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Basic Computer Learning with Unplugged and Plugged Activity

S. Mukaromah*, E. D. Wahyuni, M. I. Afandi

Department of Information Systems, Faculty of Computer Science, Universitas Pembangunan Nasional "Veteran", Surabaya, East Java, Indonesia

Abstract

In this modern era, it is very common that development of Information and Communication Technology (ICT) is very well known. For instance we see many office, learning, or even game application. Whether is it online game or offline game. Many school-age children around 10 to 13 years old, spend their free time to play games. This is not a good habit, because it can make them addict to game and not focus at their study anymore. This impact make them be a end user. Therefore it has to change to make them be creative to create game by their own. It has two method that can be used to drive them be more creative. First step is use unplugged activity and then plugged activity. Unplugged activity is a series of learning computer with no computer. In this series there are 2 games will be played, they are "jumping frog" and "mouse maze". In this unplugged game student will study about first step to introduce code (basic logic thinking). After student understand the logic thinking of computer they will get plugged activity, which is scratch. At this scratch level the student start to make the basic simple code. This research was done with good effort to provide alternative solutions that school-age student be a creative student.

Keywords: creative, games, ICT impact, learning, plugged, scratch, unplugged

INTRODUCTION

In this modern era, it is very common to see computer everywhere. As we know that development of Information and Communication Technology (ICT) is increasingly develop in the worldwide. We see that ICT help people to make it easier their job. It is used for daily activity, for instance mailing, drawing, browsing and the most popular is for gamming. The last one is very popular in the world, whether the young one or the adult one. The development of ICT is also bring the impact, the good impact of ICT for example are we easily to get any information we need, entertainment, educations, games, and other good benefit (Hendrawan, 2012), (Kompasiana, 2014). The other impact of ICT is bad impact.

As reviewed in (Quent, n.d.), potential negative impacts by game addictions are:

- Causing aggressive behavior, especially boys who have the tendency of playing games with violent themes.
- Ignoring other needs, such as learning, eating, bathing, sleeping,
- Triggering emotional problems, such as showing anger frequently, depression, feeling alone, and angry when reprimanded for playing game too long.
- Having an obsession which is a feeling of depressed for not playing game so that children continue to think about the game and want to play for a long time.

* Corresponding author

Email address: sitimukaromah.si@upnjatim.ac.id

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- Not being able to control themselves. A game addict originally planned to play for an hour, but he did so for two hours or more, maybe even all night.

For example the addict of playing game, be a consumer. Moreover the consumer of online game is young one, sometimes they are elementary student. They became addict at some online games. They spent more time and more money just for online games. When they addict for this online game, they become less able to socialize. This addiction of playing game an be a game consumer is the reason try to overcome. While they are game consumer, this research try to make game developer. The other important reason is how to develop logic thinking to young one, especially elementary school (Kompasiana, 2014; Mack, 2014)

METHODS

The implementation of PIKAT is devided by two methodology, i.e. unplugged activity and plugged activity. Unplugged activity is learning algorithms without computer (Fastiggi, 2014). Thankfully, researchers have come up with a solution to minimize the "fear" by developing interesting tools and environment for children and people of any age to learn programming as shown by Scratch, Tynker, Code.org and many others either using a computer application (online/plugged) or using paper materials and other tools (offline/unplugged) (Scratch Lab, 2018; Code.org, 2018; Thinker, 2018; Musteren, 2018)

Unplugged activity is devided for couple game, step 1st is introduction to basic algorithm using arrows. Introduction to direction, left, right, upside, downside. Then the training is given in the form of a maze game where participants give answers according to the arrow provided. In stage 1 it is tiered from simple steps to repeated steps. As seen at figure 1 is an example of practice directions.

