In What Ways Does the Preschool Mathematics Curriculum Impact on Chinese students' Future Learning?

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Keywords: Mathematics Curriculum Design, Mathematics Teaching Method, Preschool Education

Abstract: the Purpose of This Topic is to Seek the Implementation of Nursery Mathematics Education in China and Its Impact on students' Further Learning. This Research Pays Great Attention to the Mathematics Learning Experience of Children Aged 4 to 7 Years Old. It Will Consider the Aspects of Nursery Mathematics Course from Mathematics Curriculum and Teaching Methods in China. by Using Interview and Questionnaire, the Result Shows That Mathematics Curriculum Intention and Teaching Method Impacts on Children Further Learning. Then Suggestions and Conclusion Are Forward from the Perspectives of the Two Aspects, Curriculum Design and Teaching Method.

1. Introduction

Children's comprehension of mathematical concepts plays a very important role in their learning process. It seems to be that engaging children effectually master mathematics issues is a vital part in nursery's daily teaching. In this study, I plan to combine a range of voice and reflection from different aged students who are attended to nursery school at different times in decade. Hoping to gather their stories and comments of mathematics learning in preschool stage and then I will clarify how does their learning experience implications impact on their later school life. After that I intend to examine the application of nursery mathematics course; to address the existing mathematics education problems in decade.

Based on the purpose of comprehensively examine nursery mathematics education, mathematics teacher who is teaching students between 4 years old to 7 years old will be interviewed by questionnaires too. I would like to drive my research from two aspects: mathematics curriculum design for nursery education and math teaching of nursery school.

2. The Annotation of Mathematics Curriculum

In the stage of nursery, mathematics curriculum contents come from a wide range of sorting, matching, ordering, comparing and recognizing patterns and shapes. Especially, it has the responsibility for developing logical concepts in children's brain. The result of Ostergren's and Traff (2013)'s research generates that the early number knowledge in preschool age improves children's arithmetic ability development.

DFE's mathematics curriculum common requirements, in which describes "Use of language" (1995, p.1), suggests a principle for the way that mathematics teaching takes place. Elaborating on DFE's idea that it is only if children master language so well, then they can understand concepts well. On the other side, except considering mathematical language, educator also needs to connect mathematics curriculum with real life. DFE illustrates that "students should be given opportunities to use and apply mathematics in practical tasks, in real-life problems and within mathematics itself (1995, p.2).

3. The Presentation Finding of Interview and Questionnaire Data

3.1 Issue of Mathematics Course Setting

For the item of mathematics curriculum setting, nearly all of students claim that the content

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arrangement of mathematics in nursery school does not suit students. First, the curriculum schedule for preschool mathematics is similar with primary school. Student A told me details of their mathematics class:

The preschool stage is much closer to primary school at course management. We had 4 classes in the morning and a few less classes (2 classes) in the afternoon, which is similar to curriculum arrangement in primary school.

Considering the content of preschool mathematics course, student B describes that "We nearly learned all course as same as grade one in primary school." In addition, student C points the "exam-oriented" education system in China. It seems that most student feel pressure of nursery mathematics education.

3.2 Mathematics Homework

Focusing on teachers' answers of the question that students' time-cost on mathematics homework. They point out that half of children aged 5-6 years spend 15-30 minutes on their home mathematics homework per day; 25% students usually use 30-60 minutes to finish it. However, children aged 3-4 years need at most 15 minutes on it.



Fig.1: The time-consuming of mathematics homework (Data of teachers' overviews)

What is more, on the question of the content of mathematics homework, 100% teachers indicate that the most common and frequent homework is mathematics calculation. Matching questions and sorting questions also appear in homework. Usually, the form of homework is written form. However, only one teacher claims home work should relate to real life. To overview students' interviews of mathematics homework, the word of "calculation practice" frequently appears. Student A told me:

Usually, the homework was addition questions in the range of 20 or 30 but I can finish it without spend much long time.

However, student D's understanding of homework is totally different with student A. student D explains:

It should not involve mathematics concepts. Why we have to do calculation every day. It is quite early to push children to do addition or summation question in the younger age.

3.3 The Mathematics Teaching Approach of Nursery Education

On the question of the way that mathematics teaching in nursery stage, most mathematics teachers describe that they usually use different approaches in daily teaching activities.

| reaction | students age | rary games | reacting | aru bouy | Tanguage | Vote t | cacining |
|----------|--------------|------------|----------|----------|----------|--------|----------|
| A | 5-6 years | * | * | | | | |
| В | 5-6 years | | * | | | | |
| С | 5-6 years | | | | | | * |
| D | 3-4 years | | | | * | | |

Teacher Students' age Paly games Teaching aid Body language Rote teaching

Fig.2: The table of teaching methods in nursery school (Data of teachers' overviews)

Students claim that different learning forms just exist at the star of touching mathematics knowledge. With the mathematics course begins harder and harder, the learning mode seems change as Student C says:

Teachers teach the easier calculation by some teaching aid; but when the mathematics course becomes more difficult, teachers just teach knowledge on the blackboard. It returns to the rote

learning.

At the same time, parents hope nursery education staff to change this situation and pay more attention on exploring interesting teaching ways.

4. Cause of Influence Exert Student Mathematics Learning and Discussion of Mathematics Education

4.1 Intention and Reality of Nursery Mathematics Setting

'The Kindergarten education guidance program (trail) ' (2001) publishes: "Nursery school ensures children to perceive numerical relationship from life and games, and protect children understand the significant of mathematics as well as the interest of mathematics". However, in fact, data of student participants' response of nursery mathematics education declares that schools and parents exaggeratedly concern the result of math learning but miss the significant of learning process. Zhu (2009, p.93) points out: "Excessive education can make children master certain knowledge in a short time, but the positive learning ability is gradually lost, whilst the active learning capability can be trained in the learning process. "It means mathematics curriculum should relate to the child's present interests and developmental levels of thinking and feeling. Especially, for the aged 3-7 years old students who stay in a flexibility stage.

4.2 Teaching Methods in Nursery Mathematics Education

Due to mathematics is a useful ability in students' future learning, which relates to other subjects. Just as Denyer (1984, p.18) claims that: "some subject cannot make progress without the use of mathematical skills." Thus, it proposes a high requirement to mathematics teacher of their teaching approaches which should involve developing awareness as well as skills.

In my data, teacher D advises that nursery mathematics teachers would better care of their language using in classes. In her understanding, language using potentially determine children's receiving of knowledge. Because of Hobart (1973, p.35) says that: "Without the appropriate language the knowledge the child gains from his activities will remain at a sensory level, the teacher must provide the vocabulary that will lead him to further development and intellectual growth." What actually means that children's language develop influence children's understanding ability. What is more, students mention in my data that mathematics teaching should relate to children' real life bu not only asking children to finish homework of math by practising again and again. In the reality of teaching activities, nursery education teachers should better to design different learning plan for different students and allow minority students to master knowledge slowly.

5. Conclusion

A good nursery curriculum is important that it prepares children for a challenging and highquality educational experience, in which they are expected to be active in their own learning and to make sensible choices. School should tend to widen the mathematical experiences of young children to include other sections of the subject suitable for their mental development.

This research mainly discusses the implementation of nursery mathematics education affect students' future learning. After investigating, some crucial problems exist, which are "examoriented" education system, outmoded teaching methods etc. As the same time, new issues emerges in recent years, such as, teaching language is hard to understand for students and the gap between family education and nursery education.

The result of this research advices Chinese nursery education should completely execute the "life-long learning" education system in the reality of daily teaching, and the curriculum design should increase the interest of mathematics course as well as relate to real life so as to development children's personal development.

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