

## THE PETS: Game Introduction of Pets in Two Languages

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*Abstract—Introducing environment to children is important. What includes in this environment is the life of living beings such as humans, animals, and plants. The role of parents is needed in introducing the living creatures. One of the living creatures that are endeared by children is animals, especially the pets. Therefore, making educational game "The Pets" will be interesting. With the game "The Pets" it is expected to help parents to teach the children about pets based on place of living and food. This paper describes how to design and create introducing pet game based on the type of food and its habitat in two different languages. "The Pets" has the Android platform with a minimum API Level 14 is created using the game engine Construct2. Using two dimensional model and image with interesting coloring for children, and using the application CorelDrawX4. From the results of the survey, it is found that "The Pets" can provide new knowledge and can assist children in learning about pets based on place of living and food. Children who previously could not mention pets in English, after playing "The Pets" can name them in English.*

**Keywords—Game, Education, the Pets, Pets, Interactive Learning**

### I. INTRODUCTION

Learning is a process or effort made by someone to obtain a new change in behavior as the result of previous experiences in daily interaction[1]. Learning process is needed to stimulate the growth of children, in this period the child is easy to understand instructional material provided.

In addition to learning that can stimulate the growth of early childhood, other processes that can introduce children to the surrounding environment is through the process of playing. Playing is important to do in early childhood because at that age children are not familiar with anything but playing. According to Piaget, playing is an activity done voluntarily and self-motivated and can cause pleasure to those who play it[2].

Besides, playing also has benefits such as increasing the ability of kinesthetic and children's motor development of the right brain that affect emotional intelligence and children's creativity, and can develop children's ability to solve a problem[3].

There is another opinion on the definition of playing, often called the game. According

to Mintorogo, game is an activity that has a provision that aims to have fun and also can be used as children's learning media [4]. Through gaming, it can increase the interest of young children to learn. In addition, children can play through interactive games, and children can also get the science of learning pasted on game.

However, learning methods are applied to the formal schools using traditional learning ones. That makes learning methods as a learning center teachers and students as learning objects. This method emphasizes the mastery of learning materials and text-oriented subject matter [5].

To support children's understanding of the learning material, the authors will create educational games as a suggestion to study and play to introduce children to pet, type of food and also a habitat of the pet and its translation in English instead of traditional methods using materials such as textbooks. This game is intended for young children between the ages of 3-6 years.

## II. LITERATUR REVIEW

### 2.1 Sense of play

According to Piaget, playing is a human activity that is done repeatedly intended as a pleasure [2]. Besides playing as a means of achieving good progress developmentally kinesthetic, motoric, right brain development and emotional intelligence in expressing their creativity [3].

Meanwhile, according to Andang Ismail playing is an activity for pleasure without finding out who won and lost. This activity is done voluntarily without duress [6].

### 2.2 The function of playing for children

Playing for children functions as a means of getting the child that should also be interspersed with learning provide a stimulus to the child. One interesting method of learning is with games [2]. In the game there is an element of pleasure.

### 2.3 Stages of play

According to Piaget's theory in [7], there are 4 phases in playing, namely :

#### a. *Sensory Motor Play* (including age

$\frac{3}{4}$  – 6 months)

In this stage children use nerves, smooth muscles, and their feelings.

#### b. *Symbolic / Make Believe Play* (2 – 7 years)

In this stage children play real games using media in their daily lives

#### c. *Social Play Games With Rules* (8 – 11 years)

Children's games are conducted in groups and are limited by rules that are still modest

#### d. *Games With Rules & Sports* (11 year more)

These are playground activities and exercise accompanied by rules that have been authorized or simplified.

## 2.4 Understanding of learning

There is some sense of learning according to the expert. According to [1] learning is a process or effort made by someone to obtain a new change in behavior as a result of previous experience in daily life interaction.

Meanwhile, according to Hintzman [2] learning the changes that occur within the organism can be humans or animals based on the experience gained. Thus, it can influence the behavior of both organisms.

## 2.5 Learning through games

Play the game now has become a lifestyle and familiar with the generation of young people, especially those in urban areas. Now children aged under five are already familiar with the various gaming devices and games in playstation and computers [8].

Childhood is a period where they can be specifically receptive to the stimuli given to him. This period is very sensitive child if given the stimulus, they will easily capture the intent of the stimulus so that they can remember it till adulthood. Through games children can be stimulated easily because children can easily catch a sensitive issue [9].

## 2.6 Understanding of games

According to [4] game is an activity that has a provision that aims for fun and can also be used as a children's learning media. Based on the above statement it can be concluded

that game can be used for child education facilities.

### 2.7 Stages to make game

According to [8], in making the game there are five aspects to be considered:

- Determining genre of game  
Choose one of the genres that will be addressed. Genre specifies the targeted age in making games, for example, for kids the genre used is usually casual
- Determining tool use  
Tool selection is important. Tool maker facilitates in making the game, for example if you want 3 dimensional tools, unity is usually used.
- Determining gameplay  
The flow of the game affects the player's interest. Gameplay enables players to play the game
- Determining graphic  
Selection of gaming graphics adapt the genre of the game, whether it's a cartoon or realist
- Determining audio  
Audio affects the atmosphere of games played.

### 2.8 Understanding bilingual

According Bloomfield bilingual is those who can master and use two or more different languages in pronunciation and vocabulary [10].

This study uses two different languages namely English and Indonesian, in terms of voice, text and others. So it is expected that children can understand the game created in two different languages.

