INVESTIGATING BHUTANESE MATHEMATICS TEACHERS’ BELIEFS AND PRACTICES IN THE CONTEXT OF CURRICULUM REFORM

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Abstract

The introduction of a new curriculum potentially challenges teachers’ beliefs and practices about teaching. This single embedded case study explores these challenges in the context of a new mathematics curriculum in Bhutan where major educational reform has been undertaken. Limited previous research on mathematics education has been conducted in Bhutan, and limited research is available that explores the issue of the adoption of Western curriculum and its assumptions in a developing country. Thus the aim of this study was to investigate and understand the beliefs and practices of Bhutanese primary teachers implementing a new mathematics curriculum. This new curriculum was based upon principles and standards taken from a Western education context in a non-Western culturally distinct context. Of particular focus were the epistemological theories that Western curricula currently emphasise as a foundation of learning, namely those based on socio-constructivism. In such theories, meaningful learning occurs when students engage actively with concepts and problems in a dialogic process where ideas are shared, discussed and assimilated.

The phenomenon of implementing a new mathematics curriculum was explored in two phases drawing on sequential explanatory mixed-method approaches. First, in the macro level phase, a multi-mode survey was conducted with 80 respondents from 40 randomly selected primary schools across the country. The survey combined demographic questions, traditional theory driven belief items (based on Likert scales) and an open ended response involving the design of a sample learning activity. The belief items were designed based on the instrument of Perry, Howard, and Tracey (1999). The resulting data served to construct a background picture regarding the beliefs and practices of primary school mathematics teachers in Bhutan. Second, in the micro level phase of the study, qualitative data were collected from the teachers of four sections of Class 5 students (age 10-11) at two government primary schools. These data comprised teachers’ lesson plans, classroom observations and teacher reflections gathered during the teaching of a unit on fractions.
In regards to teachers’ beliefs, the micro level survey indicated a moderate to strong endorsement of reform oriented views of mathematics and mathematics education. However, the survey’s open ended responses indicated teachers tended to focus on what they do and not on what students do. This suggested an implied authoritarian conception of teaching mathematics and that teachers are in possession of knowledge that can be transferred through monologues of talk. Further micro level data from the teachers’ lesson plans and observations confirmed these findings from the survey and indicated a broad uniformity of approach in teaching mathematics, which provides evidence of their Platonist beliefs about mathematics.

Additionally, this study identifies some constraints in the implementation of the new curriculum, is a timely finding as the country is about to complete the first phase of the new curriculum. The study also confirms that underlying beliefs are strongly held by teachers despite enthusiastic acceptance of new initiatives in curriculum. Hence, the findings from this study are expected not only to help teachers to improve their knowledge and beliefs about meaningful implementation of mathematics lessons, but also to contribute to the further refinement of the mathematics curriculum. In this way, the findings from this study are expected to help contribute to improving the implementation of the new curriculum and also to promote the philosophy of Gross National Happiness by helping germinate a seed of new understanding in mathematics classrooms.