, teachers and students received feedback from the users. The feedback is used to refine and improve the game. The next step is the implementation step. In this step, the game is ready to be implemented for any class. The last step will be the evaluation step. In order to see whether the game has impacts on students' learning, they need to be evaluated. Teachers need to design some

kind of evaluation criteria or conduct action research to examine in what ways game helps students achieve their potential. The cycle ends with the goal setting again because the evaluation process is used to determine what kind of activities, lesson plans, and course contents that match with the game design.

E. CONFERENCES

1. **International Conference on Learning Technologies** as **Keynote Speaker** "*Game-making for Learning: Pitfalls, Advantages, Opportunities*" – September 14 -15, 2017 in Grand Candi, Semarang (Cecilia Murniati, first author)
2. **International Conference on Learning Technologies** as **Keynote Speaker** "*The Role of Game Technology in Education and Entrepreunership*" – September 14 -15, in Grand Candi, Semarang (Ridwan Sanjaya, first author)
3. **5TH Celt International Conference as** Keynote Speaker "*Technology-Enhanced Language Learning: Lesson Learned*" – September 11, 2017 (Cecilia Murniati, first author)
4. **International Conference on Leadership and Management in Higher Education: Challenges, Opportunities, and Ways Forward** as a speaker "*Integrating Technology for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education*" – July 28 – 30, 2017 in Ho Chi Minh, Vietnam (Cecilia Murniati, first author)
5. **International Conference on Leadership and Management in Higher Education: Challenges, Opportunities, and Ways Forward** as a speaker "*Game-Making as Collaborative Learning Method*" – July 28 – 30, 2017 in Ho Chi Minh, Vietnam (Ridwan Sanjaya, first author)
6. **MITICON Conference** as a speaker *"Technical Aspect of Game for Collaborative Learning"* – December 12, 2017 in Thailand (Ridwan Sandjaya, first author)

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International Conference on Learning Technologies

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Youngstown STATE UNIVERSITY

International Conference on Learning Technologies

"Leveraging Digital Technologies for Innovation and Knowledge Sharing in Education"

PROGRAM BOOK

September 14 - 15, 2017
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PROGRAM BOOK

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Welcoming remarks from the Chairperson

Distinguished invited speakers
Conference presenters and participants
Ladies and Gentlemen
Good morning

On behalf of Soegijapranata Catholic University and the organizing commitee, I would like to welcome you all to our International Conference on Learning Technologies. It is a great pleasure for me to be here with you all today.

We all have witnessed the extensive influence of technologies and Internet in transforming the educational landscape. Technology affects how younger generations interact, communicate, learn, and behave. They 'have the world available at their fingertips' and sometimes depend too much on technology and spend a lot of time online. Likewise, teachers face challenges how to balance the disruption of technology and the potential of technology to increase students' engagement and participation in the classroom and students' role in knowledge construction. Despite the unresolved debate about the advantages and the drawbacks of technology in education, we cannot ignore the facts that technology has indeed changed the ways learning and teaching are conducted. The theme of the conference is "Leveraging Digital Technologies for Innovation and Knowledge Sharing in Education". We chose the topic because as teachers and users of technology, we recognize the value of technology in empowering and equipping our students for the 21st century skill. Thus, the goals of the conference are 1) to encourage and foster discussions among teachers, practitioners, policy makers, and those who are interested in the application of learning technologies for education to share their best practices, teaching experiences, and policies to increase student engagement and achievement through the use of digital technologies, 2) provide a forum for educators and practitioners who are interested in exploring the potential of technologies to transform the educational landscape.

Ladies and gentlemen
This conference is made possible by the two-year research grant that Prof. Dr. Ridwan Sanjaya and I received, International Collaboration and Publication.

Therefore, the additional goal of this conference is to provide opportunities for scholars who are interested in learning technologies to meet, explore possibilities of conducting collaborative research projects, and expand current projects with other scholars from different parts of Indonesia and outside Indonesia.

To achieve these goals, we invited plenary speakers who will share their insights on technology from the U.S.A, Phillipines, Thailand, and Malaysia. We received abstracts submissions from different countries such as Malaysia, Japan, Phillipines, South Africa, U.S.A, and Venezuela. Some are with us here today and some could not come because of one or other important reasons such as travel warning, budget limitations, and schedule conflicts. Prof. Dr. Ridwan Sanjaya and I initially planned a much smaller event. However, we finally decided to hold this conference because we would like to reach wider audience and plan to collaborate with other universities as well as provide opportunities for participants and presenters to explore collaborative projects.

Ladies and gentlemen,
It is pleasure for me to inform you that three editors of outstanding journals are here with us today. Dr. Kristine Blair, who is the editor of Computers and Composition journal and Dr. Ekawati M. Dukut, the chief editor of Celt Journal, the nationally accredited journal owned by the Faculty of Language and Arts, and Dr. Harnadi, the editor of SISFORMA Journal. Please take the opportunities to ask about the journals and submission guidelines. In addition, selected papers will be published a book volume on "Trends and Issues in Learning Technologies" and eproceeding after the conference.

Ladies and gentlemen,
This conference will not come into a reality without the support of the organizing team, the students, faculty members, and administrative staff, dancers, and anyone who has poured their heart and soul to help Prof. Dr. Ridwan Sanjaya and me organize this conference. My sincere gratitude goes to them. I also extend my sincere appreciation to the invited plenary speakers, moderators, presenters, and participants who have come a long way to attend this conference. I sincerely hope that the discussions will bring a rewarding and fruitful experience.

Thank you

Dra. Cecilia Titiek Murniati, M.A., Ph.D
Chair

Speech from Vice Rector for Cooperation and Development

Honorable Speakers, Distinguished Guests, Enthusiastic Participants, Ladies and Gentlemen, Please allow me, on behalf of Soegijapranata Catholic University, to warmly and officially welcome you in this International Conference.

Professor Schwab, the founder and executive chairman of World Economic Forum, named this era as "the Fourth Industrial Revolution". He characterized it by pointing out the development of new technologies that are fusing the physical, digital and biological worlds and challenging ideas by what it means to be human.

In its early development, virtually someone may, for instance, choose which gender he/she wants to be known in his/her virtual world. At first, it might be done for fun, yet, when he/she is more involved in his/her role and being supported by his/her virtual community, it might then affect his/her real world.

In Indonesia, in the event of Governor's Jakarta Election, we experienced how the use of social media affected the behavior of the voters. The so-called tolerance society is changed into intolerance voters. Unfortunately, it affected not only low educated people but also professors. Despite their political choice, what I am trying to emphasize is on how the "bad use" of technology prevails over the level of education.

