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Designing a Game Profiling Framework for Enhanced Gamification and Communication Strategies

Merancang Kerangka Kerja Pembuatan Profil Game untuk Meningkatkan Gamifikasi dan Strategi Komunikasi

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Abstract

Game is a means in shaping character, Creativity and communication. Therefore, games cannot separate in our lives because games are one of the most important parts and have an important role in developing competence. This research is a development of two previous types of research that have obtained patents: Benthix VR: a virtual reality simulation application to preserve a traditional game & to develop a techno-family through virtual-reality benthix game. This development resulted in a game profiling framework that guides building games more systematically and structured manner. However, problems such as the game's function not yet maximized and the response that games are more likely to have disruptive factors in the learning process are factors that this research will overcome. Therefore, this research will produce a game profiling framework called the trilogy of game profiling. The trilogy of game profiling produces the seven stages of educational games and gamification. Furthermore, this research will explain the concept, case study and application of the seven stages of the educational game, which consists of: see, discussion, establish, build, define, decide, and expand (implementation), to produce special gamification of the learning process at the educational level. This research will continue in the next stage, which will discuss gamification in detail, prototyping and application development in the context and content.

Keywords: *Concepts; Gamification & communication; Implementation; The seven stages of educational game; The trilogy of game profiling*

Abstrak

Game merupakan sarana dalam membentuk karakter, kreativitas dan komunikasi. Game tidak dapat dipisahkan dalam hidup kita, karena game merupakan salah satu bagian terpenting dan memiliki peran penting dalam mengembangkan kompetensi. Penelitian ini merupakan pengembangan dari dua penelitian sebelumnya yang sudah mendapatkan hak paten: Benthix vr: a virtual reality simulation application to preserve a traditional game & Developing a techno-family through virtual-reality benthix game. Pengembangan ini menghasilkan framework game profiling yang merupakan sebuah panduan untuk membangun game secara lebih sistematis dan terstrukrur. Permasalahan seperti belum maksimumnya fungsi game dan tanggapan bahwa game lebih cenderung memiliki faktor

menganggu dalam proses belajar, merupakan faktor-faktor yang akan dapat diatasi oleh penelitian ini. Oleh sebab itu, penelitian ini akan menghasilkan framework game profiling yang disebut sebagai the trilogy of game profiling. The trilogy of game profiling ini menghasilkan the seven stages of educational game dan gamification. Lebih jauh, penelitian ini akan menjelaskan konsep, studi kasus dan penerapan dari the seven stages of educational game yang terdiri dari: see, discussion, establish, build, define, decide, and expand (implementation), sehingga menghasilkan gamification khusus proses belajar di tingkat pendidikan. Penelitian ini masih akan dilanjutkan pada tahap berikutnya yang akan membahas gamification secara mendetails, pembuatan prototype dan pengembangan aplikasi dalam konteks dan konten gamification.

Kata Kunci: Gamifikasi dan komunikasi; Implementasi; Konsep; Trilogi game; Tujuh tahap game edukasi

1.Introduction

Game and life are two things that come together in our every step. Game is a process that passes with strategy, Creativity and problem solving, and life has almost the same things as what is in the game. The integration of games into communication and education has seen significant growth, with various studies highlighting their impact- (a) Educational Use: Teacher Adoption: Approximately 74% of educators incorporate digital game-based learning to enhance their lessons; Student Engagement: Among teachers utilizing digital games, 88% report increased student engagement, a crucial factor in improving the educational experience; Familiarity Among Students: An impressive 91% of school-age children are familiar with video games, facilitating the adoption of game-based learning in educational settings; (b) Communication Use- Social Interaction: About 63% of adult gamers play with others, often in teams that require communication and collaboration, indicating the role of games in enhancing social interaction; Family Dynamics: Studies have examined the effect of video games on communication and interaction between participants and their family members, suggesting that games can influence family communication patterns(Anolli et al., 2010),(Camacho Vásquez & Ovalle, 2019),(Cameron & Bizo, 2019). The question is, can games create a better life? The answer is yes if we can manage time, control ourselves well, and improve our competence somehow. It is what referrers to as integration between games, life and education; this results in new experiences and competencies. Therefore, creating the right platform and method is necessary to produce a more effective learning style. The problem, in this case, has one subjective thing and one objective thing. On the subjective side, there are still opinions that say that games used as learning media will not be effective but produce things that are not effective. On the objective side, games need to convey and bridge increasing competence, but creating the right games for learning is a big challenge. Furthermore, this research develops two previous studies: (1) Benthix VR: a virtual reality

