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EDITOR'S INTRODUCTION

TxEP: Texas Educator Preparation is the official publication of the Consortium of State Organizations for Texas Teacher Education (CSOTTE). The journal is an extension of the annual fall conference. The conference and the journal serve to disseminate research and practices that support the preparation and development of Texas educators. Each year, TxEP invites editorials from the past conference chair and one of the CSOTTE organizations. This year's publication includes eight peer-reviewed manuscripts from our colleagues in teacher preparation.

Conference Chair, Glenda Ballard, reflects on the 2020 conference theme, *"Teacher Educators CAN and Have!"*. In October 2020, educator preparation programs faced many challenges; little did we know what was to come. As Glenda shares, "Just as with every crisis in American history, educators continue to meet the challenges of the day. They have emerged from this crisis with new ideas, new technologies, and the same indomitable spirit to teach!"

The Education Deans of Independent Colleges and Universities of Texas (EDICUT) is the invited organization representing CSOTTE in this year's journal. The EDICUT officers, Cindy Savage, Suzanne Nesmith, Kylah Clark-Goff, and Neva Cramer, highlight "the resiliency of K-12 teachers, our preservice clinical teachers, our educational leaders (both in K-12 and higher education), and our EPP faculty, staff, and field supervisors". They observe the resiliency that emerged from all aspects of pandemic teaching.

Daniella Varela and LaVonne Fedynich consider the impact of teaching during a pandemic and share findings of their qualitative study in *Lessons Learned: Examining K-12 Teaching During the COVID-19 Pandemic*.

In *Student Teaching During the Time of COVID-19: The Impact on Preservice Teachers from a Regional Hispanic Serving Institution*, Daniella Varela and Mike Desiderio consider the impact of the pandemic on the student teaching experience.

Texas Preservice Teacher Education: Hybrid Methods Course Model Implementation is presented by the team of Emily Reeves, Christina McIntyre, Aliyah Christian, Daphney Curry, and Austin Kureethara Manuel. They share considerations for hybrid teaching with specific implications for teacher candidates.

Tingting Xu and Tracey Covington Hasbun share a case study evaluating their teacher preparation program using CAEP standards and empirical data sets in *Using Empirical Evidence to Evaluate Teacher Preparation Programs: A Case Study for CAEP Accreditation.*

Keith Hubbard, Chrissy Cross, Dennis Gravatt, Lesa Beverly, and Amber Wagnon consider the challenges of attracting, retaining, and graduating qualified science teachers in *Preservice Science Teacher Attrition: Critical Experiences, Relationships, and Timing.* Their study found that specific institutional supports, mentoring support, and peer relationships directly affect teacher candidate persistence.

Extending the conference theme, *Yes, We Can: Moving Educator Preparation Programs Forward to Multicultural and Multidimensional Programs*, presented by Jericha Hopson and Jennifer Hopson, offers a review of a new yearlong residency program at Tarleton State University and call on teacher preparation programs to consider bridging theory to practice in the teaching of culturally responsive pedagogy.

Puneet Gill, Filiz Shine, and Pamela Mills Wallace share various viewpoints of attendees at a STEM event intended to strengthen positive science identities and collaborations in their article, *Perspectives from a STEM Event: Increasing STEM Knowledge, Literacy Practices, and Bilingual Language Use for Preservice Teachers at Puerto Educativo.*

Fostering Acculturation Via Culturally Relevant Practices to Enhance Second Language Acquisition in the Bilingual and ESL Classroom, prepared by Brenda Juárez Treviño, Edith Nuñez, Roxanna Quintanilla, and Jorge Figueroa discuss assimilation and acculturation aspects of English learners' experiences.

The CSOTTE Board is pleased to present the 2021 publication of TxEP. We invite Texas teachers, EPP representatives, and researchers to continue sharing their work and contribute to TxEP 2022.