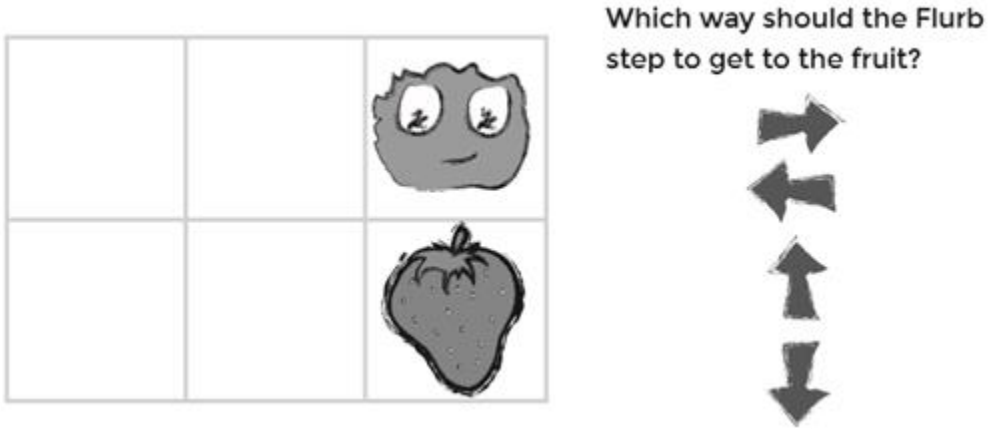

Figure 1. An example of practice directions

After understanding the basic concepts of directions, students were invited to play a maze of mice looking for cheese. Students are given a question (mouse are placed in a certain position and asked to look for cheese placed in a certain position too) and are asked to complete using steps in sequential order. The game is to build a direct coding skills. Build a maze and then use a coding card to make a step-by-step path for the mouse robot (programmable Robot Mouse). Program the sequence of steps, and then watch the race to find cheese. Create a path with 16 labyrinth networks to make a 20 "x 20" maze board.

Student ordered the mouse Robot to move by pressing the arrow button on the back of the robot to enter the sequence of commands. The colored buttons are pressed according to the coding aid card which can be used to develop sequences before programming Robot Mouse (as seen at Figure 2).

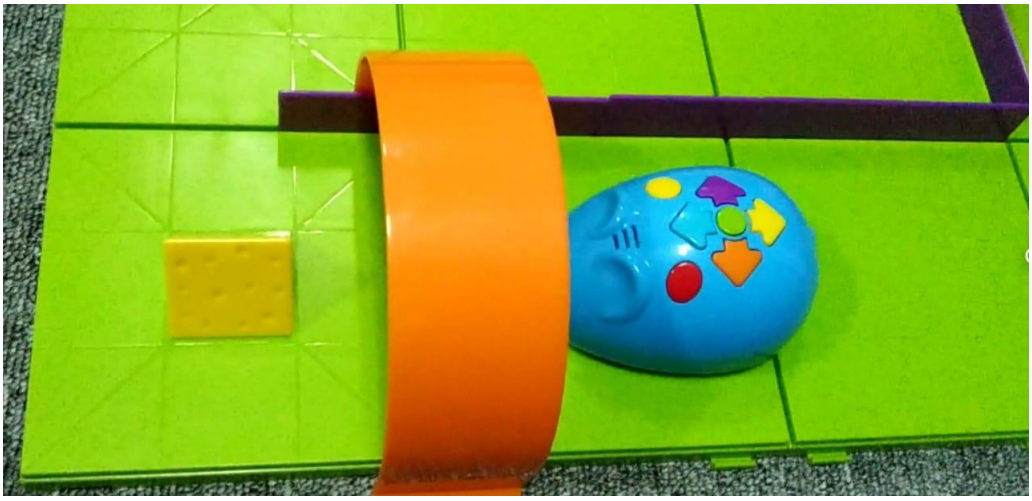

Figure 2. Robot Mouse game board

The objectives of this activity are Coding, Sorting, Resolving Problems, Critical Thinking, and Thought Algorithms. Skills needed are Direction Understanding, Symbolic Recognition, and Color Recognition

The second stage of unplugged activity is the Jumping Frog game. The game moves a group of frogs to swap places with a group of other frogs with the help of one jump distance. Jumping Frog is a game that aims to stimulate student reasoning. Skip frog serves to find a number and pattern of numbers by playing. Figure 3 is an example of jumping frog games.

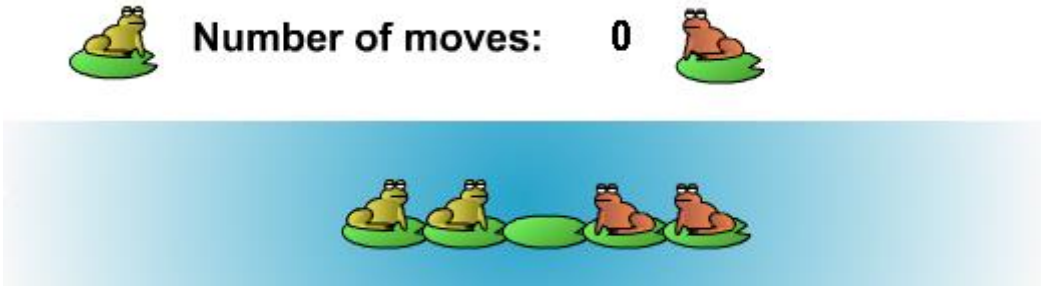

Figure 3. An example of jumping frog games

How to play jumping frog:

1. Move two different colored groups of frogs so they can swap places
2. Use the box in the middle as help
3. Once a turn can only move 1 frog
4. Next turn must move the frog in a different color
5. Frogs can only jump over 1 frog in front of it
6. Frogs can't jump backwards

After playing Unplugged Games, the next step is applying to scratch computer games. At this stage participants are trained to make the command to run the object. This stage participants can begin to develop their creativity through the scratch application. Figure 4 is a scratch display. If it continues to be sharpened, guided, and developed, the participants can make toys from their own work. In addition, besides the works produced, with logic games &

algorithms, they are able to train participants to think logically, be able to make decisions quickly, and also change to a more positive direction. Scratch can be accessed online at https://scratch.mit.edu/ (Scratch Lab, 2018).