simulation application to preserve a traditional game. (2) Developing a techno-family through virtual-reality benthix games(Setiawan et al., 2017)

2. Literature Review

Before we go any further, there are several things that we must understand about games and learning, including: (1) Games will be able to create themselves in a new world so that they can produce learning models for themselves(Cheng & Su, 2012). (2) Games require clear, specific and easy directions to understand, and many people want to be able to express ideas, feelings and share their experiences with others(Dafalla, 2017), (3) Games can connect all kinds of activities if precise in managing the time(*Making Education Game to Choose Healthy Snacks for Children | Febriani | SISFORMA*, n.d.). (4) Games can improve the nature of achieving goals; this is very good because it will improve decision-making and risk(Lutfi et al., 2019). (5) Serious games have the motivation and are specific in producing a goal(*(PDF) An Overview of Serious Games*, n.d.). (6) The game platform is one of the important things to build to create the right result(Björk & Holopainen, 2005). (7) Games can also train communication and improve visual and learning skills in real-world situations(*How Games Can Improve Your Skills in the Real World - DEV Community*, n.d.). (8) Technology provides a great benefit for many people, one of which is education, where the learning process must make interesting to produce comfort, increase competence and create a better future

After understanding the problem and some basic understanding from some research, we will consider how games are inseparable from life and social media.

3. Research Method

3.1. The Roadmap of Research & Gamification

Figure 1: The roadmap of research

Figure 1 describes the stages of the research that we did, starting from analyzing the existing problems and collecting data and conducting surveys, which then found the right research method. The next process is to produce a game profiling framework resulting from development from previous research. In the final process, the trilogy of game profiling produces, and in this research is the initial stage, namely the stage of explaining the big picture of the research we are doing. The sequence of our research is as follow:

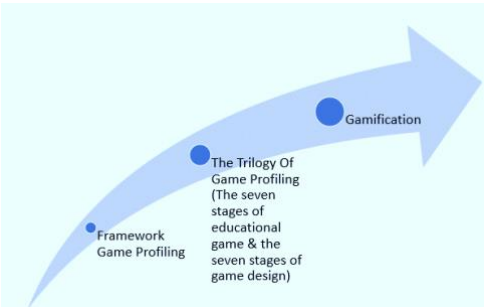

Figure 2: The process of research

Figure 2 explains the research sequence that we did, where the first process will discuss the game profiling framework, especially in the

middle position and the clouds that affect it. Next to this research, we will continue with two concepts, namely the seven stages of game education and design, of course, this research is not only talking about the concept, but we have succeeded in creating a game with VR reality and already have a patent for the game. the final process is the application, where we will create games to be able to support the concepts we discussed.

3.2. Survey

The survey conducts to 100 participants, with the following questions:

Question 1: Do you like games? (1-No; 2-Likes, but I rarely play games, only at certain times; 3-Likes but only on certain games; 4-Likes and sometimes interferes with my time for other things; 5- Like and I can manage time to play games and other activities)

Question 2: Do you think games are things that can have a negative or positive effect on someone? (1-No, it's back to the person, whether they become addicted or not; 2-Negative, because the game will cause some activities to disrupt; 3-Could be positive or negative, depending on how the game can affect a person's behavior; 4-Can be positive or negative, depending on the benefits and functions of the game to a person; 5-Positive, because the game is a means to learn with fun)

Question 3: Are the current games able to meet the standard in helping to learn, or are they more likely to play? (1-Games that exist today are only as a means of having fun; 2-Games are used as a means of learning and having fun depending on the type of game; 3-Games can already use as a means of helping to learn, but there are still many shortcomings in its function so that it makes it more tend to play; 4-Some games are good enough in helping learning tools but still need development in function; 5- Some games already have the international capacity and can be used as a means to help the learning process).