Elda E. Martinez, Ed.D.
University of the Incarnate Word
TxEP Managing Editor 2021

2020-2021: The Year of the Pandemic

Invited Editorial: 2020 CSOTTE Conference Chair

Glenda Ballard, Ed.D.
CSOTTE Board Chair 2020-2021

My term as CSOTTE President neatly paralleled the COVID-19 crisis. A year of turmoil, upheaval, and chaos infiltrated every element of our lives as our country grappled with life-and-death decisions and raced to find a vaccine for the virus. A marketing theme from Raise Your Hand, Texas—*Teacher Educators Can*— (rolled out right before the pandemic brought our country to a standstill) was modified to *Teacher Educators CAN and Have!,* served as the theme for the CSOTTE Conference, and it also served as a Call to Action for our entire profession to come together to continue the business of educating children.

And come together, we did! Teachers pivoted to online and remote instruction; school administrators set about finding ways to fund laptop devices for children to use; TEA stepped up and met with TACTE Deans regularly as we navigated interpreting and implementing the Texas Administrative Code (TAC) in this virtual arena. The CSOTTE Conference, an annual event upon which this publication neatly dovetails, shattered any remaining beliefs that a conference had to be delivered in a face-to-face format. Educator preparation programs stretched beyond capacity to accommodate students and faculty who grappled with the same issues as their PK-12 partners to produce another year's worth of new teachers, principals, and other professionals amid the chaos. Our *techno wizards* produced a conference that was enviably well-managed and well-attended by educators from all over Texas.

Watching our educators rise to these challenges prompted me to wonder: How have educators handled other crises in our past? A quick but trusty Google search revealed some interesting facts in no time. Three pivotal events stood out: the 1918 Pandemic, World War II, and the September 11 Terrorist Attack. In all three events—just as with COVID-19—educators rose above the crisis, attended to students' needs, and learned from the process.

During the 1918 Pandemic, when one-third of the world's population became infected with the virus and at least 50 million died in the United States, children's lack of health and well-being was exacerbated. Educators—on the front lines of the crisis—fueled reformers of the Progressive Era to advocate for programs that would increase school nurses, establish school lunch programs, build playgrounds, and promote outdoor education. Battenfeld (2020, June 18) reports, "They attacked societal barriers to child health and welfare by enacting labor laws, making school attendance compulsory, and improving the tenement housing where millions of children lived." (3, para. 3)

Similarly, educators witnessed the long-term results that World War II had on the education of our citizenry. Carr and Mallam (1943) outline six areas of impact that the war had on schools: student attitudes, curriculum adjustments, special war services, acceleration of educational programs, special educational services, school enrolments, school finances, and teacher supply in wartime. One of the most striking, of course, was the increased number of mothers in the workplace as a result of the war when more than one-third of the children enrolled in nursery schools and kindergartens had working mothers. In England, Jonathan Boff (March 23, 2020) outlined that "by the end of World War II, many seven-year-olds were unable to read and write as a result of the poor standard education they received. One of the consequences of that was the 1944 Education Act, the famous act which extended secondary education for free to every pupil in the country, up to the age of 15." (para.7)

Finally, during the insanity that ensued after the planes bombed into the Twin Towers in New York, Secretary of Education Rod Paige referred to the teachers and principals as the "quiet heroes." In a speech given to the National Press Club, he mentioned that "Millions of moms and dads looked up from their work, and their very first thought was

about the safety of their children. And who was there to protect the children? Thousands of teachers and principals nationwide." (Davis, 2002, para.3). That's what we do.

Clearly, educators have stepped up to deliver for generations, and this pandemic proved to be no exception to that response. Below is an excerpt of the speech I gave at the opening of the virtual conference. In this, I wanted to recapture that moment when our lives changed forever, and from that moment, to show the resilience of the educator's spirit.

An Excerpt from the 2020 CSOTTE Conference:
"Teacher Educators CAN and HAVE!"

Outside my condo in—almost—downtown Austin, we can hear the train as it passes over Town Lake. On some occasional mornings, I am awakened by the train as it drags along at an agonizing snail's pace, the incessant screech and whine of the rail cars on the metal tracks making me cover my head with the pillow—this doesn't happen often, but I think it must be the combination of the speed of the train, the weight of the rail cars, the weather on a particular morning, and the direction of the wind that causes me to hear it so loudly. When it does, I note with a word of thanks that it doesn't happen often.