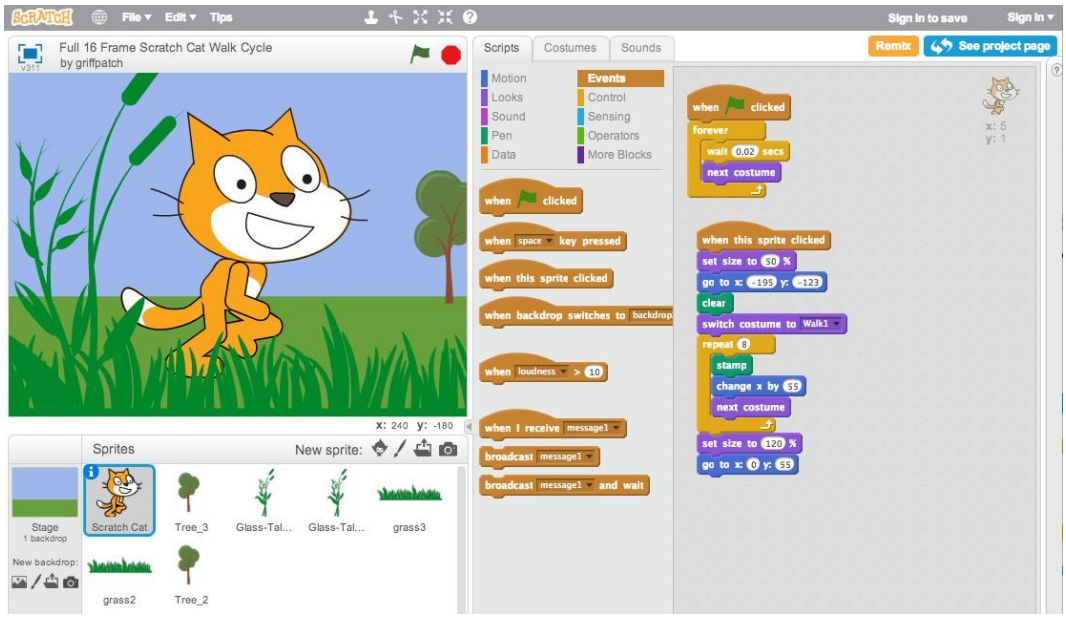

Figure 4. Scratch Display

RESULT AND DISCUSSION

This PIKAT activities was held at SD Negeri Randegan, Desa Randegan, Kec. Tanggulangin, Kabupaten Sidoarjo. As seen at figure 5 is front gate of SD Negeri Randegan, Desa Randegan, Kec. Tanggulangin, Kabupaten Sidoarjo.

Figure 5. Front gate of SD Negeri Randegan, Desa Randegan, Kec. Tanggulangin, Kabupaten Sidoarjo

As seen at figure 6 is the enthusiasm of student playing robot mouse maze. They have to write algorithm (by arrows) to command mouse to find cheese. Student ordered the mouse Robot to move by pressing the arrow button on the back of the robot to enter the sequence of commands. The colored buttons are pressed according to the coding aid card which can be used to develop sequences before programming Robot Mouse.

Figure 6. Student Play Robot Mouse Maze (Unplugged Activity)

As seen at figure 7 is the enthusiasm of student play jumping frog. The game moves a group of frogs to swap places with a group of other frogs with the help of one jump distance. Jumping Frog is a game that aims to stimulate student reasoning. Skip frog serves to find a number and pattern of numbers by playing.

Figure 7. Student Play Scratch (Plugged Activity)

CONCLUSION

Based on the implementation of PIKAT activities which was held on July 2018 at SD Negeri Randegan, Desa Randegan, Kec. Tanggulangin, Kabupaten Sidoarjo, it can be concluded that unplugged activity and plugged activity (scratch) can improve student mindset from game consumer to simple game creator, especially student at SD Negeri Randegan, Desa Randegan, Kec. Tanggulangin, Kabupaten Sidoarjo. Good acceptance also came from Head of SD Negeri Randegan, Desa Randegan, Kec. Tanggulangin, Kabupaten Sidoarjo and their teacher. They hope that similar

activities can be scheduled regularly. As well as the student, they have goodwill that if they go to warnet they not just playing games, but they try to make some games.

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