SYSTEMIC BARRIERS TO COLLABORATIVELY DESIGNING FOR HIGH QUALITY MATHEMATICS INSTRUCTION

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Philosophers and critical thinkers have advocated for all students to be given access to high quality education irrespective of ethnicity or social status (e.g., Adler, 1982; Dewey, 1900; Freire, 1970; Ladson-Billings & Tate, 1995). The state of mathematics in the US K-12 education system has not experienced successful mathematical reform that projects a unified vision of high-quality mathematics instruction (VHQMI) (Munter, 2014). The purpose of this poster is to explore some systemic barriers that thwart the best intentions of mathematics educators, administrators, and policy makers at all levels of the US K-12 education system, in developing and designing around a common vision of high-quality mathematics instruction. We articulate three context theories which Edelson (2002) defines as theories that highlight "challenges and opportunities presented by a class of design contexts" (p. 113); these include certain types of education structures, inequitable distributions of funding, and sociopolitical influences.

Education systems in the US are decentralized and hierarchical, exacerbating systemic barriers; curriculum control is an example of such a barrier. When schools and districts with differing fiscal resources make mathematics curriculum decisions but are subject to the same state level accountability measures, inconsistent visions are inevitable (DeBoer, 2012). Inequitable funding across subsystems inhibits the development of shared VHQMI; because funding relies on local revenue, access to curricular resources, high quality teaching, and professional development vary, perceptibly, in districts within a state system. Underfunded districts and schools become scapegoats when they are penalized for failure to meet unfunded mandates and for their inability to provide necessary resources to support instruction (Robinson, 2015). The sociopolitical nature of education is an additional barrier to the growth of a shared VHQMI. Instructional decisions are made by policy makers and stakeholders vying for positions of power without regard to the best interests of students, teachers, and educational leaders (DeBoer, 2012). For example, the adoption of Common Core State Standards for Mathematics (CCSSM) became, according to Larson (2012), a tug-of-war between attention to standards and the need for discussions that impact student learning of mathematics.

We believe that system-wide collaboration and co-designing of implementation resources improves equitable access to material and social resources. Research Practice Partnerships can offer a solution by bringing together policy makers, researchers, and educators (Henrick et al., 2017) to co-design and share resources. Such an initiative will stabilize resources for instruction and learning for transient students and teachers; all schools can have access to the expertise that will be distributed across subsystems.

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