Furthermore, we also noticed the phenomenon of "disruptive innovation" that put a big impact on conventional retailer business. Uber and Grab as well as GoJek in Indonesia, have changed the behavior of people in using "public transport", if I may call them as public. The boundary between public and private is also changed. It is then understandable that their existence has been questioning by the existing rules and regulations.

However, another phenomenon also happens. After its success for being the biggest online shop, Alibaba starts to open its physical store. No shopkeeper is needed because everything is done through mobile apps, yet people have to come to collect their things. The easiness of buying thing without leaving home is being disrupted by the man who promotes that service. A truly disrupting innovation.

As a part of society, education is not immune from this state of the art technology development. The first and most sources that students nowadays consult for information is goggle, Wikipedia, personal blogs and other social media. Some of course provide a useful information yet some may mislead the students to unverified information.

The other aspect to be considered is the habit of copy paste. Once they find a useful source, they do not bother to quote but copy and paste it. Lucky enough if they mention the source, sometimes they just ignore it. Yet I still believe in the old saying that mentions "freedom of information may bring bad and good, without it, certainly bad.

Back to the current industrial revolution, the challenge is how the technology empowers education, rather than replace them, progress to serve education rather than disrupts it, it will need a boundary that will not be easy to be drawn, yet to respect rather than cross them.

Will this conference come up with the new idea? Or will it create a new level disruption in itself? Whatever the result is, please enjoy the process. Going home with an intriguing mind to do something after the conference is much more rewarding than being satisfied with the result and do nothing. Have a good conference. Thank you.

Warm regards,

Benny D Setianto

About
SOEGIJAPRANATA Catholic University

Soegijapranata Catholic University was founded on August 5, 1982 as the continuation of Atma Jaya Catholic University Semarang and Semarang Catholic Institute of Technology.

Soegijapranata Catholic University is an institute of higher education subservient to the name of Mgr Alb Soegijapranata, SJ, who was the patron of the university and the just native archbishop that he is rewarded as Indonesia's national figure and hero.

Born in Surakarta on November 25, 1896, he entered the Society of Jesus Mariendaal, Grave, the Netherlands, on September 27, 1920. Ordained as a priest on August 15, 1931, he was later appointed as the archbishop of Semarang Archdiocese on September 20, 1940. His concern for education is the legacy of his lecturer, Father Frans Van Lith, SJ. One of his efforts to improve education was to help increase the quality of two oldest Catholic universities, Parahyangan University, Bandung, and Sanata Dharma University, Yogyakarta, that were of equal status with the state universities.

Mgr. Alb. Soegijapranata was also concerned with the poor that is proven through his thinking and movements. He encouraged the foundation of socio-economic organizations that dedicated their activities into the empowerment of war victims and poor people. Today, Soegijapranata Catholic University continues the spirit, the struggles, and the ideals of Mgr. Alb. Soegijapranata, SJ.

In its early days, Soegijapranata Catholic University was located at Jl. Pandanaran 100 Semarang and consisted of three faculties: the Faculty of Technology, Law, and Economics. In the mid 1990s, the university built a new campus in Bendan Duwur because of the increase of the student body. Since the mid 1990s, educational activities have been entirely centered in this campus. In 1992, the university also built a campus located on Jl. Menteri Supeno Semarang. This downtown campus building is used for the Centre for Language Training to provide English language classes for university students and the public.

Soegijapranata Catholic University's library holds extensive collections of books, journals, and digital collections that serve the needs of students, lecturers, and anyone who wishes to conduct research and develop their knowledge, skills, and technology. Currently Soegijapranata Catholic University offers 1 diploma program in Taxation, 18 Undergraduate programs, and 8 Master's

programs. The 18 Undergraduate programs include Architecture, Visual Communication Design, Civil Engineering, Electrical Engineering, Robotics Mechatronics, Law, Communication, Management, Accountancy, Psychology, Food Technology, Culinary Nutrition and Technology, English Language and Arts, Englishpreneurship, Informatics Engineering, Mobile Computing, Information System, and Game Technology.

The Master's programs include Master of Management, Master of Accountancy, Master of Science in Environment and Urban Studies, Master of Law majoring in Health, Master of Psychology majoring in Psychology of Social Development and Education, Professional Practice in Psychology, Master of Science in Architectural Engineering majoring in Architecture and Settlements, and Master of Science in Food Technology.
Soegijapranata Catholic University has actively been in cooperation with many universities abroad such as with Trinity Western University in Canada in mentoring graduate students in Professional Practice in Psychology program to become counselors for disaster victims as well as with Radboud University Nijmegen in conducting research related to climate changes, development, and migration. Soegijapranata Catholic University is also active in international collaboration on environmental research, especially on coastal metal pollution and nutrient export with three universities in the Netherlands: Vrije University, Wageningen University, and Open University.

In Taiwan, Soegijapranata Catholic University is in cooperation with Providence University, Fu-Jen Catholic University, Wenzao Ursuline University, Chang Jung University and Soochow University. In the Philippines, the university is in coopertion with San Carlos Cebu, Ateneo De Davao, San Beda College, San Beda College Alabang, De La Salle University Dasmarinas, Miriam College and Universita Della Callabris. In Thailand, cooperation is made with Mahidol University and Assumption University. In Korea, Handong Global University, Soongsil University, Ewha Woman University, Sogang University, and the Catholic University of Korea are in cooperation with Soegijapranata Catholic University. In Japan, there is a cooperation with Kwansei Gaikun.

Meanwhile, outside of Asia there is also a cooperation with the United States of America in Younstown State University and Bowling Green State University. These cooperations includes student exchanges, student internships and also credit transfers for some universities. For the lecturers, there has been opportunities also for staff exchanges, research, international conferences and joint publications

Soegijapranata Catholic University's cooperations are supported through its participation in numerous higher education asscociations in Indonesia and abroad such as APTIK (Asosiasi Perguruan Tinggi Katolik Indonesia or Association

of Indonesian Catholic Higher Education), ASEACU (Association of South East Asia Catholic University), ACUCA (Association of Christian Universities and Colleges of Asia), IFCU (International Federation of Catholic Universities), NUNI (Nationwide University Network in Indonesia), I-IEN (Indonesia Integrity Education Network) and UBCHEA (United Board of Christian Higher Education in Asia). These networks provide lecturers and students the opportunities to interact in international communities and develop their worldviews and personalities.

Many students, lecturers, and teaching staffs of the university have been successful on regional, national, and international levels. This is due to the excellent academic atmosphere in Soegijapranata Catholic University which encourages them to develop their hard skills and soft skills simultaneously.

Students, lecturers, and the teaching staff of Soegijapranata Catholic University come from various places in Indonesia including Central Java, Yogyakarta Special Region, Jakarta, West Java, Bali, East Nusa Tenggara, Nangroe Aceh Darusalam, North Sumatra, South Sumatra, Bangka Belitung, West Kalimantan, South Sulawesi, Papua among other places and many other places in Indonesia. This indicates that Soegijapranata Catholic University is widely known throughout Indonesia. Having various ethnic and linguistic backgrounds, the entire academic community of the university has ample opportunities in developing the values of unity and tolerance by instilling compassion, tolerance, justice, and honesty.