4. Results & Discussion

4.1. Survey-Results

Question 1: Do you like games? (20%: 1-No, 14%: 2-Likes, but I rarely play games, only at certain times, 16%: 3-Likes but only on certain games, 24%: 4-Likes and sometimes interferes with my time for other things, 26%: 5- Like and I can manage time to play games and other activities).

Question 2: Do you think games are things that can have a negative or positive effect on someone? (14%: 1-No, it's back to the person, whether they become addicted or not, 19%: 2-Negative, because the game will cause some activities to disrupt, 21%: 3-Could be positive or negative, depending on how the game can affect a person's behavior, 24%: 4-Can be positive or negative, depending on the benefits and functions of the game to a person, 22%: 5-Positive because the game is a means to learn with fun)

Question 3: Are the current games able to meet the standard in helping to learn, or are they more likely to play? (18%: 1-Games that exist today are only as a means of having fun, 16%: 2-Games are used as a means of learning and having fun

depending on the type of game, 18%: 3-Games can already use as a means of helping to learn, but there are still many shortcomings in its function so that it makes it more tend to play, 21%: 4-Some games are good enough in helping learning tools but still need development in function, 27%: 5-Some games already have the international capacity and can be used as a means to help the learning process).

4.2. Framework Game Profiling

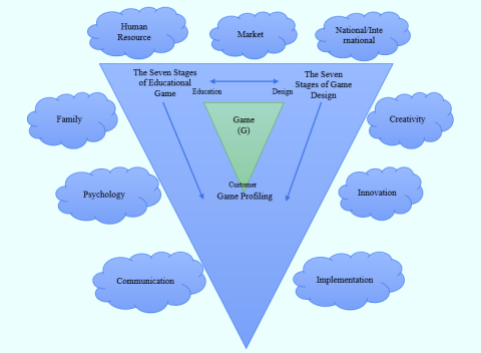

Figure 3: The stages of game profiling

Figure 3 describes several stages of game profiling. In this study, we focus on the middle position of the framework and the cloud of the game profiling framework. The 7s of game education and design and game profiling itself will discuss in the next research. It is so that this research can make in more detail.

G (Game) consists of three important things that influence education, design, and customer. First, the game includes an initial design to the end, linking to educational or commercial games. Second, up to this point, the game will relate to consumers, be it consumers, in general, with a specific target market or consumers in education.

4.3. Design

We all know that the stages in game design, in general, are the preparation of basic concepts, formulating gameplay, preparation of assets (level design), prototyping, development, Alpha/close beta Test, Release. This order is generally correct, but here we will return to the basic nature; namely, games have uniqueness and, in a design, must be able to pay attention to the main needs, whether it focuses on commercial or educational nature. This study focuses on education so that the game design created must have an innovative, creative design and clearer profiling and user-friendly usage. We call this process design profiling, where the stages are as follows:

