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Teachable moments at elementary school mathematics level

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Introduction and purpose of the study

Teaching is a complex phenomenon that encompasses ever-changing situations, where teachers are challenged to positively deal with unanticipated circumstances such as teachable moments. This poster draws from an ongoing doctoral research study, a hermeneutic phenomenological study, which seeks to identify and explore teachable moments corresponding to intermediate mathematics teachers' lived experiences. The research is guided by the following questions: What does it mean to teach intermediate mathematics? What does it mean to recognize and utilize teachable moments at an intermediate mathematics level? At this stage in the research, the term *teachable moment* is generally defined as an opportunity that arises when connections have been made to advance learning by a learner and/or an educator. More specifically, the term *moment* is distinctly defined as an expected or unexpected occurrence that allows learners and/or educators to deepen their understanding. The poster focuses on the background and context of the study, by highlighting the rationale, framework and methodology of the study.

Background and context

Teachers often question the underlying purpose of teaching and its subjective meaning across three general categories: teaching subject content; teaching based on certain pedagogical tools; or teaching the child. Researchers in mathematics education have asked: What does it mean to teach mathematics? How can one become an effective mathematics teacher? On one hand, researchers tend to focus on teachers' content knowledge and/or pedagogical knowledge, or an integration of the two. However, having in-depth context knowledge in mathematics does not necessarily equate to teaching it effectively (Muri, 2008). Also other researchers question how the two categories of knowledge—mathematics (subject matter) and teaching (pedagogy)—can be integrated. On the other hand, mathematics researchers such as Doxiadis (2003) suggest that teaching mathematics effectively means humanizing mathematics for learners, and that “education is—should be, at its best—a process involving the complete human being” (p. 2). In this sense, humanizing mathematics means teaching it in a way that involves students as participants in mathematics, which is beyond mere content delivery or teaching certain skill sets. This poster draws from a study that aligns with this second view.

Theoretical framework

The epistemology of phenomenology centers on didactic meaning as opposed to arguing or developing abstract theory. In their discussion of the theoretical and conceptual framework for a phenomenological study, Savin-Baden and Howell Major (2012) stated that “the essence experience

is so central and is to be uncovered before it is categorized, researchers do not tend to use a theoretical or conceptual framework... [because] doing so could impose presuppositions on the meaning of the experiences” (p. 221). The objective of this study is not to make broad generalizations about experiences of all mathematics teachers, but instead to examine individual teachers’ personal experiences associated with a very specific phenomenon of teachable moments.

Methodology

In order to understand what teachable moments means to mathematics teachers, and how teachers use them in their day-to-day, moment-to-moment teaching, it is necessary to first gain insight into teachers’ lived experiences by exploring their reasoning, beliefs, and intentions for teachable moments. As a consequence, to this underpinning, the study employs a hermeneutic phenomenological research design founded on an epistemology of interpretivism. The study uses qualitative methods to collect data. These include semi-structured interviews, field notes and researcher journal. Participants comprise a purposeful sample of intermediate teachers with experience of teaching mathematics in Ontario, who have had lived experiences related to the phenomenon of teachable moments.

Conclusion

The “teachable moment” is viewed as a somewhat intangible pedagogical prize; a teacher might know what it feels like, yet may not identify its characteristics. Educators such as math teachers seek moments of openness and creativity with their students so they can personally experience “the psychic rewards” of teaching (Lortie, 1975). Too often, such moments happen suddenly and slip away just as quickly, leading some teachers to conclude that such occurrences are a matter of chance. This study therefore seeks to shed some light on the characteristics of teachable moments in mathematics education to deepen teachers’ understanding and use of such teachable moments in their respective practices.

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