Playstore Based Animal Encyclopedia: Thinking Skills of elementary student

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Abstract— **Purpose of this study was to determine the effectiveness of playstore-based animal encyclopedia on students' thinking skills. Subjects in this study were 35 elementary school students. Data were taken using test C1-C6 bloom and analyzed using t-test. The results show that the playstore-based animal encyclopedia can develop students' thinking skills, cause the game in the playstore based animal encyclopedia based on problem and content in accordance with the real world context of students. When the real world context of students is presented in learning, learning will be meaningful for students.**

Keywords- thinking skills, animal, encyclopedia, Playstored

I. INTRODUCTION

Development of thinking skills in learning [1][2] in order to develop creativity, innovation [3] and [4], intelligence and individual understanding of a concept[2].

Thinking skills can be integrated in schools [5] and learning [6], for example learning models [7]–[9], development of concept maps [10] , collaborative learning [11], rules in learning [12]; [13][2], learning environment [14], [15][16] Curriculum [17]. In addition thinking skills can also be developed through mobile phones [18], games [19] and multimedia [15].

During this time the development of thinking skills is rarely developed through encyclopedias. The encyclopedia serves more as a provider of detailed information about a matter [20] such as human, animal, religious and economic which is usually assisted with graphic and picture illustrations. There are no existing encyclopedias that provide some features that are developed together so students learn and play, for example by adding forms of games that contain exercises that can motivate students to learn.

Learning while playing can be done by combining learning content with technology. An example is by using the Playstore application that is familiar to students because it is easy to use and download by students. Based on this, the purpose of this study was to determine the effectiveness of playstore-based animal to improve thinking skills elementary school students

II. METHOD

This study uses a quantitative approach to determine the effectiveness of playstore-based animal encyclopedias in developing students' thinking skills. Subjects in this study were grade 5 students of MI Mambaul Ulum Tegalgondo Karangploso. In this study several steps were taken to produce valid research data: including 1). pretest to students by being given reading books about animals, 2). giving treatment by giving playstore-based animal encyclopedia to research subjects for one week to be understood and done by students outside school hours, and 3). posttest is done after students get the treatment.

Data on students' thinking skills was taken after and before being given treatment, namely playstore-based animal encyclopedia using an instrument to test the skills to think of science using indicators from bloom C1-C6 Then the thinking skills test is tested using the t test by testing the hypothesis:

- Ho: there is no difference in students' thinking skills before and after using playstore-based animal encyclopedias.
- Ha: there are differences in students' thinking skills before and after using playstore-based animal encyclopedias.

III. RESULT AND DISCUSSIONS

The results showed that the use of playstore-based animal encyclopedias can improve students' thinking skills in

learning science. The results of learning abilities are shown in tables 1 and 2.

Table 1. Test Paired-Sample Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pretes	6,3714	35	,97274	,16442
postes	7,8571	35	,77242	,13056

Table 2. Paired Sample Test

	Paired Differences							Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	
				Lower	Upper			
pretes - postes	-1,48571	,74247	,12550	-1,74076	-1,23067	-11,838	34	,000

Based on table 1 it can be seen that the results of students' thinking skills before being given treatment and after being given treatment experienced an increase in thinking skills as indicated by an average of 6.3 and 7.85. Supported by table 2 the results of paired sample test t test is known that the results of pretest and posttest test subjects after using the Playstore-based encyclopedia have different averages. This is indicated by a significance value of 0.00 <0.05. Besides that, when viewed from the t test value, it is known that t count> t table, namely t count of 11.838> 2.03 so that the conclusion that can be taken is the null hypothesis is rejected and the alternative hypothesis is accepted which means that there is a difference between before and after the treatment.

If the percentage calculation is done, it can be seen the percentage of students' thinking skills before before using the Playstore-based IPA encyclopedia shown in table 3.

Table 3. Science Students' Thinking Skills Percentage

Cognitive level	Before	After
C1	75%	80%
C2	72%	85%
C3	45%	60%
C4	43%	55%
C5	22%	43%
C6	10%	20%

The percentage results in table 3 can be explained that, student thinking skills time of giving and after being given treatment has increased both in aspects of C1 to C6. So that it can be concluded that the playstore-based animal encyclopedia can develop the science thinking skills of 5th grade students of elementary school.

IV. DISCUSSION

Based on the results of the study it can be seen that, the thinking skilss student before and after being given treatment has increased both in aspects of C1 to C6. The increase occurred due to the encyclopedia developed using content taken based on the real world context of students (contextually located near students), using language adapted to students' language development. As a result, students will be more motivated by examples they know. When they feel familiar with the context, learning will become more meaningful [21] and generate motivation for students. Children who are motivated to learn will become excited and able to develop their learning achievements [22]

Playstore-based animal encyclopedia also provides features such as practice questions and several questions used to train students' thinking skills according to C1 - C6 levels. Provision of questions [23]; games [19][24] will be able to develop students' thinking skills

The encyclopedia developed using the Playstore application is known by the community, where this application is easy to download and provides several features in the form of games, learning activities and social networks. This application is quite familiar to students so students are easy to operate. Students will feel the content in the encyclopedia as light reading and the games they routinely use every day. This is where the role of playing while learning has proven effective in developing students' brain abilities. A comfortable, fun and challenging learning environment design will create a meaningful environment. so that it can improve student achievement [25].

V. CONCLUSION

Based on the results of the study it can be concluded that the playstore-based animal encyclopedia can develop the thinking skills of 5th grade students of elementary school. Some of the recommendations of this research are when the learning presented in accordance with the world of students (language, game and student characteristics) will improve the the brain skills because students are motivated in learning and can develop students' thinking skills.

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