

From Medicine to Education: Adapting Simulation-Based Training to the Professional Development Training Models for Educators

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Decreased enrollment in teacher preparation programs and increased rates of retirements [1] are alarming trends that should cause everyone to take notice. The U.S. education system is in crisis and, indisputably, there are many factors contributing to the issues. The spring of 2018 saw a movement of teachers protesting state legislatures to invest more in education. In addition to the provision of student resources and increasing teachers' pay, an area needing investment that underscores the recruitment and retention of quality teachers is effective teacher preparation. Some may contend that the lack of teacher preparedness and supports in classroom management has contributed to the decrease in available and effective teachers [2,3].

Teacher preparation is a hot-button issue within the education community. The US Department of Education released the Notice of Final Rulemaking (NFR) for the Teacher Preparation Regulations in 2016 and identified better transparency within teacher preparation programs' assessment and reporting of effectiveness as an essential policy to implement [4]. Teacher preparation programming is also evolving through innovative approaches to align with innovative educational options. With the growth of charter schools, the formation of independent teacher preparation programs to align with unique populations and curriculums associated with charter schools is on the rise. These programs aim to provide opportunities for more privatized and deregulated approaches to training teachers and are independent to traditional teacher preparation programs through colleges and universities. Overall, both approaches have goals in preparing teachers to be effective in the classroom [5].

Classroom management is a cornerstone to effective teaching and learning in classrooms [2]. A primary reason for the teacher exodus within the first five years in the field is due to difficulties with classroom management [6]. Cooper et al., [2] found teacher preparation programs were providing insufficient training in evidenced-based classroom management, especially among general education teachers as compared to special education teachers. Further, teachers recognize evidenced-based classroom management skills as effective but are not formally trained and

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tend not to use such practices. This gap in knowledge and practice is a disservice to our children in schools. Nearly all teachers have students who struggle socially, emotionally, and behaviorally, and a majority of teachers report that behavioral problems are increasing in the classroom [7]. These changes raise the question of how do we prepare teachers to become effective classroom managers while implementing evidence-based educational practices?

Savo Heleta [8] lamented on the notion that the scholarly work of academics is not reaching the general public, thereby hindering the larger impact we could make in our respective fields. Organizations such as the American Educational Research Exchange and the American Federation of Teachers recognized the research to practice gap is problematic and continues to engage in systematic efforts to reduce this dilemma [9].

For schools to operate as a system utilizing “Best Practices”, academics should focus more upon innovative approaches to implementation science, the scientific method of implementing evidence-based interventions [10] and prevention science, the implementation of preventative programming to mitigate academic, behavioral, and psychological risk. A novel form of training is growing in the human resources and health fields known as simulation-based training. Simulation-based training is an approach used in high-risk professions including aviation, the military, nuclear facilities, and in medicine. The training utilizes an artificial environment to teach knowledge, skills, and abilities that may include video or web-based forums [11]. To ensure effective care to patients, the medical community engaged in significant changes in their instructional methods to reduce human error, which could lead to further injury, fatalities, and substantial costs [12]. Simulation-based education is a result of these calls for change. The medical community identifies simulation-based education “as any educational activity that utilizes simulative aides to replicate clinical scenarios” [12] (p. 37). Therefore, the training is made to be as realistic as possible by utilizing computer-based scenarios, role plays, trained-persons, and virtual-environments [13].

Simulation-based training and, similarly, virtual learning programs have the ability to mediate the gap between theory and practice; furthermore, the medical field has seen empirical results of increased knowledge and skills, intrinsic motivation, and self-efficacy, particularly for those with low previous content knowledge [14]. Meta-analytic studies find simulation-based medical education to be effective with moderate to large effects [15-17]. In the educational setting, teachers may feel less prepared to implement interventions due to lack of opportunity to implement the model, noting supports such as video and practice would be the most effective in implementation skills [18]. It seems reasonable to predict that utilizing similar technologies described would be transferable and as successful in the education fields.

Emerging data on the use of simulation-based learning in teacher education look promising. In Massively Multiplayer Online (MMO) platforms like Second Life and Multiuser Online Learning (MMOL) platforms users are represented by avatars that interact in a shared 3D space, giving them awareness of each other’s actions [19]. Research indicates that teachers trained on these types of platforms exhibit greater use of recognized teaching standards

than teachers trained through face-to-face methods [20] as well as increases in their teaching self-efficacy [21]. Simulation-based learning also shows promise for training teachers to work with students with disabilities and students experiencing psychological issues. SimSchool, a web-based classroom simulation has been used to effectively prepare pre-service and in-service teachers for the practice of inclusion [22] while training using TLE TeachLivE virtual classroom laboratory was shown to improve teachers’ accuracy when implementing discrete-trails teaching with students with autism [23]. Additionally, after using At-risk for High School Educators, an online gatekeeper training by Kognito, teachers were more likely to approach students experiencing psychological distress and refer them to mental health professionals as well as speak with their colleagues about at-risk students [24].

As practitioners engage in and teach about best practices in the field, educator’s level of training is a critical component of their effectiveness. For training outcomes related to intervention programming, implementation fidelity, and positive student outcomes to be effective for educators, it is essential to have leadership and administrative support [25-27], booster training sessions [25,26], and training technical assistance with supports such as video and practice [18,27].

In conclusion, facilitating a mission within the health and education fields striving toward the promotion of transference and the uptake of research to practice and the improvement of intervention effectiveness is prominent [10]. School collaborations with academic resource centers with a focus to engage in simulation-based educational training and virtual learning programs in the educational field can be vital to improving our education system. Such an effort toward simulation-based educational training would target factors related to the current teacher crisis concerning teacher unpreparedness and decreased enrollment within the profession, with ideal success as mirrored when utilized in other fields such as medicine and aviation. We also propose researchers assess this training modality within the educational setting utilizing a collaborative model to support their training objectives. Further, an emphasis on such collaborative training concerns for teachers would optimistically create a top-down effect, impacting the trajectory of our country’s educational system in future years.

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