The Soegijapranata Catholic University campus is situated in a higher area of Semarang with a cooler climate and a greener area than the lower area creating a comfortable campus for study activities and discussions outside the classroom. The campus is located on the west of Jatingaleh, at a distance of only ±10 km from the center of the city, which can be reached by various types of public transportations. The facilities available for students in the area surrounding the campus enhance the study environment and support academic activities.

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Youngstown STATE UNIVERSITY

Leveraging Digital Technology for Innovation and Knowledge Sharing in Education
Grand Candi Hotel, Semarang, Indonesia

Thursday, 14 September 2017

07.30 – 09.00 Registration and Coffee Break

09.00 – 09.30 Opening ceremony
Opening MC
Welcoming Remarks: Chairperson
Prayer
Speech : Vice Rector for Cooperation and Development
Traditional dance: Kembang Taru

09.30 – 11.00 PLENARY SESSION 1

Dr. Kristine L. Blair
Interrogating the Relationship Between Gender and Technology: A Technofeminist Rhetorical Approach
Youngstown State University
U.S.A.

Dr. Dave E. Marcial
Facilitating and Hindering Factors in Achieving Innovative Teaching and Learning: Evidences from The Philippines
Silliman University
Phillipines

11.00 – 12.00 PARALLEL SESSION 1		
Room A : Amarta	**Room B : Nakula**	**Room C : Sadewa**
Budi Purnomo, Ph.D (Sahid Tourism Institute of Surakarta, Surakarta, Indonesia) - *Model of Teaching English For Tourism Using Video*	**Mr. Eko Hadi Gunawan, Ridi Ferdiana, Mrs. Sri Suning Kusumawardani** (Gadjah Mada University, Yogyakarta, Indonesia) - *Design and Proposal of Interactive Distance Learning Media in Rural Area*	**Muhammad Arief Budiman** (PGRI University, Semarang, Indonesia) - *The Role of Technology (Social Media) in Exploration Study Lesson at Elementary School Teacher Education Program*
Emilia Ninik Aydawati, SP, M.Hum (Soegijapranata Catholic University, Semarang, Indonesia) - *The Application of Asynchronous Online Peer Review in Academic Writing Class*	**Dr. Ku Azam Tuan Lonik** (School of Distance Education, University Sains Malaysia, Penang, Malaysia) - *Engaging Students in Open Distance Learning Environments*	**Adi Suryani, Ph.D, Soedarso, Zainul Muhibbin** (Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia), **Ekna Satriyati** (Trunojoyo University, Madura, Indonesia) - *The Orchestration of Learning Using Technology: The Rotating Roles of Teachers in Facilitating Students' Video Creation in Social-Humanity Sciences*
Drs. A. Aloysius Soerjowardhana, M.Pd, Raden Arief Nugroho, SS., M.Hum (Dian Nuswantoro University, Semarang, Indonesia) - *Developing English Job Interview Skill by Self-Access Language Learning Through Audio Podcast-Based Learning Media*	**Albertus Yoga Widiantoro, S.Kom., M.Kom** (Soegijapranata Catholic University, Semarang, Indonesia) - *Infrastructure Readiness and Human Resources in the Implementation of E-learning*	**Dra. Dina Mustafa, M.Sc** (Universitas Terbuka, Indonesia) - *Utilization of Big Data through Learning Analytic of Online Courses To Improve Students Support Services: A Preliminary Study*

12.00 – 13.00 Lunch

13.00 – 14.30 PLENARY SESSION 2

Prof. Dr. Chanintorn Jittawiriyanukoon
Performance Evaluation of Parallel Big Data Curation in E-Learning
Assumption University
Thailand

Prof. Dr. Fatimah B. Puteh
Using Digital Technologies in a Blended Learning Setting to Engage and Motivate Students
Universiti Teknologi Malaysia
Malaysia

14.30 – 16.00 PARALLEL SESSION 2

Room A : Amarta	Room B : Nakula	Room C : Sadewa
Eka Angga Laksana, S.Kom., M.Cs, Ase Suryana, Ai Rosita, Heri Heryono (Widyatama University, Bandung, Indonesia) - *Evaluation of E-learning Activity Effectiveness in Higher Education Through Sentiment Analysis by Using Naïve Bayes Classifier*	**Luis Carmelo Buenaventura, Ph.D** (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) - *Socio-cultural perspectives of a Virtual Learning Environment through Schoolbook: The De La Salle University - Dasmarinas, Cavite, Philippines*	**Prof. Roland Lorenzo M. Ruben** (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) - *Increasing Student Online Sessions Engagement via Gamification*
Joseph Ma. Steven Cabalo, Prof. Rolando Panopio (University of the Philippines, Los Baños, Philippines) - *Evaluation of 'Prodigy', an Online Educational Game-Based Platform*	**Prof. Dr. Mikio Fuse** (University of the Sacred Heart, Tokyo, Japan) - *Starting an Online Class Exchange: Gains, Fails, and Future - English Department*	**Dimas Rangga Wicaksono** (Atma Jaya Catholic University, Jakarta, Indonesia) - *EFL & Video Game: What PlayStation™ Games Provide for Language Teaching and Learning*

Rubie Maranan Causaren, Ph.D (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) *Using Canonical Correspondence Analysis (CCA) as a Tool to Model Habitat Associations of the Anuran Fauna from Forest Fragments in Cavite, Luzon Island, Philippines*	**Andree E. Widjaja, Ph.D.** (Pelita Harapan University, Tangerang, Indonesia), **Prof. Jengchung Victor Chen, Ph.D.** (National Cheng Kung University, Tainan, Taiwan) - *Online Learners' Motivation in Online Learning: The Effect of Online Participation, Social Presence, and Collaboration*	**Azenith Mojica, Lielle Jasmin Bawar, Edgar Michael Colmo, Allen Vince Del Rosario** (De La Salle University - Dasmariñas, Dasmariñas City, Philippines)- *Moonlight: A 3D Zombie-Shooting PC Game Using A* Algorithm*
T Brenda Chandrawati ST., MT. , Erdhi Widyarto, ST., MT. - (Soegijapranata Catholic University, Semarang, Indonesia) - *A VR-based Educational Game for Studying Mathematics*	**Kenny Irene Elisabeth Sely** (Soegijapranata Catholic University, Semarang, Indonesia) - *An Analysis of E-learning Acceptance Among College Students*	**Andi Rizki Fauzi, S.Pd.,M.Hum** (Stipary Tourism Academy, Yogyakarta, Indonesia) - *The Role of Computer-Based Corpus Approach in Teaching English Vocabulary for Tourism*
16.00 - 16.30 Coffee Break		
16.30 - 17.30 Networking		
17.30 - 20.30 Complimentary dinner: pool side		

