Improving english for early childhood through mathematical learning media VBA-assissted excel game

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Abstract. This study aims to determine the implementation process and the results of the application of VBA-assisted mathematical learning media for excel games in an effort to improve the English language skills of early childhood. The formulation of the problem in this study is whether mathematical learning media assisted VBA for excel games can improve the English language skills of early childhood? As well as how the implementation process, the results of the implementation of research, advantages, and disadvantages after the implementation of mathematical learning media. The approach used in this study is the quasi-experimental research method. The population in this study was in group B which amounted to 20 samples of early childhood. Based on the results of the study that there was an increase in English language skills of early childhood through VBA-assisted mathematical learning media for excel games. While the learning media applied in early childhood is successfully implemented, early childhood shows an active, enthusiastic, and happy attitude when learning takes place. Then it can be concluded that the application of VBA-assisted mathematical learning media for excel games in an effort to improve English language skills in early childhood takes place well and smoothly. Early childhood looks more active, creative and confident in learning English, so they can digest the media well in an effort to improve their English language skills.

1. Introduction

Language is the most important element to grow and develop themselves. Human language communicates with each other. For this reason, language skills are fostered from an early age, and even become an indicator of children's intelligence [1,2]. In the current global era, everyone is required to have good English skills. It is important to communicate globally, so as to make it a world language. English is the first foreign language to be mastered in Indonesia [3]. Therefore English language skills are a necessity and parents are competing to equip their children with English language skills from an early age. Hanifah [4] revealed that stimulation of important language intelligence was given to early childhood especially in children aged 4-5 years. At this age the child starts to have a lot of vocabulary, and shows his desire to communicate with simple sentences. But surely English language skills are still low in these early childhood. The causes include family background, unattractive learning, boring selection of English teaching materials, and the use of monotonous learning media. The reality in PAUD schools, teachers rarely use learning media. The observations at an ECD in Bandung show that English learning is done in an ordinary way by giving pictures, introducing English vocabulary, writing simple ways to read the English vocabulary, and counting 1-10 in English. The child does not master the
vocabulary when writing the correct vocabulary. For this reason, a strategy is needed to improve mastery of English language skills in PAUD.

Through interesting, quality, simple and innovative learning media [5–7], it is hoped that it can increase and herd the attention of children so that there is a great curiosity about English. Learning media must be a tool to provide a pleasant atmosphere in learning so that children are motivated and stimulated[8,9] and also with these media, provide a basic understanding of English using spoken language from English so PAUD writing is easier to develop English with new vocabulary words[10].

2. Method
The method used is qualitative research with data collection carried out when data collection takes place, and after completion of data collection in a certain period [11].

Reducing data, finding information in the form of observation and interviews, summarizing, and student difficulties before using the media English learning. Presenting data or display data planning an effort to increase the ability of PAUD students to use the medium of English learning by achieving their goals, and research conducted on 20 of 43 PAUD students in one school in the city of Cimahi by choosing based on students' difficulties in activities and lack of communication. Conclusions or verification saw positive changes in the use of English after using English learning media. Analysis returned after whether there were other deficiencies before and after using the medium of learning English and other findings to conduct further research actions.

3. Result and Discussion
Some of the findings of the difficulties students know about numbers are identifying the meaning of an integer, while the average age of students between 4 to 5 years who have the characteristics of having a great curiosity, having a unique personality, like to fantasize and Imagine, the period with the most potential for learning, shows an egocentric attitude, has a short range of concentration styles, as part of social beings. In addition to its characteristics, there are several other factors that must be considered, namely 1) needing security, rest, good food, 2) Coming to the world programmed to imitate, 3) Needing practice and routines, 4) Having the need to ask questions and get answers , 5) Children's thinking is different from adults, 6) Requires direct experience, 7) Trial and error are the main things in learning, 8) Playing is a world of childhood [12].

