

ABSTRACT

Title of the Paper: Teaching/Learning of Mathematics in Preschools: *A case of Botswana and Sweden*

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The aim of this paper is to present a comparative account of Botswana and Sweden regarding the pedagogical and didactic skills preschool teachers possess and utilise in early mathematical teaching/learning process. Building a strong foundation for lifelong interest and sustainability in math among children is necessary. Mathematical education, therefore, is integrated with ECE and the content along with the strategy need to be carefully selected by preschool teachers in order to meet and respond to children's interest in math, during this impressionable age. This study intends to determine what professional skills; the didactic and the pedagogical skills preschool teachers possess and utilise to meet the demands of teaching/learning of mathematics in early educational settings of Botswana, which is a developing country and Sweden, a developed country. Pedagogical Content Knowledge (PCK) might be a base of knowledge that distinguishes a teacher from a subject matter specialist, who represents and formulates the subject that makes it comprehensible to learners (Shulman, 1986). This model is strengthened with the idea of teaching with knowledge of students' conceptions, curriculum, strategies and representations (Grossman, 1989). Subject Matter Knowledge (SMK), is a domain reciprocally interacting with PCK (Schwab, 1978, Grossman, 1990) that refer to the concepts in content areas, to the agreements, norms, paradigms and ways of establishing new knowledge that is held as currently acceptable (Smith 1999). The professionalization that early mathematical educators highlight in relation to PCK and SMK is the key concept of this study. An attempt is made to benchmark the practices regarding PCK and SMK of the preschool teachers both in Botswana and Sweden and identify the best possible practices necessary for quality teaching/learning of mathematics in ECE. The Research Objectives are:

1. To find out the existing practices in the teaching/learning process of math in ECE
2. To benchmark PCK and SMK of the ECE Teachers in Botswana and Sweden. We want to explore if PCK and SMK are possible skills for preschool teachers' as well as for teachers in other school forms
3. To identify the "best practices" and provide alternatives necessary to address the issue

This is a qualitative study and has adopted a Case Study design. The participants are preschool teachers from six (6) preschools, 3 each, from Botswana and Sweden. The study includes recorded Interviews, Observations and Video/Still recordings as tools for data collection.

The expected findings are that preschool teachers play an important role of supporting and guiding children to learn about appropriate mathematical concepts through the use of various teaching/learning strategies and techniques such as asking open-ended questions like what/how/why; giving feedback; and cognitive structuring, in an environment that encourages learning. The study recommends the “best practices” that would help us develop a teaching/learning policy for teaching mathematics in ECE and provide quality education.

In research with children, ethical considerations are of extra importance. Thus, the ethical roles for researcher are followed as per the norms of the Swedish Research Council and the Ministry of Education & Skills Development in Botswana.