Friday, 15 September 2017

07.30 - 09.00 Re-registration and Coffee Break

09.00 – 10.30 PLENARY SESSION 3

Cecilia Titiek Murniati, MA., Ph.D
Game-making for Learning: Pitfalls, Advantages, and Opportunities
Soegijapranata Catholic University
Semarang

Prof. Dr. Ridwan Sanjaya, SE., S.Kom., MS-IEC
The Role of Game Technology in Education and Entrepreneurship
Soegijapranata Catholic University
Semarang

10.30 - 11.30 PARALLEL SESSION 3		
Room A : Amarta	**Room B : Nakula**	**Room C : Sadewa**
Airill Mercurio, Ph.D, Blesshe VL. Querijero (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) - *Canonical Correspondence Analysis : A tool to model association of Phytoplankton in Taal Lake Batangas Philippines*	**FX. Risang Baskara, S.S.,M.Hum** (Sanata Dharma University, Yogyakarta, Indonesia) - *Students' Perspectives on the Use of Schoology and Mobile Learning in English Classrooms*	**Lianly Rompis, ST, MITS** (De La Salle Catholic University, Manado, Indonesia) - *A Learning System Based on Digital Technology Utilization for Information and Innovation*
Sandy Arief, M.Sc (Semarang State University, Semarang, Indonesia) - *Lawang Sewu Akuntansi': Accounting-based Digital Learning in Enhancing Teacher and Student Engagement*	**Dr. Ekawati M. Dukut, M.Hum., Yedija Prima Putra, Christine Ayu Wulandari** (Soegijapranata Catholic University, Semarang, Indonesia) - *Using Local Culture for Picturebooks*	**Azenith Mojica, Roder Manahan, Anne - Bel Amado, Ma. Juli Anne Muchada** (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) - *Development of a Location-Based Augmented Reality Application Using the Android Platform for DLSU-D*
Juanito C. Doctor Jr., MIT, Marivic Mitschek, Khadie Maecel Paliza, Garlene Mariel Sabile, Jamille Tiong (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) - *iPon: A Personal Finance Mobile Application Software that Encourages Smart Money Management and Financial Skills*	**Sonya V. Ch. Benu, M.Pd** (STKIP Soe, Soe, East Nusa Tenggara, Indonesia) - *Use of Letter Blocks Word Builder Game and Compound Words Game to Enrich Students' Vocabularies: A Study of Writing 1 Students of STKIP SoE*	**Maryli Feliciano Rosas,** (De La Salle University - Dasmariñas, Dasmariñas City, Philippines), **Dr. Shaneth C. Ambat** (AMA University Project 8, Quezon City, Philipines) - *Mining Students' Insights on the University Services using Classification Decision Tree Technique*

11.30 – 13.00 Lunch and Friday prayer		
13.00 - 14.30 PARALLEL SESSION 4		
Room A : Amarta	**Room B : Nakula**	**Room C : Sadewa**
Dr. Ratna Jatnika, Mustofa Haffas, M.Kom, Dr. Hendriati Agustiani (Padjadjaran University, Bandung, Indonesia) - *Universitas Padjajaran Statistical Analysis Series (Database Management and Descriptive Statistics)*	**Asri Aprianti, Isna Nur Adhin**i (State University of Semarang, Indonesia) - *Using Audio and Video Recording to Assess Grammatical Errors in an English Language Classroom*	**Edwin Leonardo** (Soegijapranata Catholic University, Semarang, Indonesia) - *Authentication of Student Information System Using RFID*
Anton Subarno, M.Pd (Sebelas Maret University, Surakarta, Indonesia), **Wen-Fu Pan, Mei-Ying Chien, Ching-Dar Lin (**National Dong Hwa University, Taiwan) - *Motion Recognition and Students' Achievement*	**Rolando Barrameda, Dr. Sherry Naz, Jeric Joseph Rodulfo, Joyce Anne Lanorio, Jacqueline Mortel** (De La Salle University - Dasmariñas, Dasmariñas City, Philippines) - *Online Chabacano Translator*	**Naftalita Calista Putri** (Soegijapranata Catholic University, Semarang, Indonesia) - *The Implementation of RFID-based Class Attendance*
Lianly Rompis, ST, MITS, Julie Cynthia Rante (De La Salle Catholic University, Manado, Indonesia) - *Basic Design of a Charging Circuit for Mobile Phone*	**Nur Utami, SK, M.Hum** (Pakuan University, Bogor, Indonesia) - *Critical Thinking Skill in Reading Online Resources: A Study in an EFL Context*	**Rico Antigua, Prof. Lynie B. Dimasuay** *(University of the Philippines Los Baños, Laguna, Philippines) - Teaching Geometry of Circles Using Comics*

Bambang Triatma (State University of Semarang, Semarang, Indonesia) - *The Online Sensorial Evalution for Food*	**Andreas Setiawan** (Soegijapranata Catholic University, Semarang, Indonesia) - *Group-based Game Making for Descriptive Writing*	
14.30 - 15.30 PLENARY SESSION 4		
Dr. Onno W. Purbo *Changing Teaching to Maximize E-Learning* Internet Expert Indonesia		
15.30 - 16.00 Closing Ceremony		

Unika SOEGIJAPRANATA
Talenta pro patria et humanitate

Youngstown STATE UNIVERSITY

International Conference on Learning Technologies

"Leveraging Digital Technologies for Innovation and Knowledge Sharing in Education"

September 14 - 15, 2017

Certificate of Appreciation

is awarded to

Dra. Cecilia Titiek Murniati, M.A., Ph.D

in recognition of the valuable contribution as

KEYNOTE SPEAKER

Prof. Dr. Frederick Ridwan Sanjaya, SE., S.Kom., MS-IEC
Rector of Soegijapranata Catholic University

Cecilia Titiek Murniati, M.A., Ph.D
Chairperson

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PROGRAM BOOK

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International Conference
on Learning Technologies
"Leveraging Digital Technologies
for Innovation and Knowledge Sharing in Education"
14 - 15, 2017
CATHOLIC UNIVERSITY
MODERATOR
SPEAKER

1. Unparallel semester period
1 month
Feb.
Mar.
April
May
Indonesia
Japan
Golden week

Unika
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International Conference
on Learning Technologies
"Leveraging Digital Technologies
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5th Celt (Culture, English Language Teaching & Literature) Journal Workshop

Contextualizing the Trajectory of Language,Arts & Culture in Contemporary Society