From 7 students' characteristics and the critical factors that were considered the differences of PAUD children and their aftermath were taken into consideration to make an English language learning media related to numbers, but before delivering the media there was some information as input material related to numbers. According to Novices, 2016 said that applying mathematical content to PAUD children seemed daunting, including the content of numbers, algebra, measurement, data analysis, and geometry [13,14], this shows that PAUD students would have a negative impact on mathematics learning if they did not pay attention to interesting content . And according to Saurina, 2016 said that 93% of children recognize animal objects from their environment, 100% said children could repeat the spelling of animal names in Indonesian, and 95% of children could repeat spelling with English when
using technology media [15].

One of the benefits of technology can help when designing a media easily is the Microsoft Excel VBA software, whose function is to connect mathematics, objects, writing, and sound in integrated English in a single worksheet. But it must be adapted to the needs of PAUD students, whereas in the field before the learning media is delivered, most students cannot understand English both written and oral.

Table 1. Ability of PAUD Students Before Using Media

| No | Condition of                                               | Many students | Percentage |
|----|------------------------------------------------------------|---------------|------------|
| 1  | Mention Numbers using English                             | 6             | 25%        |
| 2  | Spelling the letters of number                            | 5             | 20.83%     |
| 3  | Activity of students to answer questions                   | 10            | 41.67%     |
|    | Ability of students to combine two words between numbers and objects (animals) | 12            | 50%        |
| 4  | Making pictures with the command the teacher uses English | 11            | 45.83%     |

Table 1 explains the results of the findings in the field that PAUD students find it difficult to master English, where from the 5 indicators from the observations 24 PAUD students do not not exceed 50%. Some reasons for the opinions of PAUD students when interviewed are only two more reasons, namely shame when answering and learning in a boring class.

Figure 2. Chart of Making English Media

Figure 2 explains the benefits of media to improve mastery of simple English for PAUD students. The most important point in the use of technology is in Visual Basic Application (VBA) so that the media becomes interactive, please note that VBA is not a useful program to help processing numbers in Microsoft Excel, processing letters in Microsoft Word and setting slides on Microsoft Powerpoint [16–19], but can used as a form of play that is useful in learning in schools in all levels, especially PAUD students to improve cognitive through play [9], helping learning in class when using approaches [8] so that teachers are easier to communicate with students, and develop better media [20–24], students will not be bored in learning. And the advantage of using media is VBA for Microsoft Excel, in general the teacher has the software as a substitute for making animation software that is difficult to find, and with the software the teacher becomes more creative in making learning media [22,25].
Figure 3, explains the form of the results of English learning media which is associated with mathematics in the form of numbers. Where the number is interpreted as an interesting fish image that aims to encourage students to learn English, and the results of the media can be interactive animations, where in addition to students following the voice to say English sentences, PAUD students also explore playing to move fish and answer the actual results are already in the concept of counting and subtracting operations and associating numerical symbols with lots of fish.
Figure 4. Learning Media in English in Class

Figure 4 explains the media of learning English becomes more effective and the class is more conducive, where students have the desire to learn more besides understanding English, also learning numbers and counting operations and submitting their opinions.

Table 2. Ability of PAUD Students After Using Media

| No | Condition                                                                 | Many students | Percentage |
|----|----------------------------------------------------------------------------|---------------|------------|
| 1  | Mention Numbers using English                                             | 19            | 79.16%     |
| 2  | Spelling the letters of number                                            | 20            | 83.33%     |
| 3  | Activity of students to answer questions                                  | 19            | 79.16%     |
| 4  | Ability of students to combine two words between numbers and objects (animals) | 18            | 75%        |
| 5  | Making pictures with the command the teacher uses                         | 21            | 87.50%     |
|    | English                                                                   |               |            |

Table 2 shows that almost all students can spell letters of numbers and mention numbers. This means that the ability of PAUD students is good after using the media.

4. Conclusion

Learning English using VBA-based media for Microsoft Excel can improve the ability of PAUD students to use English, this can be seen from the increase in the number of students who master 5 indicators, namely mentioning numbers using English, being able to spell letters of number words, activity of students to answer questions, ability to combine two words between numbers and objects (fish) and make pictures by order of the teacher using English. In addition, other findings such as the growth of student motivation and confidence in PAUD students to answer given by the teacher.

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