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Shaping the Futures of Learning in the Digital Age

Innovatively Preparing the Teacher Workforce: Virtual Learning Environments

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Abstract: As one of the hardest professions, teaching can lead to burnout, stress, and other physical and emotional reactions throughout one's professional life. However, implementing the innovative practice of training teachers in virtual learning environments can reduce stress and increase the success of the teacher workforce. Therefore, in this study, the researchers focused on a small group of novice teachers and teacher candidates in the Midwest in order to reduce initial stress during teaching segments. The findings indicate that practice and coaching, within a virtual learning environment, can reduce stress. However, feedback and peer interactions are also essential.

Keywords: *Stress, Teachers, Virtual learning environment*

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Innovatively Preparing the Teacher Workforce: Virtual Learning Environments

Across the nation school districts and classrooms are experiencing a teacher shortage, which is creating an atmosphere where many schools are "scrambling to find qualified teachers" (Papay et al., 2018, para. 1). The result is often placing unqualified or underqualified individuals in classrooms with students. While this is a reality, it is not a goal or an effective best practice in education.

Researchers and policymakers have studied this shortage and report the complexity of the reasoning behind the shortage. It spans from low pay to lack of preparedness (Walker, 2019). Although these roadblocks, along with many others, are recognized, arguably policymakers have "historically failed to … understand and fix the problems contributing to the shortage" (Walker, 2019, para. 14). However, groups of researchers around the nation have started to take the charge of addressing a handful of issues leading to teacher shortage through the innovative and immersive practice of virtual learning environments.

One of the areas researchers have focused on, in reference to the teacher shortage or burnout rates, is to focus on the teacher stress levels experienced in the classroom setting. Why stress? In one study, stress was found to be one of the causes of teacher resignation (Dinham, 1993). Furthermore, other researchers have found that stress can lead to "burnout", which means "to tire or suffer due to a demanding job" (Rankin, 2016, para. 2). Some researchers have even stated that teaching constitutes the hardest job of all in our society (Glasser, 1992).

As one of the hardest professions, teaching can lead to burnout, stress, and other physical and emotional reactions throughout one's professional life. However, researchers and educators, who understand the impact of high stress environments in the teaching field, created effective training, professional development, and techniques for teachers and teacher candidates to use as a way to reduce the negative reactions and side-effects of high stress working environments through the use of training teachers in low-stress virtual learning environments. Virtual learning environments are rapidly demonstrating utility for expanding experiential learning for teachers, as well as teacher candidates.

Virtual learning environments incorporate the learned knowledge of best practices with "real life" situations in a simulated environment. These experiences offer safe, flexible, and appropriate training conditions to practice pedagogical skills. In these environments, teachers are coached and given real-time feedback, rather than after-lesson feedback or no feedback at all with the time constraints of administrators. Additionally, in the virtual learning environment there are avatars that are able to provide real-time responses, interruptions, questions, and answers. The research on virtual learning classrooms indicates that there is a nine second suspension of disbelief, in which the teachers and teacher candidates participating in the experience feel as though they are teaching in a real classroom rather than in a simulated classroom (Dieker et al., 2008). This suspension of disbelief assists in the training of teachers in high-stress environments in a low-stress simulation.

Therefore, the purpose of this study was to focus on a small group of novice teachers and teacher candidates in the Midwest in order to reduce initial stress during teaching segments, which included addressing the practice of giving a lesson while students (avatars) displayed challenging behaviors. The experience in the virtual learning environment for the novice teachers and teacher candidates included virtual classroom simulations, in the moment coaching/feedback, and peer critiques. This type of learning environment has been shown to increase teachers' confidence and proficiency on topics such as classroom management or instruction, (Dieker et al., 2008), which, in effect, creates coping strategies to reduce stress in future teaching experiences. It should also be noted that the findings reported in this paper are part of a larger study focused on several other areas, however in this paper the level of stress will be the focus.

Theoretical Perspective

This study was based on two similar perspectives that focus the trajectory of moving a professional from novice to expert. One of the perspectives was designed by Patricia Sawyer Benner (1982) in the field of nursing known as the Trajectory of Novice to Expert. The second theory was designed by Dreyfus and Dreyfus (1985), who named the model after themselves, the Dreyfus Model (2004). This specific model took the ideas of Benner's model and focused specifically on teachers moving from novice to expert through five levels:

1. Novice
2. Advanced Beginner
3. Competent
4. Proficient
5. Expert

The Dreyfus Model represents the widely agreed upon notion that professionals move through a developmental continuum in which they progress from a novice to an expert. Specifically, Dreyfus and Dreyfus (1985) identified that professionals move through five stages of career development, which has an impact on future success and career sustainability. Therefore, through the use of the Dreyfus Model (Dreyfus, 2004) the researchers were able develop an understanding of where each teacher and teacher candidate began and the growth or development experienced during the innovative and immersive practice of virtual learning.