9 - 11th September 2017

Certificate of Appreciation

The Faculty of Language & Arts, Soegijapranata Catholic University
Semarang - Indonesia

awards this certificate to

Dra.Cecilia Titiek Murniati,Ph.D

in recognition of participation in the conference as

Keynote Speaker

Angelika Riyandari, Ph.D.
Dean of Faculty of Language & Arts
Soegijapranata Catholic University
Semarang - Indonesia

Dr. Dra. Ekawati Marhaenny Dukut, M.Hum.
5th Celt International Conference
Chief Committee

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Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
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e-mail: lppm@unika.ac.id, lppm.unikasmg@gmail.com
http://www.unika.ac.id

Unika SOEGIJAPRANATA

SURAT TUGAS

Nomor : 00970/B.7.7/ST-LPPM/VII/2017

Kepala Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Katolik Soegijapranata Semarang dengan ini memberi tugas kepada :

Nama	:	**Dra. Cecilia Titiek Murniati, MA.,Ph.D** **Prof. Ridwan Sanjaya, SE.,S.Kom.,MS.,IEC.,PhD**
Status	:	**Dosen Tetap Universitas Katolik Soegijapranata Semarang**
Tugas	:	**Presentasi Paper "Integrating Technology for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education"**
Waktu	:	**Rabu –Jumat, 26 dan 28 Juli 2017**
Tempat	:	**SEAMEO Retrac** **35, Lê Thánh Tôn, Bến Nghé, Quận 1, Hồ Chí Minh, Vietnam**
Penyelenggara	:	**International Conference on Leadership and Management in Higher Education: Challenges, Opportunities and Ways Forward, co-organized by SEAMEO Regional Training Center (SEAMEO RETRAC) and British Columbia Council for International Education**
Lain-lain	:	**Harap melaksanakan tugas dengan sebaik-baiknya dan penuh tanggung jawab serta memberikan laporan setelah selesai melaksanakan tugas.**

Demikian surat tugas ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Semarang, 24 Juli 2017
Kepala LPPM

Prof. Dr. Andreas Lako
NPP.058.1. 1994.155

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SOUTHEAST ASIAN MINISTERS OF EDUCATION ORGANIZATION
SEAMEO REGIONAL TRAINING CENTER

CERTIFICATE OF RECOGNITION

Awarded to

Dr. CECILIA TITIEK MURNIATI

for contribution as a speaker
to the International Conference in
Leadership and Management in Higher Education: Challenges, Opportunities and Ways Forward

held at SEAMEO RETRAC, Vietnam
on July 27-28, 2017

Dr. Ho Thanh My Phuong
Director
SEAMEO RETRAC

Date: July 28, 2017
Registration No.: 916./SEA-EDU.2017

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Integrating Technology for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education*

Cecilia Murniati[1], Ridwan Sanjaya[2], Kristine L. Blair[3]

[1,2] Soegijapranata Catholic University (SCU), Indonesia

[3] Youngstown State University (YSU), USA

* A part of a research project funded by the Indonesian Directorate General of Higher Education 2016 under the scheme of International Collaboration and Publication grant. Presented at SEAMEO Conference, Ho Chi Minh, Vietnam.

Southeast Asian Ministers of Education Organization (SEAMEO)
SEAMEO Regional Training Center

35 Lê Thanh Ton St., District 1,
Ho Chi Minh City, Vietnam
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Email: contact@vnseameo.org
Website: http://www.vnseameo.org

June 20, 2017

Ref: 20 /SEA-DOE

ATTN: Dr. Ridwan Sanjaya
Faculty of Computer Science
Soegijapranata Catholic University
Semarang, Central Java 50234, Indonesia
Email: ridwan@unika.ac.id

Re: 2017 International Conference
Leadership and Management in Higher Education: Challenges, Opportunities and Ways Forward
Ho Chi Minh City, July 27-28, 2017

Greetings from the SEAMEO Regional Training Center in Vietnam (SEAMEO RETRAC)!

On behalf of the Organizing Committee, I would like to congratulate you on the outstanding abstract, with the topic of "**Game Making as a Collaborative Learning Method**", which has been accepted for presentation at the International Conference on "Leadership and Management in Higher Education: Challenges, Opportunities and Ways Forward". The Conference will be jointly conducted by SEAMEO RETRAC and British Columbia Council for International Education (BCCIE) at SEAMEO RETRAC's premises in Ho Chi Minh City, Vietnam, on July 27-28, 2017. Participants of the Conference will include senior administrators, professors, educational experts, practitioners, etc. from international and Vietnamese universities and other educational organizations.

I am pleased to invite you to be one of the speakers of the aforementioned Conference. As a speaker, you are expected to give a 10-20 minute presentation.

We highly appreciate your acceptance to be the speaker in this coming event.

Should you have any queries about the event, please feel free to contact:

Mr. Tran Van Thai
Program Officer, Division of Education
SEAMEO RETRAC
Tel: (84-8) 3 8245618 (Ext: 126) Fax: (84-8) 3 8232175
Email: internationalconference2017@vnseameo.org

I am looking forward to hearing from you soon.

Sincerely yours,

Dr. Ho Thanh My Phuong
Director of SEAMEO RETRAC
Chair of Organizing Committee

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SURAT TUGAS

Nomor : 00970/B.7.7/ST-LPPM/VII/2017

Kepala Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Katolik Soegijapranata Semarang dengan ini memberi tugas kepada :

Nama	:	**Dra. Cecilia Titiek Murniati, MA.,Ph.D** **Prof. Ridwan Sanjaya, SE.,S.Kom.,MS.,IEC.,PhD**
Status	:	**Dosen Tetap Universitas Katolik Soegijapranata Semarang**
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Lain-lain	:	**Harap melaksanakan tugas dengan sebaik-baiknya dan penuh tanggung jawab serta memberikan laporan setelah selesai melaksanakan tugas.**

Demikian surat tugas ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Semarang, 24 Juli 2017
Kepala LPPM

Prof. Dr. Andreas Lako
NPP.058.1. 1994.155

SOUTHEAST ASIAN MINISTERS OF EDUCATION ORGANIZATION
SEAMEO REGIONAL TRAINING CENTER

CERTIFICATE OF RECOGNITION

Awarded to

Dr. RIDWAN SANJAYA

for contribution as a speaker
to the International Conference in
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held at SEAMEO RETRAC, Vietnam
on July 27-28, 2017

Dr. Ho Thanh My Phuong
Director
SEAMEO RETRAC

Date: July 28, 2017
Registration No.: 017../SEA-EDU.2017

Game Making as A Collaborative Learning Method*

Ridwan Sanjaya[1], Cecilia Murniati[2], Kristine L. Blair[3]

[1,2] Soegijapranata Catholic University (SCU), Indonesia

[3] Youngstown State University (YSU), USA

* A part of a research project funded by the Indonesian Directorate General of Higher Education 2016-2017 under the scheme of International Collaboration and Publication grant.