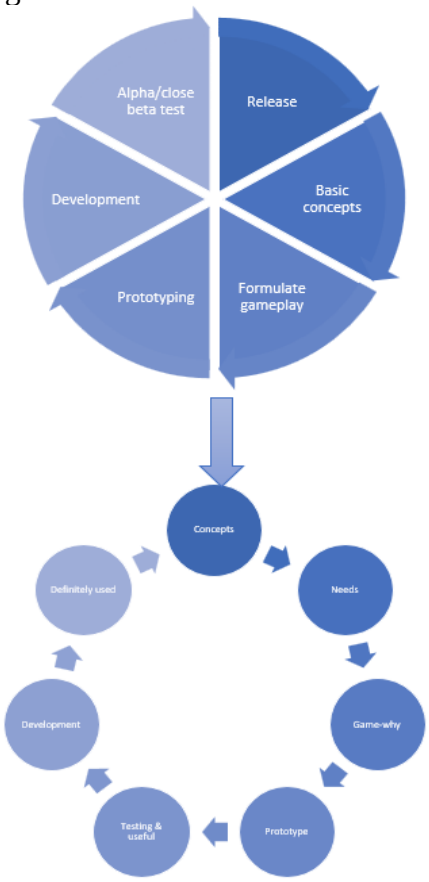

Figure 4: The Initial concept of game profiling

Figure 4 explains that the initial concept is very important, answering why this game should make? Answer why it is not an easy thing, but must be able to answer the main needs. Next is activity; design begins to enter the next very important stage, namely designing activities that meet the standard requirements. These activities must increase his competence and achieve his main goal, namely the ability to increase through games.

Furthermore, the characters in the game must also express their main needs so that the learning process through the game will be interesting. The next stage is prototyping, a process related to the next process, namely testing and useful. Games that users try and use will then give input, starting from what makes it difficult for them to play and their suggestions to become easier to play. In other words, players can use it more effectively to achieve the level of competence.

After getting useful inputs, the game perfectly meets these needs and then implements them in a larger capacity. This process repeats; in other words, it is updated continuously until the refinement stage. Next is the education section, which can be called education profiling

4.4. Education

Figure 5 explains the stages when we want to create an educational game. In the first circle, four parts carry out when making educational games. We then innovate in several processes because of changes and advances in fast information technology and adaptation needs.

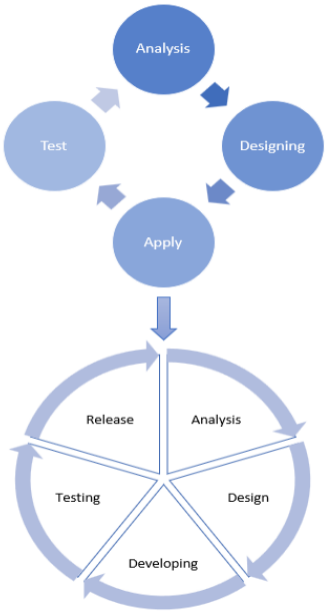

Figure 5: The Educational game profiling

The stages of education profiling can explain as follows: In the first circle, the first stage is Analysis, where we analyze the game design we want, we research to find the right game. The second stage is designing; the game must provide benefits to the audience; here, we have to determine the right level and purpose of the game. The third stage is implementing; everyone's ability in this section is needed, where the game is applied to the audience and sees what happens after the gameplay. Their responses and opinions are needed to achieve perfection. The fourth stage is testing; the game launches deeper, meaning it is a test to function properly. It is a common stage that occurs when we design an education game. We innovate in the second circle, meaning that several stages make it more detailed, systematic, and structured in producing educational games. The first stage is Analysis; we face context and content and why? Before we

design an educational game, we must see the main needs of the learning process and why it should hold? It is a fundamental question. After answering this, we must analyze it more deeply; we must ask what the learning focus is? What do you want to achieve, and why should this game exist? The second stage designs. At this stage, game education design should design as easy as possible to use. Easy means that the game design so that the learning objectives can achieve. The third stage is developing; the game begins to make; it can say that this is making a prototype. This prototype requires in-depth testing to produce a first-level educational game that can use temporarily. The next stage is testing; this educational game tries on teachers, be it teachers or lecturers, to receive input from them. It also tests students to find out the level of ease and difficulty so that the game is refined before launching. The game has gone through the refinement stage in the release stage, released and used by institutions, and gone through a maintenance process to update the application. The next discussion is about the customer.

