

A THEORY-METHODOLOGY FRAMEWORK FOR CONCEPTUALIZING A CULTURALLY RESPONSIVE MATHEMATICS/TEACHER EDUCATION

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Overview

The research described in this presentation asks the question of how school mathematics and mathematics teacher education might be reframed through critical and culturally responsive pedagogies through the introduction of a new theory-methodology framework. By synthesizing perspectives offered by Ethnomathematics (EM), Critical Mathematics (CM), Indigenous Education (IE), Language Diversity (LD) and Equity-based (E-b) approaches to research in mathematics education, a new (disruptive) form of culturally responsive pedagogy (CRdP) is being conceptualized. CRdP is *pedagogically* informed by the EM-CM-IE-LD-E-b collective; it is *theoretically* informed by Nancy Fraser's three-dimensional approach to social justice and participatory parity; and it is *methodologically* informed by discourse analysis. Grounded in a conceptual approach to responding to the study's question, the research (and this presentation) offers a comprehensive approach to challenging teacher education practices and navigating toward socio-economic, cultural and political justice/parity for all mathematics learners.

Theory-Methodology Framework

CRdP is being conceptualized by building on existing and highly relevant research in the field of mathematics education— research which views the education of mathematics teachers through diverse theoretical/philosophical lenses, including those of Culturally Responsive Pedagogy (CRP) (see, for example, Aguirre & Zavala, 2013; Nicol et al, 2013); Ethnomathematics (EM) (e.g., Presmeg, 1998; Rosa & Orey, 2011); Critical Mathematics (CM) (e.g., Ernest et al, 2016); Indigenous Education (IE) (e.g., Lunney Borden & Wiseman, 2016; Sterenberg, 2013); Language Diversity (LD) (e.g., Barwell, 2018; Chronaki & Planas, 2018) and Equity-based (E-b) (e.g., Gutiérrez, 2012; Herbel-Eisenmann et al, 2012) approaches. The socio-critical work of Nancy Fraser (Fraser, 2009; Lingard & Keddie, 2013; Meaney et al., 2016) is central to the research, with the design of CRdP framed through the three dimensions of Fraser's theory of social justice: distribution (socio-economic justice), recognition (cultural justice), and representation (political justice), revealing how school mathematics may be reframed through the EM-CM-IE-LD-E-b collective. As a means of grounding Fraser's three dimensions in a research method, I draw on a critical discourse analytic (CDA) approach (Wodak & Meyer, 2009). The six-question CDA framework that I have developed to interrogate research texts and to construct CRdP, along with initial results of its application, will be outlined in this presentation.

Significance of the Work

In acknowledging the culture of mathematics, of mathematics classrooms and of students' lives and communities, the research is an innovative and productive response to the call to educate teachers in critical and culturally responsive pedagogies. In doing so, the research serves to strengthen communication and connections between the fields of teacher education, mathematics education research, and curriculum cultural revitalization in multi-cultural contexts.

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