Methodology

In this qualitative study, specifically grounded theory, researchers integrated the innovative and immersive technology of virtual learning as a way to educate the teacher workforce and develop a sense of confidence and sustainability within the profession. The purpose of this study was to focus on a small group of novice teachers and teacher candidates at in the Midwest in order to reduce initial stress during teaching segments. The researchers also developed an overarching question for this specific portion of the larger study. The research question was: How did the interactions in the virtual learning environment impact the participants overall learning and sense of confidence?

Background

The research occurred in two teacher education courses at a four-year university in the Midwest and at professional development sessions for novice teachers in surrounding districts. One course was titled *Collaborative Professional, Family, and Community Relationships.* This course had novice early childhood teacher candidates and novice teachers enrolled in graduate credit hours. The objectives of the course focused on the participants understanding the importance of family and community in the life of a student and school building. The specific assignment in this course, which related to stress reduction and workforce development, focused on the practice of co-teaching a lesson with a peer.

The second course included in this study was titled *Learning Environments.* This course enrolled both elementary and early childhood novice teacher candidates. The objectives of the course included learning about classroom management theories, interacting with various teaching styles, and developing challenging learning environments for students. The specific assignment in this course, which related specifically to reducing stress through clear classroom

practices and procedures, focused on implementing classroom management techniques that had been learned in the course.

Finally, the professional development included in this study varied for each group of novice teachers, however the focus on stress reduction and workforce longevity was constant. Some of the professional developmental focused specifically on behavior management strategies while others focused on the impact of trauma in the classroom. Regardless of the professional development title, one goal was consistent throughout: reduce stress in the teaching workforce through innovative and immersive experiences.

Participants

The participants in the study were selected through convenience sampling, which a qualitative non-probability is sampling technique used when subjects are selected because of their convenient accessibility and proximity to the researcher. All of the participants were part of the courses listed above or professional development sessions utilizing the virtual learning environment. It was made clear by both of the researchers that the students/participants did not have to partake in the research; it would not impact their grade or standing within the school district. Therefore, not every student/participant completed the research survey.

Overall, there were 89 participants. Fifty-eight or 65% of the participants were novice teachers in the various professional development sessions. There were 12 participants or 20% of the participants were pre-service teacher candidates in the *Learning Environments* course and 19 participants or 33% of participants were pre-service teacher candidates in the *Collaborative Professional, Family, and Community Relationships* course. The specific demographics (i.e. age, race, sex) of each participant was not collected during this study.

Procedures

The research began when the researchers engaged novice teachers in professional development focused on behavior management, and novice teacher candidates in two teacher preparation courses. The participant engaged in coursework or training focused on a specific topic, such as behavior management strategies, prior to entering the virtual learning environment. After the coursework and/or professional development, the participants interacted with student avatars in real time through the virtual simulation. While the virtual simulations varied, the level of stress-inducing behaviors was set at a high level. Some examples of stress-inducing behaviors included ‘students’ (virtual avatars) hitting each other, talking back to the teacher, not listening, and overall interrupting the lesson. All of the interactions the avatar students displayed were based in real classroom scenarios to provide a realistic experience for the participants to practice and to build confidence and perseverance in the classroom setting. By engaging in this practice in a real-time simulated environment, the participants were able to practice stress coping strategies, as well as teaching strategies in a low risk environment (i.e. ‘no students were hurt in the training of this teacher’.)

The process to the virtual simulations, during the simulation, and after the simulation were all similar. First, as stated above, all of the participants received a version of training. Second, the participants engaged in the virtual learning environment while the professor/trainer and peers watched in a fishbowl setting. If a participant became overwhelmed during the simulation, they were able to pause and regroup. After the simulation, the participant received feedback from his/her peers and the professor/trainer. Through this process, the participant not

only learns from the feedback, but each of the peers in the lab also learn from the feedback, therefore creating more knowledge and confidence as a professional.

After the experience, as a way to analyze the impact of the virtual learning environment, surveys were distributed to participants and qualitatively analyzed. As a reminder, this was a larger study, however the information focused on reducing stress-levels will be reported.

Data Analysis

Once all of the participants implemented their lesson in the virtual learning environment, the researchers provided a survey for the participants to complete. The survey included open ended questions regarding the teacher candidates' experience in the virtual learning environment. One example of a question on the survey that relates directly to the stress- reduction study was, "Did you confidence level change after participating the virtual learning environment? Explain."

After the eighty-nine surveys were received, the researchers analyzed and coded the data simultaneously. The grounded theory process was used for analyzing the data, which is a way to find the development of conceptual categories. The themes focused on this specific portion of the larger study (i.e. stress reduction) was evident in written feedback on the surveys focusing on the ability to practice teaching techniques in a low-risk environment, along with receiving constructive feedback from the professor/trainer and peers. These specific findings will be discussed.