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INTERNATIONAL CONFERENCE 2017

Leadership and Management in Higher Education: Challenges, Opportunities and Ways Forward

Ho Chi Minh City, Vietnam, July 27-28, 2017

CONFERENCE PROGRAM

(*) As of July 24, 2017

THURSDAY – JULY 27, 2017	
08:00 – 08:30	Registration
08:30 – 09:15	OPENING CEREMONY Welcome Remarks Dr. Do Thi Hoai Thu, Dean, Division of Education, SEAMEO Regional Training Center (SEAMEO RETRAC), Vietnam Dr. Randall Martin, Executive Director, British Columbia Council for International Education (BCCIE), Canada
09:15 – 10:00	Keynote Speech (International Hall) **Taking the Pulse of Higher Education: Challenges, Opportunities, and Ways Forward** Prof. Dr. Noreen Golfman, Provost and Vice-President (Academic), Memorial University of Newfoundland (MUN), Canada Group Photo
10:00 – 10:15	Tea-break
10:15 - 11:15	Session I: 21st Century Leaders: Challenges and Preparations Plenary Session I-A (International Hall) **Moderator: Dr. Randall Martin,** Executive Director, British Columbia Council for International Education (BCCIE), Canada 1. Change Leadership and the Development of Institutional Educational Frameworks Prof. Dr. Doug Hamilton, Professor, School of Education and Technology, Royal Roads University, Canada 2. Understanding Regionalisation in Philippine Higher Education against the Backdrop of the ASEAN Integration Ms. Joclarisse E. Albia, Educational Leadership and Management Development, National Chung Cheng

	University, Taiwan 3. Risk Identification and Evaluation in Higher Education Institutions in Vietnam Dr. Nguyen Tien Thanh and Dr. Tran Duc Nga, Hai Phong Private University, Vietnam Q&A
11:15 – 12:15	Session I: 21st Century Leaders: Challenges and Preparations (cont'd)
	Plenary Session I-B (International Hall) **Moderator: Prof. Dr. James Paulson**, Associate Faculty, School of Education and Technology, Royal Roads University, Canada 1. Riding the OBOR Wave: Building World-class Private Universities in Malaysia Prof. Dr. Yu Sing Ong, Professor and Dean, Faculty of Business and Management, Southern University College, Malaysia 2. The Impact of Vietnamese National Culture on the Effectiveness of Quality Management in Higher Education Institutions Ms. Loan T.K. Phan, Ph.D. Candidate, Melbourne Centre for the Study of Higher Education, the University of Melbourne, Australia 3. Vietnamese Women Faculty Attaining Higher Educational Leadership Positions at An Giang University, Vietnam: Opportunities, Barriers and Trends for Future Leadership Capacity Development Ms. Chau Soryaly, Lecturer, An Giang University, Vietnam Q&A
12:15 – 13:30	**Lunch break**
13:30 – 14:15	Session II: Curriculum Innovations and Experiential Learning Opportunities for Students Plenary Session (International Hall) **Moderator: Prof. Dr. Doug Hamilton**, Professor, School of Education and Technology, Royal Roads University, Canada 1. Teaching Educational Leadership in the Post-Truth Era Prof. Dr. James Paulson, Associate Faculty, School of Education and Technology, Royal Roads University,

	Canada 2. Towards Excellence in Leadership and Management in Higher Education: The College, the Economy and Economic Development – Inextricably Linked to the Region's Future Ms. Patricia Bowron, Executive Director, International and Regional Development, College of the Rockies, Canada Q&A	
14:15 – 15:30	Session II: Curriculum Innovations and Experiential Learning Opportunities for Students (cont'd)	
	Parallel Session II-A (International Hall) **Moderator: Prof. Dr. Adam Goh,** Professor, Chief Education Technologist, Academy of Certified Professional Practitioners, Singapore 1. Constructing an Effective Model of Blended Learning: A Case of GENGEO in ULIS, VNU Hanoi Ms. Hoang Thi Thanh Hoa, University of Languages and International Studies, Vietnam National University, Hanoi, Vietnam 2. Authentic Assessment to Prepare Students for Employability Skills Ms. Le Thi Viet Ha, Academic Developer, Ms. Frederique Bouilheres, Senior Academic Developer, RMIT University, Vietnam	Parallel Session II-B (Room A101) **Moderator: Prof. Dr. Malcolm H. Field**, Professor, Faculty of Social Sciences, Kyorin University, Japan 1. How Can We Internationalise Higher Education Curriculum in a Vietnamese Way? Ms. Trinh Ngoc Anh, Doctoral Student, University of Canterbury, New Zealand 2. The Applicability of the Dimensions of Learning Organizations in Philippine Universities: The Case of the University of Perpetual Help System Dr. Josephine Dasig, Faculty, College of Education, University of Perpetual Help System DALTA Las Piñas, Manila, Philippines 3. Students' Experiences with English Medium Instruction (EMI) Tertiary Programs in Vietnamese Context: Implications to

	3. The Implementation of Outcome-Based Education at a Philippine Institution of Higher Learning Dr. Perlita C. Custodio, Faculty, College of Education, Dr. Gina N. Espita, Document Specialist, DEAC, Dr. Loureli C. Siy, Faculty, College of Education, University of Perpetual Help System DALTA Las Piñas, Manila, Philippines Q&A	Curriculum Developers Ms. Vo Phuong Quyen, Lecturer, Department of English Language and Culture, School of Foreign Languages, Can Tho University, Vietnam Q&A
15:30 – 15:45	Tea-break	
15:45 – 17:00	Session III: ICT for Teaching and Management	
	Parallel Session III-A (International Hall) **Moderator: Prof. Dr. Elenita N. Que**, Assistant Professor, College of Education, University of the Philippines, Philippines 1. The Transformational Promise of Quality On-line Distance Education of the 21st Century Higher Education: The Globalization Perspectives Prof. Dr. Adam Goh, Professor, Chief Education Technologist, Academy of Certified Professional Practitioners, Singapore	Parallel Session III-B (Room A101) **Moderator: Ms. Sonja Knutson,** Director, Internationalization Office, Memorial University of Newfoundland (MUN), Canada 1. Does Online Learning Reflect on Traditional Class Performance? Dr. Hanas A. Cader & Mr. Ali Aljamal, College of Business and Economics, American University of Kuwait, Kuwait 2. Integrating Technology for Collaborative Learning and Knowledge Sharing: Its Implications for Undergraduate Education Dr. Cecilia Titiek Murniati, Faculty of Language and