Likewise, I was awakened—equally unwelcomed, I might add—early on Friday, March the 13th (yes, you heard me), with the sound of my text alert going off. As I rolled over, I thought, "Who on earth could this be?" The text was from my Provost and read, "Deans, alert your faculty that we are suspending classes a day early for Spring Break. Because of COVID-19, students and faculty are to secure what they need from their rooms and offices when they leave for the day and be prepared to be away for a short time. We will convene today at 10:00 am via Zoom to discuss next steps." Boom—or should I say, Zoom☺ Now what?

Like most of you, it was not long until we were all in a flurry of "What's next?" As the days passed, we settled into our new normal. We hastily setup workstations at home, secured technology that would make our jobs, if not easier, at least doable while we listened to government officials, physicians, and news reporters provide us with the most recent ideas.

Through all that chaos, do you know what did NOT change? Educators. Despite the insanity that ensued after March 13, our profession quickly adapted and engaged. The same spirit that drove these individuals to become educators in the first place, served as a driving force to quickly pivot and assess the circumstances, and they began to plan. Truly, we saw our educators—those in the pipeline to become educators and those in the trenches already honing their craft—step up and deliver. That spirit, we dubbed this year, Teachers CAN! That same spirit is why we are here today—our annual CSOTTE Conference. For the next day and a half, we will meet, listen, discuss, question, brainstorm, envision, and focus on how we navigate the future of educators. Though we come to this conference with different pieces of the elephant—field experience directors, certification officers, alternative-certification directors, program specialists, faculty, and administrators—we all have one common goal: to celebrate the teacher! To say to the public, Teachers CAN!

Just as with every crisis in American history, educators continue to meet the challenges of the day. They have emerged from this crisis with new ideas, new technologies, and the same indomitable spirit to teach! With continued resolve, they will go about the business of educating students and continue to be MY "quiet heroes." Teachers CAN!

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Teachers Can Face the Real World of Change with Resiliency and Come Out Stronger

Invited CSOTTE Organization Editorial:
Education Deans of Independent Colleges and Universities of Texas

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EDICUT Secretary 2020-2021

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The Education Deans of Independent Colleges and Universities of Texas (EDICUT) was originally formulated to provide a collaborative voice of and for leaders of educator preparation programs (EPPs) of Independent Colleges and Universities of Texas (ICUT) institutions. Led by EPP deans and in collaboration with a variety of stakeholders associated with the Consortium of State Organizations for Texas Teacher Education (CSOTTE), EDICUT strives to share and serve the unique programming and policy needs of Texas independent colleges and universities that offer pathways to teacher certification.

EDICUT provides funding for the purchase of state representative practice certification exams to member institutions, contributes to ongoing efforts of CSOTTE and the Texas Association of Colleges for Teacher Education (TACTE), allocates funding for Project Give Back, as well as orders and purchases clinical teacher awards for each member organization annually. In addition, EDICUT advocates for education by engaging with key stakeholders in various ways, such as those related to educational research, educational best practices, TEA, the Texas State Board of Educator Certification (SBEC), and mandates in the Texas Administrative Code (TAC).

As the pandemic began to evolve in Texas in early 2020, all aspects of our lives were increasingly impacted. For those of us who serve in the field of education, most believed classrooms and hallways would be empty for only a brief period of time. Instead, we experienced what could easily be described as the most stressful, grueling year and a half of our careers. In fact, terms such as "Zoom fatigue," "quarantining," "pivot," "doomscrolling," and "super spreader" quickly become a part of the daily vernacular for most. Yet, as we reflect on the field of education, and through the lens of EDICUT leadership, we believe the term that best describes our perseverance throughout the pandemic to date, and which represents a beacon of hope for the future of educators, schools, and students, is that of "resiliency."

