

The World of “Gigi” Game

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Abstract— The continuously increasing oral and dental problems in Indonesia as well as the lack of cultivation of education provided is a problem that occurs. Planting early in children is an appropriate solution as a step to maintaining healthy teeth and mouth. Kids can further explore the game by playing while learning so that education is outlined in the game will be quickly absorbed by the child. Through the game “The World of Gigi” became one medium of learning for children who are not at school or dentist about maintaining healthy teeth and mouth. The positive impact after playing the game “The World of Gigi” to 40 respondents obtained as many as 97.5% or 39 respondents stated that after playing the game “The World of Gigi”, they can know or understand about education around the teeth and mouth. And the whole of the respondents agree that the game becomes interesting learning methods.

Keywords- Educational, Games, Dental and Oral Health

I. INTRODUCTION

Lack of public awareness of the importance of maintaining oral health is a problem that does not go over. This is supported by the lack of knowledge and ignorance of the community the importance of maintaining healthy teeth and mouth. Disease caused by oral health also varied, supported by the expensive treatment of oral health problems. Society needs education as

a measure to maintain and prevent the easy way regarding oral health as early as possible so as to prevent the diseases that arise in the long term, and early planting is expected as an attempt against the public about oral health awareness [1].

II. LITERATURE REVIEW

2.1 Dental, Oral and Children

Teeth area component in the body which are interrelated. Dental health affects the health of the body, so that if there is damage to the teeth will affect the health of the body and can cause various diseases. Dental health is also supported from the mouth. The mouth is the part that passes the food first, then from the mouth is an ideal spot bacteria to grow. If not cleaned properly, the rest of the food is not chewed perfectly causing problems with the teeth and affect oral health [2]. From an early age, the application of dental and oral hygiene is an effort to maintain oral health in children. By meeting the nutritional intake of children even from the times of the womb. Strong teeth have a strong intake of phosphorus so that it can keep the teeth of fragility. [3] As for some application that can be applied to children about how to maintain healthy teeth and mouth is a healthy snack that contains vitamins, brushing their teeth daily routine, consult your doctor regularly every 6 months [4]. Children who are able to maintain oral health is a high appreciation for early awareness of the oral and dental health can play strong role in their communities and in their families [5].

2.2 Games

According to Big Indonesian Dictionary (KBBI) game or play are activities including actions aimed at fun, with particular tools or not. Meanwhile, according to the dictionary definition Macmillan game, the game is an activity that is fun or fun with the rules there are no winners and losers. In addition, the game is a contest or physical or mental event using certain rules and aiming recreation or just to win [6].

2.3 Educational Games and Kids

Educational game has many types of games that are implemented in such as card games, board games, and the video game [7]. One of the benefits of educational games is to visualize the real problems that are poured into the game. People who play the educational game will keep it longer to store the material delivered through the game than with conventional delivery methods [8]. With the game could affect the child's psyche up such that it can change the perception of the child to the environment [9]. Interactive learning system and innovative, combining text and visuals e.g. pictures, video supports the learning achievement of children through the game [10]. Another benefit of the education system through the game creates a sense of excitement to the children so as to provide maximum learning motivation [10].

III. RESEARCH METHODOLOGY

3.1 Questionnaire and Samples

A questionnaire was used to determine how the response of potential users to the idea of making educational games introduction of nutritious foods. Questionnaires were distributed to 40 respondents of children with the age group of 4-12 years. A questionnaire was divided into two, the first being distributed to the respondents before playing a game and the second questionnaire distributed to respondents after playing the game. Aims to measure the impact of

educational games for children with age has been determined.

3.2 Software used

Software is a tool in making an instructional media design that game. Game engine is a software that can be used creating new software, such as games [11]. Software game engine that will be used is the Construct II. The game will be developed to be played in a mobile device or smartphone.

IV. RESULTS AND DISCUSSION

4.1 The World of Gigi Games

After analyzing the problems then designed a game that will be used to achieve the goals that have been made. Educational game about the teeth and mouth, dubbed "The World of Gigi". Game is one of the media to educate children about oral health in order to increase knowledge and more conscious of oral health care early. Game is focused on platform or gadget that aims to facilitate anyone closer and easier to use media through game. The game uses two languages, Indonesian and English. Adventure theme chosen by informants of this research, supported by the children will be more like an adventure game than a game tutorial on oral health that has been circulating in the community. Visual-based game design with interesting pictures and colors that will be preferred by children [12]. Therefore, the game "The World of Gigi" is made by using compelling imagery and color that varies with the intention that children can be happier to play and be able to receive the information conveyed through the game. Germs are usually synonymous of something disgusting, will be presented more creative presented in cartoon form. Game "The World of Gigi" is made with 4 selection stage. The first stage is the category of the original cause cavities, bacteria that appear in this level is the initial germs that cause dental caries is the ultimate goal the completion of the game "The World of Gigi". The second stage is the category of plaque and gum disease, bacteria that appear

