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1. Objectives or purposes

The nature of the work principals and superintendents do is intricate and multi-faceted. They must be cognizant of restrictive budgets or adapt to the loss of resources while building and preserving relationships and trust with students, teachers, parents, and the community who rely on them. In this way, it is not just about the allocation of resources and organizational management, but it is also about the establishment of positive school climate and the development of people (Lytle, 2012; Morrison & Ecclestone, 2011; Wang & Bird, 2011).

Beyond resources and relationships, school and district leaders are also faced with increasing demands for high quality instructional leadership and demonstrable outcomes under the scrutiny of government agencies, education advocates, and the general public. When considering all of these challenges, it becomes clear that educational leaders are often required “to do things they are largely unequipped to do” (Elmore, 2000, p. 2), raising key questions about *how* programs focused on pre-service and in-service development of principals and superintendents prepare them to deal with the complex nature of leading schools (Elmore, 2000; Lytle, 2012).

This project and the connected research is particularly relevant in the context of the theme of the 2013 AERA Annual Meeting: “Education and Poverty: Theory, Research, Policy, and Praxis.” Effective school and district leadership has been correlated to improved student learning outcomes (Brewer, 1993; Robinson, Lloyd, & Rowe, 2008). Leadership turnover is notably higher in high poverty schools than in low poverty schools, further complicated by findings that high poverty schools tend to have less experienced leadership (e.g., Gates et al.,

2006). This overall project hopes to identify and develop critical and collaborative learning opportunities for in-service administrators, especially in those high-poverty, high-turnover schools, with the ultimate goal being not only to build the skills of those leaders during their short tenure, but to contribute to the extension of that tenure by enhancing the efficacy of those administrators.

This is the first phase of a larger project that will involve the development of online micro-leadership simulations by and for practicing education leaders based on their actual problems of practice. This phase will explore the experiences of education leadership practitioners as collaborative authors of these micro-leadership simulations.

2. Perspective(s) or theoretical framework

This study is situated at the intersection of two historical theories and a more recent theory emerging from those historical perspectives. The two historical theories are Vygotsky's Social Learning Theory (e.g., Wertsch, 1985) and Bandura's Social Cognitive Theory (Bandura, 1989; Bandura, Ross, & Ross, 1961). Emerging from Vygotsky's and Bandura's theories, and specifically framing this research, is the Computer-supported Collaborative Learning (CSCL) framework proposed by Stahl, Koschmann, and Suthers (2006) based on collaboration theory (Stahl, 2004). The CSCL framework suggests the use of "microanalyses of collaborative learning with and through technology in order to identify the features of designed artifacts that seem to be correlated with effective learning" (Stahl et al., 2006, p. 14). This phase of research in the overall education leadership simulation development project will focus on such microanalyses.

3. Methods, techniques, or modes of inquiry

The first phase of this study will be conducted as a co-investigator model, where all participants will also be investigators. The phase will utilize qualitative methods to gather data before, during, and after a series of collaborative meetings and workshops in both face-to-face and online formats. Before and after each session, open-ended surveys will be completed by each co-investigator and each co-investigator will also maintain an individual journal documenting perceptions and thoughts throughout the process. Face-to-face workshop sessions will be video recorded and online sessions will be recorded through the online meeting platform. Recordings will be transcribed for later review and analysis.

4. Data sources, evidence, objects, or materials

At this point in the study, participants have responded to an initial survey, taken part in the collaborative simulation development workshop, and responded to an intermediate survey. The workshop was recorded for later review and transcription. In addition to the previously described surveys, journals, and transcribed recordings, pairs of co-investigators will each be finalizing one leadership micro-simulation that was initially framed by the whole group. Those resulting simulations will become a further artifact of this phase of the project and form the basis for the second phase of research.

5. Results and/or substantiated conclusions or warrants for arguments/point of view

The use of simulation as a mechanism for developing important skills has been effectively used for decades in medicine to train doctors to treat conditions and interact with patients in a safe, low-risk environment (Barrows, 1968). A review of current research indicates that simulations for educational purposes have largely been employed as a means to approaching problem-based learning and to hone decision-making skills under critical or challenging conditions. A 1991 study by the United States General Accounting Office, for example, reported

that in the military, “computer-simulated exercises… offer the potential for effective training, particularly at higher organizational levels, where the focus is on battle planning and command and control” (p. 2) and “made more efficient use of training time” (p. 3). A more recent demonstration of the military’s belief in the use of simulations in training is evidenced by their support of the USC Institute for Creative Technologies in Playa Vista, California. Bringing together experts from engineering and psychology, the institute has developed a virtual patient program that will be used to train psychologists to deal with post-traumatic stress disorders in soldiers returning from war as well as a number of multiple player games meant to simulate battle scenarios (Hennigan, 2010).