While it's impossible to describe the full extent to which resiliency has helped each of us to navigate the last year and a half, for purposes of this editorial, we choose to highlight the resiliency of K-12 teachers, our preservice clinical teachers, our educational leaders (both in K-12 and higher education), and our EPP faculty, staff, and field supervisors.

Resiliency of Classroom Teachers

The role of a classroom teacher is to offer every child, regardless of age, ethnicity, race, gender, economic level, location of residence, or family structure, a rich, rewarding, unique, and equitable learning experience. At the outset of the pandemic, many teachers felt overwhelmed by a sense of anxiety, fear, and alarm. They mourned the loss of their normal routines and the opportunities to interact with their students in traditional ways utilizing traditional content. Understandably, these feelings caused legions of classroom teachers to make the difficult decision to leave the profession they loved in light of the stress of navigating new technologies, fear of unsafe school environments, and workloads, including both hybrid and concurrent instruction requirements. However, most teachers

demonstrated resiliency as they learned flexibility, practiced changing plans at a moment's notice, and let go of "normal" expectations. They also learned to advocate for their safety and practiced self-care so they could, in turn, care for others.

Classroom teachers are not only essential to the students in their classrooms, but they play a significant role in the preparation of future educators. At a time when teachers were tasked with overwhelming responsibilities and facing monumental unknowns, they continued to open their classrooms to novice educators preparing to join the profession. Though these classrooms took many forms and the clinical experience had to be restructured and re-envisioned to assure a quality preparation for the preservice teacher alongside a quality classroom experience for all students, classroom teachers continued to open their classroom "doors" and hearts and share their knowledge and expertise to assure these future educators would be well-prepared for their classrooms.

When reflecting upon the last year and a half, classroom teachers expressed justifiable feelings of frustration and stress. Still, the majority of teachers revealed learning the importance of grace, their capacity to build connections with students regardless of the instructional format, their recognition of student adaptability and positivity, and their ability to serve as models of hope and resilience to students, families, and communities.

Resiliency of Preservice Clinical Teachers

If the goal of clinical teaching is to provide a mentored apprenticeship that enables the preservice teacher to take on the role of the educator with authenticity and come face to face with daily classroom problem solving, then the year of COVID was trial by fire on a grand scale.

Clinical Teachers were faced with overnight school closures and a new Clinical Teaching Handbook, which included how to teach all courses online, collaborate with your mentor teacher through Zoom meetings, and tutor students while they played with their pets, and siblings yelled in the background. So, were they found to be T-TESS proficient? Were they resilient? The answer is yes, amazingly so.

The first online lesson of resiliency was how to form genuine and trusting relations with students in a 100% online setting. It turns out, as we should have expected, these social media giants had the upper hand in "getting to know you" online.

Clinical Teachers knew how to use appropriate images, music, and photos to make online discussions, study sessions, and learning collaborations personal and free from the "lost in cyberspace" syndrome.

Clinical Teachers created trust in relations by using trust generators through shared stories of challenges through the lens of "what works for me," question post-it boards, and worry drop boxes through private messaging.

Clinical Teachers knew instructional technology strategies… that we taught them! They put those skills to emergency use and trained their mentor teachers how to teach interactively online through synchronous meetings with partners, raised hands, chats, and even gifs and memes for fun.

Resiliency of Educator Preparation and Public School Leadership

We are profoundly proud of the degree of resilience exhibited by clinical teachers. Yet let us not forget the critical role educational leaders in K-12 and EPPs played in securing the underpinnings of their experience by giving the structure and support that ensured clinical teacher success. Much credit goes to the leadership in Educator Preparation programs as well as our EC-12 partner administrators in the public-school systems across Texas.

Educational leaders across the state of Texas showed agility in the quick, decisive, and intentional pivots that they led. In many cases, the responsibilities of their leadership were also coupled with difficult budget decisions and delivering this information to teachers, faculty, and staff. With no precedent to which educational leaders could refer, they faced adversity with authentic concern, calm assurance, and decisive action. There was no advanced warning. They led colleges, teams, schools, and districts to expeditious adjustments, often with limited information and inadequate resources.