in this level are the germs that cause plaque and gum disease. The third stage is a category of diseases that occur in the mouth, the germs that appear in this level are mouth disease-causing germs, such as bad breath, trade and swelling that occurs in the mouth. The fourth stage is a very dangerous disease categories and causes dental caries occur in, germs appeared in a germ destroyer level structure of the teeth and cause dental caries. If the user can finish the stage, will be educated about oral health which can then be advanced to the next stage. In the game "The World of Gigi" user will be played into the teeth so that the user always get into the story to maintain oral health. After completing half of stage gear available, doctors will change gears into a tooth fairy in charge of maintaining oral health named Gigi Hii. The end of this game is to defeat the evil doctor who masterminded the destroyer teeth and mouth, so that later "HiiGigi" will fight the evil doctor to finish the game contained in the final stage.

a. The World of Dental Education

Each stage game "The World of Gigi" has any assets serving education as a means of learning. Asset pop-up is an explanation of the germs that exist in each stage game and presented in the appropriate language options that the user has selected at the beginning of the game. Feature popup in the game "The World Of Gigi" is presented to allow a user to know any germs that cause damage to the teeth and mouth. In the popup that contains information about a general overview of germs, and as a result of the germ. So every germ in this game will have a popup informing you about germs stretcher. In addition to the feature popup that contains a general overview of germs, popup feature that aims to provide education on the game "The World of Gigi" is the feature popup at the end of each level the game scene. It contains educational popup feature that gives conclusions in every game that has been played by the user. Content education the

conclusion of each game on the game "The World of Gigi". Education as outlined in popup feature on the game "The World of Gigi" is categorized into two languages, Indonesian and English at the beginning of the game the user will choose what language to use in the game "The World of Gigi". Two options are presented language intended that in addition to knowledge about oral health, the user is also given the choice of language in order to train the knowledge and vocabulary in the language. Here is how it looks:



Figure 4.1 "The World of Gigi" pop-up object



Figure 4.2 Display pop-up "The World of Gigi"



Figure 4.3 Display education on the game "The World of Gigi"

a. programming game

Programming of the game "The World of Gigi" consists of 9 event sheet with the name of the initial loading, menu, level, comics,

level 1, level 2, level 3, level. Here are a few tables existing programming from some of the sheet event. *Event sheet* menu

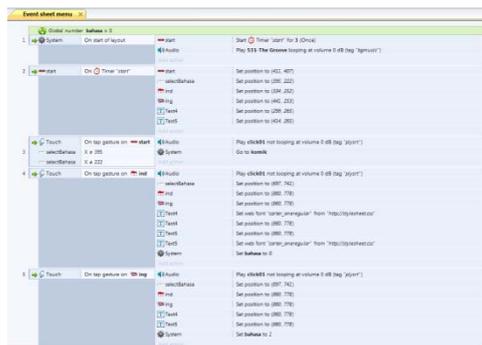


Figure 4.4 programming event sheet menu game "The World of Gigi"

The above picture explains the programming in the event sheet menu that consists of how this asset displays the language selection and the start button which will then be stored by the selected choice of language that next will be heading to the layout of the comic. Here is a game display with menu sheet events:



Figure 4.5 Display on the game event sheet menu

b. *Event sheet comic*

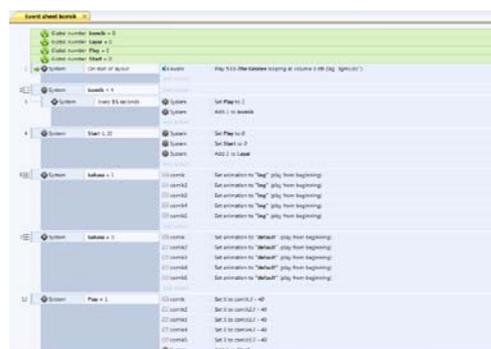


Figure 4.6 Display on the game event sheet comic

The above picture explains the programming in the event of a comic sheet consisting of how this asset comic featuring a series of stories on the game "The World of Gigi" is the display language that has been selected in the start menu. Event this sheet contains the timer program as a driver of asset comic on the other comics, with added tap on objects that function when the user presses the image then drawing the comic will switch to the next page. Here is a view of the game with a comic sheet events :



Figure 4.7 Display on the game programming event sheet comic

c. *Event sheet menu level*

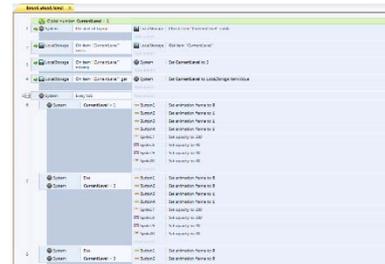


Figure 4.8 programming event sheet level game "The World of Gigi"