4.5. Customer

This section will explain who is the customer of the game? Customers are divided into two external customers, meaning they buy games and use them for fun. The second type of customer is a semi-commercial and non-commercial customer. This customer usually uses the game application for learning but still has to buy it and update it to develop it. Next, we will discuss the cloud of the game, which is an inseparable part of the game profiling framework.

4.6. The Cloud of Game

The cloud of games are things that have an impact, process and influence on the future. The cloud of the game divides into three important parts, namely: human resources, market, national-international; Creativity, innovation, implementation; family, psychology, communication. It can explain as follows:

4.6.1. Human resource, market, national-international

The first discussion is human resources. It is the most important factor in developing any game. The availability of human resources and the infrastructure to support the game's development in the future are the most important things that we must prepare. It is a determining factor for developing a game. Games are always in touch with their designers, and the designers are teams. In terms of human resources, this is also related to leadership and the factors that influence it, such as: being able to work well together, having integrity in actions and words because this will have a positive or negative impact on the team, having the required competencies and have the required competencies, have a broad level of Creativity or innovation, have experience and ability in vision. These factors have a very big influence on the continuity of the team’s game. The next factor is the market. This factor focuses on how a game can expand its market either nationally or internationally, depending on the game. In this section, the market factor must

consider two important things: (1) the game can compete globally. (2) the game users, where the game can in detail target which segment it wants to achieve to clarify how widely the game can use. It, of course, takes time because each game is unique, so it takes a certain market in its implementation. Therefore, games can be divided into two to reach the market: games with a commercial nature as a whole, which in general, everyone can use, and of course, certain age categories can play the game. Games with character traits mean that the game leads to a certain application in a certain process, such as a special university education game or a game to learn to program. Next, we will explain three other factors that influence the game.

4.6.2. Creativity, innovation, implementation

In this section, these three factors cannot separate; they are interrelated and related. Creativity always produces innovation, and innovation is obtained from Creativity; after the two are united, it results in implementation. In-game profiling, Creativity can be defined as a spontaneous reaction that exists in our minds, obtained from what we have known and experienced; on the other hand, Creativity can also obtain from the development of thoughts or several thoughts to form something initial design. Note this difference, imagination can say to create, but it is different from fantasy. Fantasy is more inclined to negative factors. In innovation, it can say that it results from a combination of the two types of Creativity, where experience, learning outcomes, and some thoughts combine in such a way as to produce innovation. Implementation is the final process after Creativity and innovation complete. Next, we will describe the last three factors that affect game profiling.

4.6.3. Family, psychology, communication

This stage is complex, where the discussion in this section discusses in detail in techno family articles, but here we will explain in detail. Games certainly impact psychological and communication factors. When someone is addicted to games, the impact is chaotic time management. Some of the life processes they live in become irregular, sacrificing many things and not having stability. In this section, we should be able to see that family is the determining factor. We often blame the game, while the game is just an application that humans use. The self-factor itself is the obstacle. One way to overcome this is to help people addicted to games, help them in time management, and ask the purpose of playing the game. We can say that gaming is a hobby, but we think that fun and hobbies are not wrong, but if it costs a lot of things and is more likely to destroy something in life, we should be able to turn around and look for the good things from that pleasure or hobby in some way. A hobby must produce something that can provide additional income and positive things for the family. The context of the game cannot be seen only on one side. Games should also see as a means of communication within the family. If the family plays together, there will be positive communication.

Therefore, the game must be viewed as something positive, depending on how we can control ourselves and our families as an effective reminder.