Resiliency of EPP Faculty, Staff, and Field Supervisors

Last but certainly not least, the amount of teamwork that was required of our faculty, staff, and field supervisors to navigate the 2020-2021 academic year with grace and success cannot be overstated.

EPPs were "all hands on deck" seemingly at all times. Certification officers keenly kept up with emergency declaration updates and waivers, and quickly communicated updates throughout our programs. Faculty navigated the charge to quickly transition to deliver instruction remotely while simultaneously monitoring the mental health of our educator candidates across computer screens, soliciting support from university leadership, campus security, and campus counseling services as needed. Clinical teaching directors and field supervisors traversed varying school district policies regarding observers and clinical teachers and balanced those policies with EPP university policies. Staff engaged in various tasks never before anticipated by the "other duties as needed" line noted on their job descriptions. Everyone simply huddled down, leaned on one another, and slowly, we began to move forward in 2021.

In conclusion, while 2020 often felt like a year of survival, what grew from this struggle was more than our development of survival skills. Our resiliency grew as well. Resiliency is often described in terms of an individual's ability to bounce back following a difficult event, yet educator resiliency is more clearly examined in terms of an interactive process that occurs between the individual and their environment. Factors specific to both the individual and the environment play a role in educators' abilities to express resiliency and subsequently thrive within the profession. When confronted by a pandemic that deeply affected educators' personal sense of self-esteem, self-care, and optimism alongside environmental changes associated with collegial support, workload, and school culture, educators overwhelmingly exhibited resiliency, continued to persevere, and continued to do their best for students.
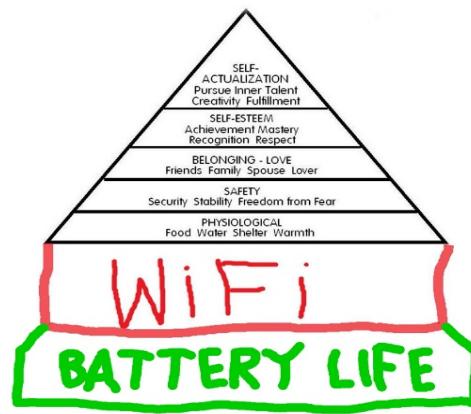
We did it. Teachers Can: Face the real world of change with resiliency and come out stronger. And, to close our EDICUT editorial, we thought you might appreciate the humor depicted in our addition to Maslow's hierarchy considering the recent challenges we have all navigated with resolve and grace.

LESSONS LEARNED: EXAMINING K-12 TEACHING DURING THE COVID-19 PANDEMIC

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Abstract

This qualitative study used interview data collected from nine K-12 teachers in South Texas to better understand the experience of transitioning to remote/online instruction during the COVID-19 pandemic. Upon transcribing and coding interview data, six themes emerged: training and resources, teamwork and collaboration, self-care, student connections, positive support, and educator preparation. The findings of this study renew a call to action for policymakers, school leaders, and educator preparation programs alike to revamp and redefine positive and intentional teacher support, especially in times of unprecedented crises and change. Implications and recommendations are discussed.

Keywords: teachers, remote teaching, online teaching, COVID-19

At the beginning of the new decade, educators speculated with positive anticipation what this new era would mean to the world of education. Little did anyone know that teaching and learning as we knew it would soon do an about-face that nobody could have predicted. That change agent was COVID-19, which quickly landed square in the hands of South Texas Pre-K through 12 teachers. To mitigate the spread of the novel virus, schools at all levels of the education system transitioned to remote/online instruction. Although higher education has long offered courses of study online for compulsory elementary, middle, and secondary grade levels, this was new territory. With no precedent or guidebook, and little to no training or preparation, in a matter of a few days, teachers had to learn how to work through the transition by either self-taught methods or via fast and furious professional development offered at school districts.