The above picture explains the programming level in the event sheet consisting of a selection of programming levels that have discount any link to the game level selection and how if the user has completed the game, the levels will be open, if not then the level will be unlocked. Here is a game to see the sheet event level:



Figure 4.9 Display on the game event sheet level

d. Event sheet game

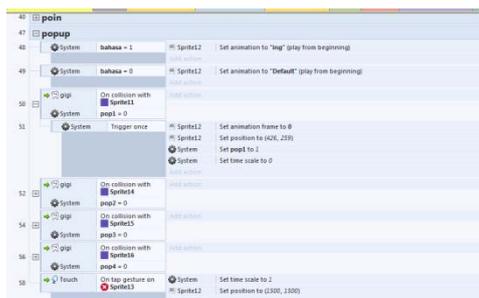


Figure 4.10 programming event sheet game 1

The above picture explains the programming in the event the game sheet that consists of programming in every level of the game “The World of Gigi”. Event sheet at a 4:10 image programming on how the main character when passing germs will display a popup with content that explains the germ. Here to see the results of the above programming :



Figure 4.11 Display on the game about event sheet game

e. Event sheet end of game

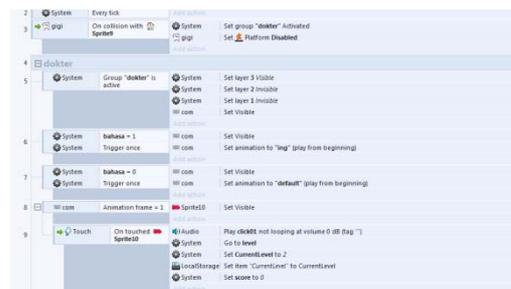


Figure 4.12 Programming about end of game

The above picture explains the programming in the event final game sheet is programs where the characters will go to the clinic at the end of each stage in the game, and will appear further education and direct the player to the next stage. Here to see the results of the above programming:



Figure 4.13 Display on the game about event sheet end game

4.2 Impact Game

After playing the game “The World of Gigi” The game is expected to provide knowledge to the health of the teeth and mouth. Post-test results are as follows:

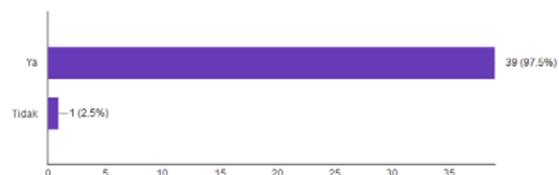


Figure 5.1 Result of post-test “The World of Gigi” 1

Post-tests conducted on the game “The World of Gigi” gaining 97.5% or 39 respondents stated that after playing the

game "The World of Gigi", they can know what germs that cause gum disease.

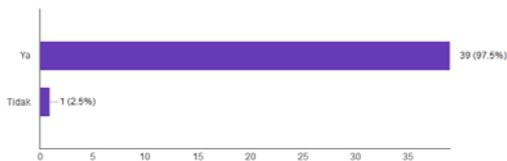


Figure 5.2 Result of post-test "The World of Gigi" 2

Post-tests conducted on "The World of Gigi" gaining 97.5% or 39 respondents stated that after playing the game "The World of Gigi" can know how the steps of brushing properly.

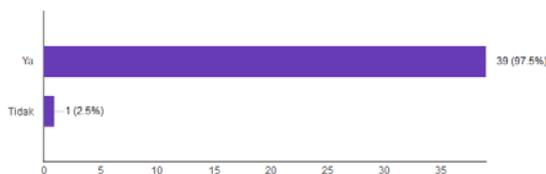


Figure 5.3 Result of post-test "The World of Gigi" 3

Post-tests conducted on "The World of Gigi" gaining 97.5% or 39 respondents stated that the game is useful as a method of teaching children about oral health.

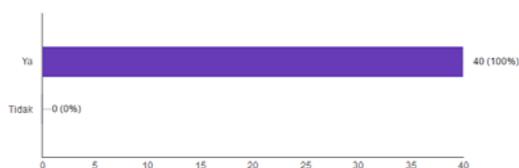


Figure 5.4 Result of post-test "The World of Gigi" 4

Post-tests conducted on "The World of Gigi" acquiring 100% or 40 respondents stated that the game helped them learn about oral health. So all respondents agreed that with the game "The World of Gigi" is an educational game that provides knowledge on oral health, and packaged in a creative learning media and interested children.

V. CONCLUSIONS

Game The World of Dentistry is a method of learning through games appropriate for children, with a children's playground can also learn about any germs that cause gum disease as well as knowledge about the teeth and mouth. Here are the benefits children who played the game The World of Dentistry, among others :

1. As oral health education.
2. Presenting an attractive design so that interested children.
3. Visualize the design of a child's brain hone existing characters and germs.
4. More encouraging children to maintain healthy teeth and mouth with a routine visit to the dentist.

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