Similarly, others involved in the emerging field of "design-based research" (or the development of virtual learning environments or virtual worlds) have brought forth new considerations in learning science and situated learning through the use of simulations (Dede, 2005, p. 8). Within the last two years, a small amount of critical research has been published examining the impact of simulation use on critical thinking skills and cognitive processes. In the last twenty years, “many healthcare education programs use computer simulations as a supplement to their lectures to provide students with opportunities to apply their knowledge, skills, and critical thinking” (Rauen, 2001 as cited in Schübllová, 2008, p. 146). Gokhale (1996) suggested that integration of simulations into traditional teaching structures was a promising pedagogical approach to building students’ ability to “transfer and apply the knowledge to real-world problems” (p. 6). Building on this understanding, a study by Marcy and Mumford (2010) of the use of virtual gaming in training leaders in causal analysis proposed that based on their results that participants who received the training tended to be able to form causal relationships

more readily when engaged in the game compared to those who had received no training at all (p. 16).

6. Scientific or scholarly significance of the study or work

Because of the multi-faceted nature of school leadership, there is a need for experiential approaches to preparing leaders that both build on research-based practices as well as the real-life experience and expertise of veteran principals and superintendents. Ackerman, Donaldson Jr., and Van Der Bogert (1996) “found that leaders who embrace open inquiry, the sharing of problems and solutions, and collective responsibility...foster creativity, resourcefulness, and collaboration in the work of staff and the learning of children” (p. 3).

Despite the breadth of research focused on the development of leaders, there is a paucity of training approaches and opportunities that are able to provide relevant problem-solving experiences in real-world contexts. This project is situated between two other notable explorations into the use of simulations in education leadership development. One exploration revolves around a “simulated school” offering a blend of text-based and video recorded interfaces designed to capture the “chaotic” nature of the work that school leaders do over the course of a year. That longitudinal (or macro) simulation is designed as an independent learning experience for pre-service school leaders (Mann, Reardon, Becker, Shakeshaft, & Bacon, 2011).

The second simulation project focused on helping hone decision making skills has been built on the use of actors as simulated patients in the training of physicians. This project offers simulations for both teachers and school leaders and focuses on specific problems of practice, as opposed to the macro approach of the previously described “simulated school.” Of note with this second project, however, is the use of actors in live, face-to-face interactions rather than an online, virtual environment (Dotger, Dotger, & Maher, 2010).

The project that forms the basis for this paper complements this other work by drawing from aspects of each and two other, essential and defining components (the focus of this first phase). This overall project leverages the scalability of the virtual environment in the first example and drills down to specific problems of practice defining the second example. Unlike the aforementioned approaches, however, the instant project utilizes an inquiry-based and reflective practice approach to authoring the simulations and the simulations are further designed to be utilized by groups of school leaders to collaborate in the construction of new knowledge around leadership praxis. This first phase focuses on experienced scholar-leaders, as the authors of the simulations, collaboratively deconstructing their own complicated and often tacit knowledge of education leadership to develop the initial pilot set of micro-leadership simulations.

Sustained reflective practice through the use of simulations will allow school and district leaders at varying stages of their professional lifespan opportunities to not only learn to adapt to change but to explore ways to virtually implement and possibly rethink educational programs, policies, and practices. Technical knowledge and understanding of the development of the simulations themselves thus represent a promising new pathway of learning for educational practitioners and researchers. Simulation authorship therefore provides us with new ways of thinking about educational leadership and reform as well as generating a new genre of academic publication, bridging the usefulness of this tool with the wider realm of research and practice. This encouragement of reflection and inquiry creates a space from which leaders are able to more thoughtfully and readily respond to the ongoing shifts and challenges inherent in educational reform (Cochran-Smith & Lytle, 2009; York-Barr, Sommers, & Ghere, 2005).

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