Arguably, some content areas lend themselves a little more easily online instruction. However, teachers in non-core academic fields, such as physical education (Varea & Gonzalez-Calvo, 2020) and the arts (Kesendere et al.,

2020), found the transition to online learning particularly challenging. The same was true for teachers needing to support students needing special education or language-based services (Marshall et al., 2020). Beyond that, teachers were also faced with additional challenges such as connectivity and technical issues and a lack of technology devices or other resources needed for online learning. With schools closed and Pre-K through 12 children learning in their home environments, a myriad of new challenges came forward. Teachers were now struggling for their students' attention amid social issues such as absentee parents, siblings as caregivers, and various abuses (Blundell et al., 2020; Armitage & Nellums, 2020). The odds of success were stacked against.

With all these aforementioned issues, Pre-K through 12 teachers encountered last spring, the need to better prepare our teachers for these unexpected situations that arise has become evident. Preparations can emanate via professional development, school leaders' support, educational preparation programs training, and lawmakers at the local, state, and national levels. Teachers are the

hope for our future, and they need to be treated as the vital people they are. As the famous teacher astronaut Christa McAuliffe said, "I touch the future – I teach!"

Theoretical Framework

Self-efficacy is the extent to which a person believes in his or her personal capacity to perform or behave in the ways necessary to produce the desired results of a specific task (Bandura, 2010). In the classroom, teachers' self-efficacy is then found in a teacher's ability to effectively manage and execute the professional tasks and obligations necessary to affect academic outcomes such as student achievement and motivation (Barni et al., 2019). Ashton & Webb (1986) translate the concept of self-efficacy into personal convictions of capacity to help students learn such that teachers with a high level of perceived self-efficacy make greater efforts and can persevere when encountering difficulties, but those with lower levels of perceived self-efficacy invest less effort and are more likely to feel defeated in the face of adversity.

The concept of self-efficacy then boils down to the notion of the self-fulfilled prophecy (Tschannen-Moran & Hoy, 2007) such that if a teacher does not expect to be successful, he or she will not be and will easily resign to feelings of failure at the first sign of difficulty or complication. Tschannen-Moran and Hoy (2007) clarified that self-efficacy is a motivational idea based on one's perception of competency rather than a concretely assessed or evaluated level of proficiency or ability. Teacher self-efficacy can be either be positively or negatively influenced by levels of experience, knowledge, and training (Morris et al., 2017), verbal persuasion from students, parents, colleagues, or administrators, or physiological arousal: joy, stress, etc. (Dellinger et. al, 2008; Tschannen-Moran & Hoy, 2007).

Research on teacher self-efficacy expands to the collective seeking to identify efficacy expectations of the team or faculty group of teachers toward an established goal (Skaalvik & Skaalvik, 2010). Thus, where individual teacher efficacy is specific to the individual teacher's success, collective teacher efficacy may serve as a determinant of school-level achievement and goal attainment (Bandura, 1993; Goodard et al., 2000). Self-efficacy theory serves as the theoretical framework for this study in that the research attempts to discover teachers'

experiences of teaching under unprecedented circumstances.

Literature Review

Self-Efficacy

Bandura (2010) theorized that individuals develop and gauge self-efficacy based on their interpretation of the following primary sources: mastery experience (knowledge, training, professional development, practice, and experience), vicarious experience (perceptions of support and collegial relationships, performance comparison, and observation), social persuasions (external validations, feedback, and discouraging or encouraging messages) and physiological and affective states (stress, fatigue, mood, and anxiety). Ballantyne and Retell, 2020) found linkages between teacher self-efficacy and emotional burnout and the propensity of teachers to leave the profession. This study aims to address a gap in the literature as to the impact of changes to the education system on teacher self-efficacy, namely the impact of the COVID-19 pandemic and its related shift to remote instruction. A review of the literature offers a summary of existing knowledge about the teaching profession as a precursor to this study and its findings.

