Effectiveness of Using Child Growth and Development Applications

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Abstract: Children need stimulation according to their age. The child growth and development application is an application that aims to help parents know the stages of child development in accordance with the stages of their age. This study aims to describe the effectiveness of the use of child development applications. Data in this study were obtained through questionnaires given to media experts, child development experts and research subjects (parents, teachers, and caregivers). The results showed that the application of child growth and development is easy and practical in its use and can help parents understand the child's growth and development. Based on these results, the application of child development can be used widely to help parents recognize the stages of child development.

Keywords: effectiveness, application of child growth and development

I. INTRODUCTION

Every child needs stimulation in accordance with his age so that he can develop according to his age. Parents as primary caregivers for children have an important role in stimulating children. But not all children get adequate stimulation, socioeconomic conditions have an influence on the type of stimulation given to children [1].

In addition to socio-economic conditions, limited information is also an obstacle for parents to provide appropriate stimulation for the growth and development of children [2]. Many world child development experts quote about the importance of understanding child development. Is one of supporting factor so that children can grow and develop well and can live together in society?

According to research [3] states that children must meet the stages of development, otherwise the child will have difficulty entering the next stage, even if it is possible for the child to be trapped or stop at this stage. Every child has a difference in the period of development; therefore parents must pay attention to the details and development of each child. If it is felt that the child has gone through a stage then it can be continued in the next stage, but on the contrary if the child has not been completed in all stages the parents can provide more stimulus to the child.

Stimulation can be given properly if parents understand and understand the stages of child development. Based on the statement, the parents are absolute to know the stages of development that are in accordance with the age stage. During this time parents get information from their previous descendants or ancestors and various print media and articles that can be accessed online from the internet.

Technological advances have an impact on lifestyle changes and ease of access to information. The presence of smartphones with Android OS has shifted the existence of print media into digital media [4]. The need for access to information is more easily fulfilled, in a matter of seconds parents can get whatever information they want from recipes to activities for children.

On smartphones there are many applications related to children. Of the various applications are still dominated by children's games. Applications related to child development are still very rare. Applications that grow and develop children try to be present on smartphones with the Androin platform to help parents better know and understand the stages of growth and development of children according to their age.

The child growth and development application is an application that contains the growth characteristics of a child at each stage of age. This application is an Android-based application that can be downloaded for free on the Play Store. So that it is easily accessible to everyone. This global era makes the number of Android-based smart phone users increasingly aware and does not recognize caste, class, or occupation.

Data that researchers have found for smart phone users until 2018 in Indonesia 236 million people use mobile phones while the number of Indonesian educators is 261 people. Android users in Indonesia are 93.6%, Malaysia is 82.27%, and in the Philippines 81.4%.

Based on these data the researchers tried to test the effectiveness of Android-based child growth and development applications as the easiest information that parents have to understand the stages of child development.

II. METHODS

A. Effectiveness Test Design

This test is intended for parents and caregivers who have used a smartphone with the Android platform. The effectiveness test is done by giving a questionnaire to 30 respondents with various backgrounds.

B. Subject

In this research used 30 subjects. Instruments given to early childhood teachers, caregivers, and parents. subject selection based on random sampling. The researcher gave a questionnaire to parents at the playground, went to school and asked the teacher to fill out the questionnaire, as well as to the child care park to ask the caregiver to fill the questionnaire.

C. Data Types

In the development of this growth and development application, the data obtained are validation data in the form of: (1) qualitative data in the form of criticism, suggestions, and responses, and input in the form of comments in data collection instruments or through direct discussions and interviews; and (2) quantitative data is data in the form of percentage of research questionnaire results on components that exist in the application of child development.

D. Data Collection Instruments

In this growth and development application, a questionnaire was used. Questionnaire is a number of written questions that are used to obtain information from respondents in the sense of his personal report or things he knows [6]. The data in this study are the results of the evaluation by the validator in the questionnaire that has been provided. The types of data obtained are quantitative and qualitative data.

Qualitative data in the form of comments and suggestions from the respondents. Quantitative data in the form of the average value of the questionnaire in the form of numbers: 4, 3, 2, 1.