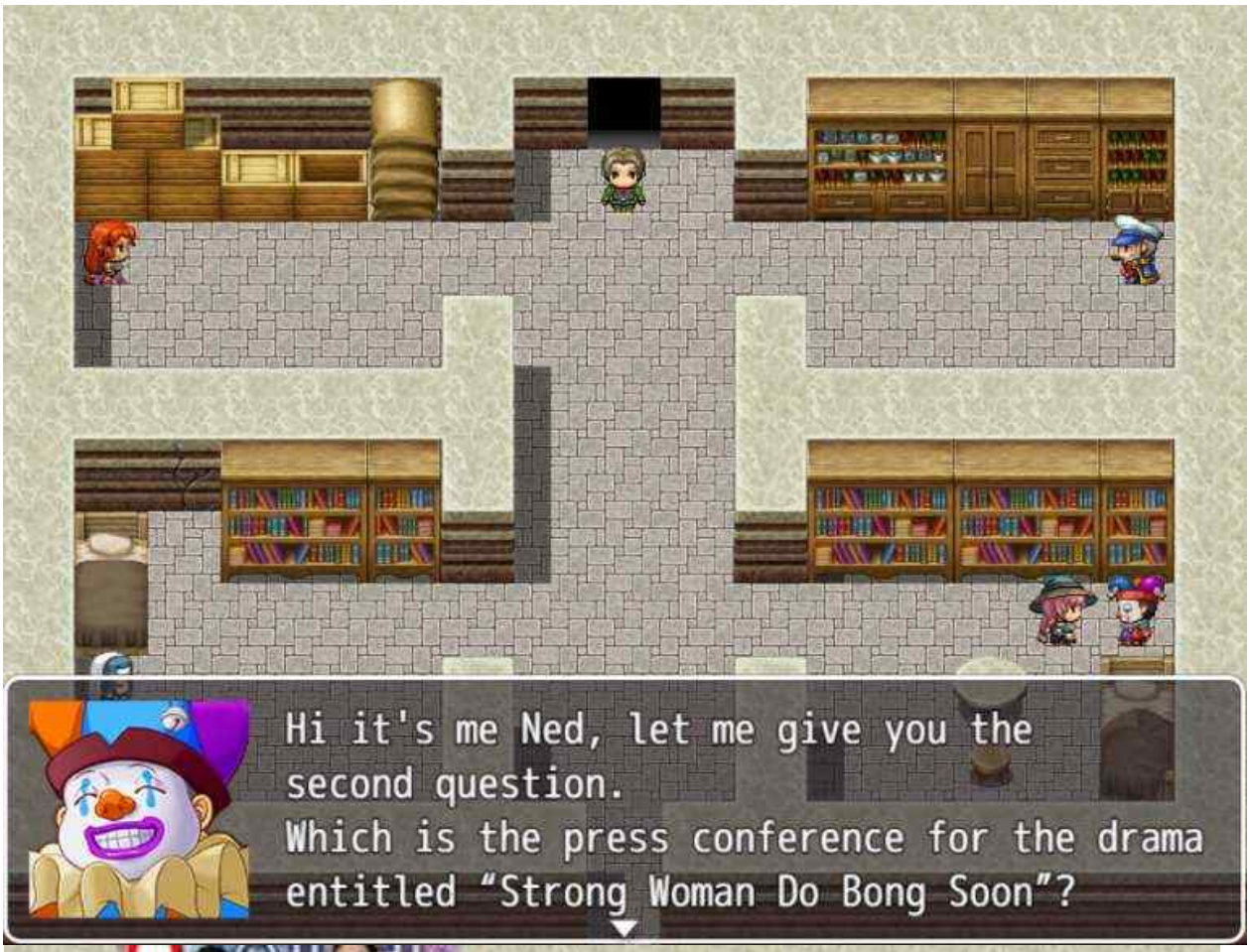
	2. Game Making as a Collaborative Learning Method Dr. Ridwan Sanjaya, Faculty of Computer Science, Soegijapranata Catholic University, Semarang, Indonesia Dr. Cecilia Titiek Murniati, Faculty of Language and Arts, Soegijapranata Catholic University, Semarang, Indonesia Q&A	Arts, Soegijapranata Catholic University, Semarang, Indonesia Dr. Ridwan Sanjaya, Faculty of Computer Science, Soegijapranata Catholic University, Semarang, Indonesia Q&A
FRIDAY – JULY 28, 2017		
08:30 – 09:45	Keynote Speech (International Hall) **Growing Economies and the Critical Need for a Skilled Workforce** Prof. Dr. David Ross, President and CEO, The Southern Alberta Institute of Technology (SAIT), Canada	
09:45 – 10:45	Session IV: Quality Assurance in Education Plenary Session (International Hall) **Moderator: Prof. Dr. Noreen Golfman**, Provost and Vice-President (Academic), Memorial University of Newfoundland (MUN), Canada 1. Developing Quality Culture at Vietnam National University of Ho Chi Minh City through the IQA System Dr. Nguyen Duy Mong Ha, Head, Office of Educational Testing and Quality Assurance, University of Social Sciences and Humanities, Vietnam National University Ho Chi Minh City, Vietnam 2. Priorities of Vietnamese Higher Education Leaders towards MOET's Educational Development Strategies Dr. Pham Dinh Xuan Thu, Research Officer, Office of Cooperation and Research Development, Can Tho Medical College, Vietnam Q&A	
10:45 –	Tea-break	

11:00		
11:00 - 12:00	**Session V: Teacher Education**	
	Parallel Session V-A (International Hall) **Moderator: Mr. Ajay Patel,** Vice President, External Development, Langara College, Canada 1. **A Lens on the Assessment Practices of Classroom Teachers in Two Asian Countries: International Perspectives for the Design of Teacher Professional Development Program** Prof. Dr. Elenita N. Que, Assistant Professor, College of Education, University of the Philippines, Philippines Waqas A. Khan, Doctoral Student, Educational Assessment, University of Management and Technology, Lahore, Pakistan 2. **The Value of Teaching Practicum** Ms. Tran Thi Hieu Thuy & Ms. Nguyen Thi Kim Phuong, Lecturers, Faculty of English Language Teacher Education, University of Languages and International Studies, Vietnam National University Hanoi, Vietnam **Q&A**	**Parallel Session V-B (Room A101)** **Moderator: Ms. Patricia Bowron**, Executive Director, International and Regional Development, College of the Rockies, Canada 1. **Seeking Alpha in Educational Systems** Mr. Peter McDowell, Lecturer in Education, Law Education Business & Arts, Charles Darwin University, Australia 2. **Teaching Capacity of the Novice Teacher - Current Status** Dr. Pham Thi Thanh Hai, Head, Research and International Relations Department, University of Education - Vietnam National University Hanoi, Vietnam **Q&A**
12:00 – 13:30	**Lunch break**	