Mastery Experience- Teacher Training

Morris et al. (2017) found that teachers' knowledge plays an important role in beliefs about teacher self-efficacy such that teachers who believe they were well prepared have a more positive perception of their capabilities in the classroom, and teachers who are afforded more training opportunities are more confident than those who are not. The quality and design of training and professional development also impact perceptions of self-efficacy, favoring hands-on and immersive experiences over lecture and theory (Tschannen-Moran & McMaster, 2009). Thus, Ingersoll et al. (2014) contend that the linkage between quality teacher preparation and teacher retention is real. The researchers' analysis found that above other characteristics such as the type of educator preparation program, there were significant linkages between differences in substance, quality, and design of teacher preparation and the degree to which teachers leave their assignments. It can be concluded then that teacher burnout is linked to a result of poorly trained or inadequately

prepared teachers (DeAngelis et al., 2013; Ingersoll et al., 2014). Teacher preparation is too important to dismiss as secondary to the goals of education. Instead, it is a vital piece of the conversation on school and learning improvement strategies (Tobery-Nystrom, 2011).

The concern is that the assumption that teaching is technical work (Peck et al., 2010; Hamel & Merz, 2005). The numerous responsibilities of teachers function as the root of various teacher frustrations evidenced in research and substantiate a perceived disconnect between teacher preparation and the realities of practice in the teaching profession (Melnick & Meister, 2008; Panesar, 2010; Barrett-Kutcy & Schulz, 2006). Teachers are caught between the demands of the school curriculum, state and federal regulations, parent concerns, and the diverse needs of their students. Concerns exist as to the extent to which preservice teacher preparation, and inservice teacher training and professional development tie theory into practice (Panesar, 2010; Flores & Day, 2006; Fletcher, 2013), making it difficult for teachers to balance responsibilities, important job tasks like classroom management and instructional workloads, with survival and performance.

Vicarious Experience- Support and Collegial Relationships

A teacher's work is also dependent on interpersonal relationships: connections with students, colleagues, and parents (Kim & Asbury, 2020). The COVID-19 pandemic drastically changed the dynamic and possibility of human interactions. Where remote instruction means that teachers and students do not share the same physical teaching/learning space, there are significant adverse impacts on personal connection and interactions (Hebebci et al., 2020). Although the decision to engage in remote instruction/online teaching upon school closures was, given the circumstances, likely the best choice to maintain some level of educational engagement, this move caused a reduction in student motivation, damage to the student-teacher relationship, and has also shown sociological/psychological impacts (Hebebci et al., 2020).

Lack of instructional and socioemotional support from administrators is also found to be one of the key contributors to teacher turnover (Stanley, 2020). Thus, the capacity of school leaders to strengthen school culture and guide instructional quality is imperative. To that end, the role of the school principal has evolved to a priority focus on instructional leadership. Hallinger and Murphy (2012) define the concept of instructional leaders as the "influence process through which leaders identify direction for the school, motivate staff, and coordinate school and classroom-based strategies aimed at improvements in teaching and learning" (p. 7). Still, COVID-19 caused another shift in the role of school leaders who now find themselves tending to the needs of students, teachers, and parents more than ever before (Pollock, 2020). Now responsible for health, prevention, emotional wellness, and online learning (Pollock, 2020), Harris and Jones (2020) find that because school leadership has changed, most leadership preparation programs will find that they are gravely detached from the challenges facing school leaders today. As a result of the pandemic and the lasting impacts that can be expected, crisis and change management will prove to be new essential skills of the school leader. Accordingly, and to best support campus-level staff and students alike, school leader self-care must also be of priority focus (Harris & Jones, 2020).

Social Persuasions- Validating the Profession

Research finds that views of the role of teachers are socially constructed often from personal experience (Capel et al., 2005). Teachers fulfill academic roles as well as social roles. Ultimately, teachers are responsible for student learning. To achieve this, teachers plan lessons, assess student knowledge, differentiate instruction, communicate with colleagues and parents, manage classrooms, and mentor students. The profession, however, faces a long history of challenges to their status as professionals, a narrative that either attacks or admires the teaching profession. (Mundy et al., 2012) attribute the marginalization of teachers as professionals to long-standing ideals that have "reduced teachers to the role of service provider, rather than a professional (p. 2). Despite efforts to validate teachers as professionals given their intellect and training, and despite evidence to suggest that teachers are the most crucial component of influence on student achievement in schools, teachers' professionalism is undervalued (Mundy et al., 2012). Attention is often focused on the negative facets of the teaching profession, painting failures as a direct result of the quality of the teacher force (Allen et al., 2020).