4.7. The Seven Stages of Educational Game- Innovation Framework

After we study the big picture of the game, then next is the development of the educational game, which results in the following framework:

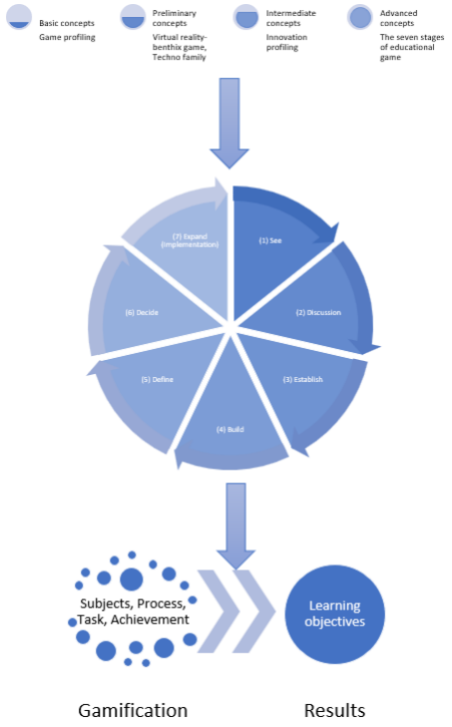

Figure 6 The Seven Stages of Educational Game- Innovation Framework

Figure 6 explains several stages in building the concept of the seven stages of the educational game. At the initial stage, we see four stages: the basic stage. The game profiling concept is a big picture of the research at this stage, including several important parts related to "where is this research going and where it ends". Two studies have been published in the preliminary stage, the implementation stage of the concept; the first is about benthic games that use virtual reality and connect to the seven stages of the techno-family. Where at this stage, benthix games applied to families? To be able to develop communication, character and other things in a good and technology-based family context. The next stage is innovation profiling, where the concept becomes more detailed, especially on how we make the innovation concept more detailed. When a product/service is created, it will be clear which category is in the innovation concept.

The final stage is the seven stages of the educational game, which consists of seven important parts: (1) see, (2) discussion, (3) establish, (4) build, (5) define, (6) decide, (7) expand (implementation). The explanation is as follows: (1) See, is the process of seeing what the purpose of the study is. We must see that learning aims to produce two important things: developing significant knowledge and good character for the future. Learning objectives must achieve both of these, not just one of them. The purpose of learning is to produce balance. (2) Discussion, after determining the learning objectives to be achieved, it is necessary to discuss what innovations are suitable for implementing gamification. It includes: technology, the form of the game, the type of game, the points that students must achieve to achieve the learning objectives. (3) Establish, start designing the gamification application that is implemented. These things can include rewards and

learning objectives that design to implement in the application. (4) Build, start building the prototype. This prototype tests from version 1.0 to 3.0. This test repeats several times until it reaches the point of perfection, where game elements that are still lacking include in the prototype. (5) Define, still in prototype, here, the prototype starts to perfect and becomes a simple application, which will then continue to be tested and added things needed to improve the gamification application. (6) Decide, the gamification 1.0 application is ready and applied in the teaching and learning process. This application continues to develop until it reaches application 3.0, where application 3.0 is the final application that has been implemented and has gone through several stages. (7) Expand (implementation), this application is starting to be also applied in other courses so that this will be able to help lecturers and students to benefit from this special gamification application for the learning process(*▷ Processes and Types of Gamification | isEazy*, n.d.),(*What Is Gamification?*, n.d.)

4.8. Gamification- Case Study & Implementation

Figure 7: Simulation of Games

Figure 7 describes a simulation game in the Customer Relationship Management (CRM) course, where this game functions so that students can experience the direct application of CRM so that this will be able to achieve learning objectives.

4.8.1. Case study A- Learning in general

Teaching and learning process, in general, students enter the lecture hall, then the lecturer presents presentation slides, explains and asks questions. Assignments are also given by the lecturer to students and collected according to the specified time. Likewise, with exams, exams are carried out to achieve the desired result, namely passing. However, this learning model does not necessarily achieve the learning objectives to achieve. If learning is based on results, likely, general and specific knowledge will often not achieve this. It all depends on the competence of the lecturer.