E. Data Analysis Techniques

The data obtained from the questionnaire were analyzed using descriptive techniques to calculate the percentage of answers to each item of question given to the respondent (Table 1). The data obtained was analyzed with this formula [6]:

$$P = \frac{\sum x}{n} \text{ x } 100\%$$

Acknowledgement:
P   = score presentation
$\sum x$ = the total score of the respondent's answer from the question item
n   = total score answers if all respondents answered very well

Table 1
Eligibility Criteria for Growth and Development Applications

Percentage	*Subhead*
76 % - 100 %	Very Valid/ very feasible can be used without revision)
56 % - 75 %	Valid/ feasible (can be used without improvements)
40% - 55 %	less valid/ Less Feasible (cannot be used)
< 40 %	invalid/ not feasible (prohibited when used)

III. RESULT

Based on the data above (Table 2) it can be seen that the application of growth and development has a material relevance level of 88.95% so that this application is very suitable for use. the appearance of this application is also very decent as indicated by the 84.6% presentation. the appearance of the material was also very good as indicated by the 88% presentation.

Application of child development is very easy to use with this indicated by 90, 8% respondents feel very easy to use it. The application of child development has quite high relevance, it can be seen from the content contained in the application is indeed in accordance with the stages of the child's age and can be seen by parents on daily activities. The material in the application is easily understood by users from various backgrounds.

Based on the appearance of the child growth and development application has an attractive colour display. The instructions contained in the application are simple and easy to follow. When viewing this application, the parent or respondent feels interested in opening the application further. Presentation of material on the application of child growth and development is easily understood by respondents.

The material presented based on age groups and developmental aspects make it easy for respondents to find material according to their needs. A reference to the material can convince the respondent that the contents of the application can be accounted for.

The child development application is easy to get through play store; to download this application does not require a lot of quota because the application is only 500MB in size. With the usage instructions on the first page, it can be easier for respondents to use the application.

Table 2
Effectiveness Test Results Data

No	Item test	Percentage	Acknowledgement
1	Relevance	88.95%	Very valid/very feasible
2	Display	84.67%	Very valid/very feasible
3	Presentation of material	88%	Very valid/very feasible
4	Ease of Operation and Smoothness of Media Display	90,83%	Very valid/very feasible

IV. DISCUSSION

Users of child growth and development applications are adults from various backgrounds, especially parents. Testing of 30 research subjects consisting of parents, caregivers of teachers who have

backgrounds as bank employees, private employees, lecturers, supervisors of housewives and child caregivers. The average research subject has an undergraduate education. The results of the data

analysis show an average of 88.11% which means that it is very valid and very worthy of use.

The use of technology as a medium of knowledge can expand the user segment, so that the knowledge disseminated can be reached by a wider community [6]. Child growth and development application is an application that uses simple technology that can be accessed by everyone who already has an android application. Through the ability to access the application ii, it is hoped that the community can utilize this application to see and understand the stages of child development.

The shift in telephone function in this case is a mobile phone which used to only be a means of communication through text messaging and talking into a telephone. It has been replaced by a smartphone. People using smartphones are not only used as a communication tool through text messages, telephone conversations, and e-mail. At this time people use smartphones as one source of information [7]. In a matter of seconds now people are able to access the information they get. The presence of child development applications can be an effective way of parents to find information about the stages of child development.

The ease of accessing information, especially those related to child development can increase parental participation in caring for and providing stimulation according to the child's age. The involvement of parents, especially fathers who are still lacking in care [8] can be minimized if the father has sufficient knowledge about the stages of child development and development.

V. CONCLUSION

Research on the application of Growing Children has differences and advantages compared to similar applications. Like, in previous similar researches in 2015 which only featured children's growth in terms of physical health, immunization, body building and only focused on children's physical growth, it looked like *KMS* was done online so that usage was easier.

Whereas, this application is showing references about child development, games or activities that can be done by parents / caregivers with children in order to stimulate children's growth and development, wise words quoted from parenting experts in order to motivate parents in nurturing children, and the contents of the references taken from concluding the stages of child development from some child development experts.

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