Findings

Implementing innovative and immersive experiences through the virtual learning environment in teacher training programs, both for pre-service and in-service teachers, has the potential to reduce stress and burnout in the teacher workforce. The teacher workforce is able to practice, try, and receive feedback in a low-stress environment without the pressure of impacting real students. The founding themes from this study, specifically aimed at reducing stress for the teacher workforce, include two areas: consistency/calm and feedback.

Consistency/Calm

The ability to think under pressure, cope with changes in the structure of a day, and calmly handle the flexibility of the teaching profession can be summarized in the theme of consistency/calm. This concept was found after data analysis; however, a few quotes provide context. One participant stated, "I forgot y'all were even in here. That was stressful, but I paused and got it back together. That was nice." Another participant stated, "I was relaxed and composed, even when the students acted out."

The ability to practice in a low-risk learning environment, rather than a high-risk "real" environment, provided the participants the ability to relax rather than increase their levels of stress. Another participant stated, "Things will never go exactly the way you planned them and that is okay." This statement points to the concept that staying calm under press is an imperative quality to embrace as a teacher. Finally, one other participant stated, "I was stressed out prior to the simulation, but I like having the practice to interact with students (in the simulation) and seeing what I can work on before I'm in my future classroom."

Although this was a qualitative study, the data indicated that 52% of the responses on the survey reflected the overwhelming feeling of consistency/calm, as opposed to stress, in the virtual learning experience. Overall, the innovative practice of virtual learning displayed a reduction in stress for the participants, as well as a sense of confidence to take the skills they learned and practiced into their real classrooms.

Feedback

Feedback, the second theme, also provided a reduction in stress for the participants. The participant comments and reactions focused on the feedback that was provided in the fishbowl setting from peers and the professor/trainer during the virtual learning environment. The reduction in stress, especially when difficult disruptions arose in the classroom, was evident in one participant statement, "I was able to pause the classroom (in the virtual learning environment) if I had a question. I could make mistakes without actually effecting real students." Another participant stated, "I like the fishbowl. I think it is a great way to bounce ideas off of other students, and it is just a more engaging way to talk about things. I like hearing what others have to say then being able to bound off of that" and implement the learned practices in the virtual learning environment. These statements support the theme of feedback as a way to brainstorm, collaborate, and overall reduce teacher stress.

Although this was a qualitative study, the data indicated that 97% of the participants found the virtual learning experience transformative for practicing skills in a low-stress environment where feedback can be asked for and received. Overall, the ability to provide feedback, in real time, rather than after the moment, creates an environment where participants work collaboratively to improve their practice, gain more confidence, and reduce stress.

Implications

There are implications from this study for both teacher training programs and the wider teaching field. Implications specifically for the teacher training field include the ability to use time more efficiently, increase the quality of feedback, and support the development of teacher candidates' confidence levels in classroom settings. Specifically, traditional teacher preparation programs place pre-service teachers in classrooms immediately, with none to limited training. This creates an environment of high-stress, low-confidence, and the possibility of learning or solidifying inefficient teaching practices. Overall, this is an inefficient use of time in teacher preparation programs. However, virtual learning environments have the potential to increase coaching/feedback time, build teacher candidates' confidence and knowledge of best practices prior to entering a real classroom, and the ability for teacher candidates to ask in the moment questions, rather than wait until the end of a school day.

This study also has implications for the wider teaching field. It has been stated that, "most teachers deal with lots of job stress…. public school teachers face additional problems of lack of respect from students, and even from students' parents" (Brinson, 2018, para. 1 & 2). One way to reduce the stress of dealing with increasingly demanding situations is through the use of practicing, developing coping strategies, and discussing with professionals/peers on ways to management changes in the teaching field. Virtual learning environments not only use simulated students in real-time interactions, but there is also the ability to use adult avatars simulated conversations with parents, principals, community members, school boards, and more.

Discussion

The process of implementing the virtual learning environment in both pre-service teacher preparation programs and in-service teacher training workshops/professional development sessions could revolutionize the teaching field. The virtual learning environments provide low-risk, innovative, and immersive environments to practice, learn, and improve teaching strategies, as well as problem-solve through difficult situations based on a real classroom. The experiential learning, implemented through the virtual learning environment, allows teachers and teacher

candidates to actively construct their knowledge acquisition by experiencing the learning context (Kolb, 1984). This type of experiential learning, through the immersive virtual learning environment, has the potential to serve as an intensive learning experiences for educators without potential harmful effects on student performance, reducing both student and teacher stress-levels.

Overall, simulation in virtual learning environments has existed in other disciplines for many years, however it is new to the field of education. Airplane pilots, police officers, and healthcare professionals use virtual simulation. Many fields outside of education understand the transformative potential of virtual simulation to increase confidence and reduce stress when under pressure. Therefore, the implementation of virtual learning environments in the field of education is important, needed, and reduces the stress level in one of the most stressful professionals in our country. In order to increase student performance and decrease teacher stress, implementing virtual learning environments can have the intense impact of restructuring the profession of teaching.

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