13:30 – 15:00	**Session VI: 21st Century Skills Development** **Plenary Session (International Hall)** **Moderator: Dr. Alex Zahavich,** Vice President of Corporate Development and Applied Research, Southern Alberta Institute of Technology (SAIT), Canada 1. **Higher Education's Dew Point and the Art of Kintsugi** Prof. Dr. Malcolm H. Field, Professor, Faculty of Social Sciences, Kyorin University, Japan 2. **Project-based Learning and the Development of the 21st Century Skills: Perspectives from Students of Ethnic Minority Groups at Tay Bac University** Ms. Nguyen Duc An, Tay Bac University, Vietnam 3. **Students' Attitudes toward Peer Assessment: Some Implications for Forstering 21st Century Learning** Ms. Pham Thuy Dung, Lecturer at Faculty of Business English, Foreign Trade University, Hanoi, Vietnam 4. **Development Practice for Managerial Insights from Parables in Daily Life Situations** Dr. Song-Kyoo Kim, Faculty of Business, Al Hosn University, United Arab Emirates **Q&A**
15:00 – 15:15	**Tea-break**
15:15 – 16:15	**NETWORKING SESSION**
16:15 – 16:45	**Conference Closing**

F. PRODUCT

O, that drama?
K DRAMA
New Game
Continue
Options
Question 6.
In this 3-episode youth drama, Kim So Hyun
plays Yoo Seul, a piano prodigy.
Due to an accident, she lost her sight.


Hi it's me Ned, let me give you the second question.
Which is the press conference for the drama entitled “Strong Woman Do Bong Soon”?

A
B
C
D

G. BOOKS

1. *Mudah Membuat Game Edukasi Berbasis Android* Edisi Revisi Ridwan Sanjaya, Aprilia Ratna Christanti, & Michael Satrio Prayogo
   ISBN: 9786020448015
   Publisher: Elexmedia Komputindo
2. *Learning Technologies in Education: Issues and Trends*
   Cecilia Titiek Murniati & Ridwan Sanjaya (Eds)
   ISBN: 978-602-6865-40-3
   Publisher: Soegijapranata Catholic University

string(99) "http://api.elex.media/produk/detail/isbn/kode/9786020448015/apikey/08951e2a3a542299f87b8a4ed1f60584"

Mudah Membuat Game Edukasi Berbasis Android Edisi Revisi

Ridwan Sanjaya, Aprilia Ratna Christanti, & Michael Satrio Prayogo

lihat: Semua

Selling Point:
Dengan RPG Maker MV, buku ini mengajak Anda untuk mengembangkan game edukasi secara mandiri dengan langkah-langkah mudah tanpa harus menguasai kemampuan pemrograman.

Info Produk

Harga: Rp44.800
Terbit: Senin, 16 Oktober 2017
Halaman: 168
Warna: Satu Warna
Kertas: book paper 55
Dimensi: 14 X 21 cm

Sinopsis

Dalam beberapa tahun ini, industri kreatif telah menjadi prioritas pemerintah karena kontribusinya terhadap Produk Domestik Bruto (PDB) secara nasional selalu meningkat dari tahun ke tahun. Game edukasi merupakan salah satu produk dari industri kreatif yang mempunyai pangsa pasar cukup besar. Jika Anda berprofesi sebagai guru sekolah, guru les, guru lembaga belajar, dosen, atau pendamping belajar lainnya, maka pengetahuan yang terkait dengan bidang yang dikuasai dapat menjadi modal yang sangat bernilai ketika diolah menjadi game yang dapat dimainkan dan bermanfaat bagi banyak orang.

Dalam laporan lembaga penelitian Ambient Insight pada tahun 2012 sampai dengan 2014 terlihat peningkatan yang konsisten dan signifikan terhadap pendapatan game

Namun, yang sering menjadi masalah atau pertanyaan adalah apakah mungkin dikembangkan oleh pendidik jika kemampuan pembuatan game tidak dimiliki?

Meskipun awalnya disusun untuk guru dan praktisi pendidikan, buku ini dapat digunakan oleh siswa, mahasiswa, atau bahkan orangtua yang ingin membuat permainan berbasis edukasi untuk anak-anaknya atau kalangan yang lebih luas. Buku ini mengajak Anda untuk mengembangkan game edukasi secara mandiri dengan langkah-langkah mudah tanpa harus menguasai kemampuan pemrograman. Hasilnya adalah berupa aplikasi permainan yang dapat dimainkan melalui gadget berbasis Android/iOS atau bahkan diunggah ke application store Google Play untuk bisa diakses secara luas oleh pengguna gadget di seluruh dunia.

Tagar

#mudahmembuatgameedukasi #gameandroid #rpg #rpgmakermv #gameedukasi #game #aplikasipermainan #ridwansanjaya #apriliaratnachristanti #michaelsatrioprayogo #komputer #tutorialkomputer #programkomputer #software

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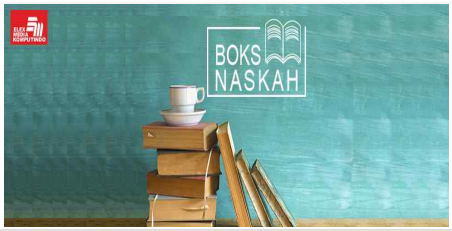

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2017

FOREWORD

Technology is changing our experiences. In education, the proliferation of information and resources is provided through various gadgets and platforms. Educational institutions invest millions of dollars to integrate technology in the teaching and learning process to increase students' engagement and improve students' achievement. While the actual impact of technology on learning achievement has been inconclusive, it is commonly agreed that technology brings about various benefits such as increased engagement, critical thinking, and problem solving skills.

This book is a compilation of selected articles presented in International Conference on Learning Technologies 2017. These articles focus on the ways technology can be used to benefit students in their learning process. Some articles highlight the role of e-learning while others discuss the issues of hybrid learning and gamification in education. The contributors of these articles for this book chapter shared their experiences, innovative and inspiring insights, and their passions as well.

This book is a part of our research project funded by the Ministry of Research, Technology, and Higher Education. It would not have been possible without the support from the Ministry in the form of International Collaboration and Publication Grant (*Penelitian Kerjasama Luar Negeri*). Our utmost gratitude goes to Dr. Kristine Blair of Youngstown State University, our co-investigator in our research project, who has been working diligently during our data collection and analysis. We also thank the President of Youngstown State University who gave his approval for the MOU so that our research project can be completed, the former Rector of Soegijapranata Catholic University, Prof. Dr. Ir. Y. Budi Widianarko, M.Sc., for his encouragement and support, the Dean of Faculty of Language and Arts, Angelika Riyandari, PhD., and the Dean of Computer Science Faculty, Erdhi Widyarto, ST., MT. for their approval and support. Last but not least, we also like to thank colleagues, lecturers and ourstanding students who have dedicated their time during the conference and the writing of this book.

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Sandy Arief

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