### 2.9 Benefits of being bilingual

It will be easier to communicate because it controls structure of two or more different languages because people do not frequently adapt people using a different language [10].

According to Matlin, a bilingual child is more flexible in the sense that they can be adapt to use different languages and are more likely creative [10].

## III. RESEARCH METHODOLOGY

### 3.1 Planning System

Game development method is a way to be used in game development research which was conducted on the tools and techniques to achieve the purposes of research on game development. In the development of this game development model, research methods are used to develop or complete the studies that have been done to get more detailed research and innovation [11].

First literature study is done to sharpen the issues and theories that are applied in this study. One study is made as a comparison between the existing games and the development. Similar games, namely game "Belajar Mengenal Binatang" was made by Bamboo Media [12]. This game introduced animals like as birds, polar animals, fish, and wild animals. In addition there are other studies relating to the introduction of animal puzzle game animals [11].

### 3.2 Game design

This game application is designed and manufactured for the Android-based application that can be played via a smartphone or tablet that has Android operating system. In designing a manufacturing game called "The Pets", the game engine as well as image processing applications are used in order to get programming and graphics that support the designing and manufacturing the game [8]. Game engine is a software used to design and create a game. Game engine has a function as a means of rendering 2D and 3D graphics, physics engine, audio control, scripting, animation, game, AI (Artificial Intelligence), networking, streaming and setting chart [13].

#### 1. Gameplay "The Pets"

Besides containing learning materials, "The Pets" is also an educational game so that children do not get bored to play this game.

At the beginning of menu there is an options: Indonesian language and English, then just go to the main menu. If the Indonesian is chosen, it will speak

Indonesian with all-inclusive voice for an explanation, and vice versa if selecting English. In the main menu there are menus based on the habitat of the animals. There are three habitats taken from pets, namely land, air, water. There are additional menu as a navigation menu in-game sound and language, setting menu.

## 2. GUI (Graphic User Interface) Design "The Pets"

In game development, layout of the title, menu, and background need to be considered in order to allow a user or users to understand the flow of the game which is played [14]. "The Pets" are designed using GUI that includes navigation by land, air, water and setting. From the main menu of habitat selection of pet is the scene menu for land, air, and water that contains a menu to learn and play so that children get learning from the introduction of animal and can play mini game. Figure 3.2 is a layout design scene of inland navigation.

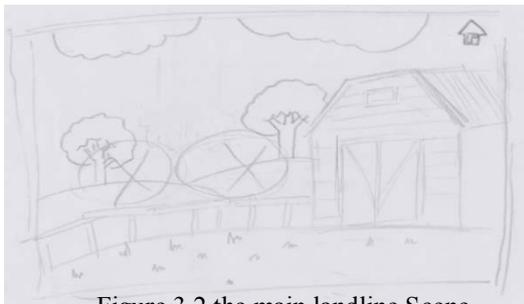


Figure 3.2 the main landline Scene

Then, in each habitat there is a GUI design for learning, which is in the form of the introduction of pets according to their habitat. There is recognition in the form of pictures of animals, animal sounds, sound accompaniment, and the pet food. The design of the menu scene recognition as an example is shown in the figure 3.3.



Figure 3.10 Learning scene

## IV. RESULTS AND DISCUSSION

### 4.1 Making games

For the chosen game engine in the making "The Pets", Construct2 chosen is image processing application CorelDraw X4. Construct 2 was selected because it is light in terms of usage and can also be used in multi-platforms. Coreldraw x4 is selected for each because it is one of the applications processing vector images which are stable in generating drawings and coloring suitable for game "The Pets".

### 4.2 Display game

Display game or game interface plays an important role in a game. The display of pictures are arranged on a regular layout that makes game becomes interesting. In Construct2 an image is called layout. Design view is created in such a way that user does not experience problems in operating the game "The Pets". Here is a description of layout view of the game:

#### 1. Splash screen menu



Figure 4.1 SplashscreenDisplay

Figure 4.1 is a display of splash screen menu of "The Pets". Splash screen menu here is used to inform the beginning and is used to preload the asset picture and sound in the game. Loading bar is used as an indicator lights in preload image and sound, when loading bar is full, it will appear next scene.

#### 2. Main menu

Main menu contains 4 menu options, namely land, air, water and setting. Figure 4.2 is a layout view main menu. Main menu is the most important menu in the game where it controls the layout to the other menus.



Figure 4.2 Display Main Menu



Figure 4.4 Display mini game menu

### 3. Learning menu

Figure 4.3 is a menu of the introduction of pets living on land. There are buttons like back button, listen to sound of animals, pet food, as well as right and left buttons to change selected animal. There is also a companion voice that tells whether the animal is being viewed, a popping sound when animal appears.



Figure 4.3 Display learning menu

### 4. Mini game menu

Figure 4.4 contains interactive games, player is instructed to draw up a pet pictures land in rows of three or more of the boxes that continue to emerge from the bottom up. In every particular position speed will be increased and there will appear a different animal picture box again.

## V. CONCLUSIONS

From the above discussion, it can be concluded:

1. "The Pets" is an introduction to the child's game about pets based on food and habitat which are presented into two different languages, namely Indonesian and English. Game "The Pets" for ages 3-6.
2. Graphic "The Pets" is created by 2-dimensional image with interesting colors so that children are more interested in playing this game. This game has a base Android platform, and will be uploaded to Play Store using the minimum API Level 14 or Android version Ice Cream Sandwich.
3. "The Pets" contains three menus: animal habitats. In each menu there is a menu option to learn and play, every menu booklet tells you how to play the game "The Pets".

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