4.8.2. Case Study B- Learning with technology

This learning model uses technology as the basis, whereas we know during the Covid-19 Pandemic, every learning is done online, but there are many problems faced. These problems include: the area where the teaching and learning process does not have the infrastructure, human resources are still limited, the high cost of using the internet, and many other things. This learning mostly uses google meet, zoom, or other media as a learning process. The energy used is very much and also costs (*Revolusi CRM: Transformasi Melalui Gamifikasi*, n.d.),(Hidayat,

2022). On the other hand, there are positive things that we can achieve from here, example: lecturers and students connected through long-distance technology. Therefore, communication must be more intense and systematic due to limited space; materials presented must be precise and practical but not reduce the quality (*How Games Can Improve Your Skills in the Real World - DEV Community*, n.d.).

4.8.3. Case Study C- Gamification & teaching and learning process

This learning model uses games as a bridge in achieving learning objectives. This process includes three hours of learning, 1 hour to explain the CRM concept, 30 minutes for questions and answers, 30 minutes to explain the CRM case study and questions and answers, one hour to complete CRM gamification. There is an important question here, do we need a lot of time creating gamification for a subject? Yes, we need a lot of time, but it overcomes if we have human resources, infrastructure, and clear learning objectives, both physically and mentally(*How Games Can Improve Your Skills in the Real World - DEV Community*, n.d.). This process describes in the following table:

Table 1: Stages-Activity & Results

Stages	Activity	Expected results
See	Students walking around looking for a flower shop	The student found the shop and entered it
Discussion	Students discuss with shop owners	Students begin to browse the products they are looking for
Establish	Students have already decided what products they want to buy	Students have started to choose and determine the flowers they want to buy for their parents' birthdays
Build	Students determine the type of flowers to buy	Students negotiate with shop owners for these types of flowers
Define	Students considering buying other types of flowers	Students negotiate prices about the types and prices of flowers recommended by shop owners
Decide	The student decides to keep buying this type of flower	Students determine the purchase and type of interest they want
Expand	Students promote the shop	Satisfaction and loyalty increase. The student promotes the shop to his friends and family.

Table 1 describes the activities and results achieved in the Customer Relationship Management (CRM) course. In the course, it determines every week what achieve in the teaching and learning process, and of course, this CRM course aims to increase competence in understanding CRM. The word competence here in gamification must have two important contents: students can understand the concept of CRM and practice the CRM. In this case, the application of gamification is one solution to overcome this(Team, 2022).

One of the simplest processes in CRM is the process of searching, negotiating and buying a product. Here, we choose one of the simple concepts and processes in gamification CRM, which is the foundation of CRM. The chronology of the process is as follows:

The student has plans to buy special flowers for his parents' birthday. Then, the student took a walk in a place that sold a lot of flowers. The student chose a flower shop and talked with the employee, but the shop clerk looked for rare flowers. The shop clerk finally contacted the shop owner. First, the flower shop owner met the students and talked about the flowers he wanted. Then, the shop owner checked in the warehouse where the special flowers were stored, and it turned out that the shop owner had the flowers. The shop owner then showed the flower, and it turned out that the student liked the flower. Finally, there was a negotiation between the student and the shop owner. After talking for a long time, the student bought the flower. The shop owner also gave a

discount to the student, so that the student became very happy and when he finished the transaction, the student did a promotion to his friends. Here we see a simple process in CRM. When this process is complete, students will get points for each activity, and of course, the activity is designed in such a way as to match the desired learning achievement. We can see that gamification is used as a means to develop competence more attractively. This gamification design has two things in mind: first, gamification design to complete every week. Second, gamification can design for midterm and end-semester exams. The point is to apply concepts into gamification to produce competencies that are by learning outcomes.

5. Conclusions

After conducting the discussion, it can conclude as follows: The game profiling framework has three important things at its heart, namely design, education and customer. These three things cannot separate from each other because they are interrelated. Several other important factors impact the game's cloud: Human resources, market, national-international, Creativity, innovation, implementation, family, psychology, communication. These factors, directly and indirectly, have an influence or impact internally and externally. At the end, this research is the basic concept of game profiling; next, we will develop game applications and concepts.

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