

Math Ed Seminar Series @ Brock

Season 2017- 2018

Collective Learning: Re-thinking the Environment, Artifacts and Classroom Interactions

Dr. Joyce Mgombelo
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March 19 @ 10:00 in TA403



Dr. Joyce Mgombelo is an Associate Professor of Mathematics Education at Brock University. Her research program focuses on: mathematics cognition; identity; and ethics- based on principles of human cognition. This work is developed from the theoretical perspectives of enactivism, complexity science and psychoanalysis. Mgombelo's most recent work includes the SSHRC funded collaborative research projects, "Educating for the 21st Century: post-secondary students learning 'prognostics' (computer programming for mathematical investigation, simulation, and real-world modeling)" and "Advancing research methodology in mathematics education for collective learning systems" as well as the Canada Global Affairs collaborative development project, "Capacity Development for mathematics teaching in rural and remote communities in Tanzania"

Abstract: Over the past two decades, a group of Canadian Mathematics Education Study Group (CMESG) members have been working on understanding the ways in which mathematics learning occurs in classrooms viewed as collective systems. That is, how mathematics classrooms can be seen as complex systems in which agents spontaneously interact and adapt to each other, organizing and sustaining learning processes in a collaborative way. In this presentation I will offer a discussion about how artifacts such as classroom boards play a vital role in the coordination of behaviours or actions in a mathematics classroom viewed as a complex system. The source of inspiration for this discussion comes from studies in cognitive stigmergy which have led to a better understanding of how (human) agents in a complex system communicate indirectly through their environment which is articulated, and is typically composed of artifacts, which build up the social workspace, or field of work.

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