On curiosity to introduce mathematics in early childhood

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Abstract. The aimed of this study is to find the children curiosity in the learning process introducing mathematics and how the teacher foster children's curiosity. This study used a descriptive qualitative method. Data collection used, observation, interview, video. This article tells about the part of the data collection by interview kindergarten teachers consist of six teachers from be of the different schools. Two teachers were interviewed in each school. The guide interview made consists of five questions, which have been validated by peer review and experts. The results of this study indicate that children's curiosity is high in the learning process of mathematics because children have a sense of curiosity about what has just been seen, it needs a teacher's effort, so the children always interested in learning, the teacher needs to create creative media in order to avoid children boredom and the child's curiosity remains.

1. Introduction

Early childhood in the learning process has the capacity to learn mathematics substantially, but some children do not have opportunity to learn this [1]. Thinking mathematically must be given since childhood, several studies have shown that the importance of being given mathematical knowledge early, because knowledge of mathematics from an early age determines success at the elementary, junior high and subsequent levels. Mathematics is also important for the nation’s economic success, therefore children need mathematics in advance in depth [2]. Curiosity is important to develop in the learning process, with child’s curiosity, there is a push to solve problem [3]. Not only can solve the problem, but also the children can find the truth. Children can find answers in different ways as usual, than adults do. Many previous studies have been conducted to research curiosity since 2005, with the child’s curiosity aim to see the abilities of children as researchers. It is interesting to see children's thinking, this is because children are great researchers who have their own ways to answer their questions and thoughts can develop very quickly [4].

The purpose of learning in PAUD (Pendidikan Anak Usia Dini) in Indonesia is not only to improve abilities and skills but must be prepare so that the childs are able to master and solve problems that will be faced in the future. Curiosity is an emotion that is associated with natural scraping behaviors such as exploration, investigation, and learning [5]. Therefore, there is a need for curiosity. Previous research revealed that children's curiosity now tends to decline due to the lack of availability of more interesting and in depth information to solve a problem. Research Suhadak & Watsqa [6] suggests that the level of curiosity of students is in a bad condition. In line with this Santoso [7] stating that curiosity cannot arise by itself, there needs to be a means for this ability to grow properly.
The curiosity in a child's mind becomes reduced because mathematics learning in the class tends to be monotonous, the availability of media, the tools used by the teacher in learning on cognitive aspects do not vary so the child becomes bored quickly [8]. Curiosity is an attitude that always wants to ask questions, investigate and search after gaining knowledge [9]. Various ways for teachers to foster children's curiosity so that children can solve problems especially in mathematics learning [3]. Agreeing with this Lange said [4] that the greatest researchers are children, they are always curious, where this is the starting point for exploring the world. Researchers interested in how children's curiosity in learning at school. It expected this research will make curiosity the first factor in entering mathematics learning.

2. Methods
This study began in July and August 2018, qualitative descriptive as a method in this study. This stage includes preliminary data to examine all existing literature in depth [10]. This study used an interview guide consisting of five questions, namely kindergarten teachers in Pagar Alam City, with three school samples.

Two teachers to be interviewed were appointed directly by the school headmaster. In this study, questions were asked about how children knew what was in school and how they did it. Then the answers to teacher interviews are collected, the documentation and analysis of the data are then made an original description [11].

3. Result and Discussion
The results of the study show that children’s curiosity is high, because there are teachers to foster curiosity of students before learning in depth. They have natural curiosity and ask many questions [12]. In addition, Figure 1. The results of the teacher's answers regarding the feeling of the child's curiosity in class.

![Figure 1](image)

**Figure 1.** The answers teachers about curiosity children in class

In Figure 1. It shows that children's curiosity is very large, this is because childhood, in this time to want to know everything [4]. On the second question about the frequent use of the media in the learning process, it can be seen that the majority of teachers almost entirely use media in learning, this is because the media is very helpful for teachers in the learning process and in the early childhood learning process teaching aids [13-14].

The third question, about the interest of the media used, shows that, children are interested in the media provided, because early childhood have their own characteristics [15], majority children are
happy with what they are seen. But the results are somewhat down compared to the previous graph, this is because children are easily bored with monotonous and not diverse media [8]. In Figure 2. Describes how the ability of the teacher fosters students' curiosity.

| Teacher 1 | 'Teaching with media that makes children interested' |
|-----------|------------------------------------------------------|
| Teacher 2 | 'Tell interesting things in each lesson packed in stories like fairytales' |
| Teacher 3 | 'Use media tools as attractive as possible' |
| Teacher 4 | 'Familiarize children with contexts related to everyday life' |
| Teacher 5 | 'Use media or props to be interested in knowing what to do' |
| Teacher 6 | 'Develop learning methods related to the environment' |

**Figure 2.** The answer teachers about the teachers' effort to build curiosity children in class

In Figure 2. Showing, the teacher's efforts to build students' curiosity in the classroom, this is a good form of planning because before doing classroom learning, the teachers must do preparing [16]. Good preparing will produce good and systematic learning in the classroom in this case leads to children's curiosity [6]. This means that preparing in terms of developing children's curiosity in the introduction of mathematics is very important especially in the introduction of mathematics. In Figure 3 example the children curiosity about number with picture media.

**Figure 3.** The discussion the teacher and children about write number

In figure 3. In discussion, the children show their curiosity with much question, if duck does not swim, is it like number 2 or not, and where duck swim, it is show the children is hungry of information [17]. The fifth question about how long the teacher teaches, in Figure 4 shows how long the teacher's experience teaches in class.

**Figure 4.** Working Period The Teachers

In Figure 3. Shows the teacher's working period, less than five years there are two people, and more than five years there are four people, although different years of work period, the teacher always gives
an effort to foster children’s curiosity, so that children are always interested in learning especially mathematics [18], it is noticed that efforts to foster children’s curiosity are very important. The important role of curiosity is also to be able to encourage and build student knowledge [19]. Curiosity, motivation and attitude greatly influence and learn mathematical performance [20].

4. Conclusion
The research shows that children's curiosity is very high because children are always curious about what has just been seen, the results of the study also show that all teachers have an effort to foster children's curiosity in learning mathematics, this is important so that children are always interested in learning, but there are several problems, the media learning used are limited, so the teacher must make more effort so that the child is always interested in learning

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