

Speaker:

Name: Pamela Hagen

Institution: UBC

Email: pamelahagen@telus.net

Position: PhD

Title: To Engage or Not Engage: How is the Question! - An Examination of Student Engagement in Elementary Mathematics

Intended Audience: All Levels

Type of Presentation

Preferred: Long Presentation (60 minutes)

Language(s) of

Presentation: English

Description:

To a very large degree student success in learning depends on their active participation. However, mathematics students seem prone to disengagement especially between grades 3 - 6 (Education Quality and Accountability Office [EQAO], 2010; Mullis et al., 2000; Mullis, Martin, & Foy, 2008; Nardi & Steward, 2002, 2003). Imaginative Education (IE) (Egan, 1997, 2005) offers an opportunity to explore engagement from the student perspective, to portray their experience of learning mathematics. It provides a rationale to include three domains of student responses to mathematical learning: affective, behavioural and cognitive.

Drawing on Vygotsky's socio-cultural theory, IE (Egan, 1997, 2005) reconceptualises education as a process of developing kinds of understanding and enabling people to make sense of the world in different ways. This occurs through gradual internalisation and use of cultural tools, e.g. language, as individuals develop five increasingly sophisticated kinds of understanding that utilize affective responses and imagination.

Using qualitative case study supporting children as informants of their own lives, I acted as Teacher-Researcher with an intermediate class at an elementary school. The planned geometry unit used binary opposites of vision and blindness centering on the second Mythic phase of IE understanding. A purposefully representative sample of six grade 4/5 students was selected for tracking throughout the unit, after which semi-structured interviews took place. A Critical Friend regularly observed the students and coded a portion of the interview data. Student work was assessed using a performance-based rubric.

Within-case analysis (Stake, 1995) was applied to student data, followed by cross-case analysis. Forefronting factors and patterns that contributed to student engagement, three themes emerged: that it was possible for the students to expand their mathematical awareness through making a variety of connections with the concepts being studied; students self confidence in their learning of mathematics was expanded by bringing into play their affective response or emotions and their imagination; and

thirdly they were able to use existing cognitive tools, particularly a sense of wonder to engage with the mathematics.

This presentation will give details of the above research study that was based on classroom implementation of a particular theoretical framework for the learning of mathematics. Examples will be given of a unit of elementary lessons and specific examples of students work to illustrate the rich potential of this approach.