Goldstein (2015) wrote that as evidenced by a long record of low pay and blame for much of society's shortcomings, efforts to improve the professional status of teachers are repeatedly undercut. The same holds true today. Where in the teaching profession, professionalism is generally measured in terms of standards, accountability, and performance, the concept of professionalism itself is subject to perception and is, as a result, predisposed to internal and external influences (Sachs, 2016). In fact, research finds evidence to show that the COVID-19 pandemic and its related effects on the education system only amplified teachers' relentless work in urging society to view them as professionals (Asbury & Kim, 2020). Teachers now find themselves fighting for professional autonomy as those best positioned to know, understand, and adjust to the needs of their students, rather than have imposed upon them externally originated ideals (González et al., 2020; Assunção Flores & Gago, 2020).

Physiological and Affective States- Stress

A teacher's ability to cope with stress is directly correlated with their overall well-being (MacIntyre et al., 2020; Herman et al., 2020). Conversely then, a teacher's inability to cope with stress results in strain on personal physical and mental health, and ultimately professional burnout (Herman et al., 2020; Skaalvik & Skaalvik, 2017). Add to that teachers' diminished perceptions of self-efficacy resulting from low supervisory support and low student motivation, and what results is a recipe for incentive to quit (Skaalvik & Skaalvik, 2016). By then, the damage to the student learning experience is done. Herman et al. (2018) found that teachers with high stress and low ability to cope have the most detrimental effects on student outcomes.

In almost a perfect summation of teaching in the year 2020, "pandemic learning is complex and contradictory" (Gewertz, 2020, p. 1). The impacts of COVID-19 on the education system are abundant. Research suggests that teachers are working to navigate a multitude of new complexities in their profession (Alea et al., 2020; Primdahl et al., 2020; Santi et al., 2020). Where the mission of public education in Texas is to "ensure that all Texas children have access to a quality education that enables them to achieve their potential and fully participate now and in the future in the social, economic, and educational opportunities of our state and nation" (TEC 4.001, 1995),

one aspect that is clearly lacking under the COVID-19 pandemic is access. Beyond the concerns of digital inequities, with schools closed and learning occurring online, access is limited for those students who also rely on the system for nutritional, physical, and health services (Masonbrink et al., 2020).

For teachers, the complexity of adjusting to remote/online teaching so quickly was compounded by problems found in a lacking availability of resources, network access and connectivity issues, minimal planning and implementation, a lack of understanding of how to evaluate student learning and determining effective ways of communicating with parents (Fauzi & Khusuma, 2020). Before the pandemic, one of the primary causes of teacher stress was workload (Catalan et. al., 2019). As a result of the COVID-19 pandemic, teacher workloads increased as they worked to understand how to humanize online learning (Kaden, 2020) and reinvent their craft (Gewertz, 2020).

There is a need to further understand what teachers have experienced in the transition from the traditional classroom to remote instruction/online teaching, and how those experiences influence their feelings of self-efficacy. Results serve to inform efforts for meaningful change for continuous improvements to benefit the teaching profession. Especially as a result of COVID-19, and in anticipation of the ever-evolving trials of the profession, this work is necessary as careful attention to preserving the self-efficacy of teachers in the classrooms of our future. This study sought to better understand the experience of transitioning to remote instruction/online teaching during the COVID-19 pandemic. The findings of this study renew a call to action for policymakers, school leaders, and educator preparation programs alike to revamp and redefine positive and intentional teacher support, especially in times of unprecedented crises and change.

Methodology

Qualitative research seeks to understand participants in their natural environment and to understand the setting as a potential data source (Creswell, 2009). A largely investigative process of researcher focus on a social phenomenon, qualitative research requires a process of comparing, contrasting, cataloging, and coding (Creswell,

2009) as a means of constructing shared meaning of the experience. The focus of qualitative research then is on participants' perceptions and experiences, and the way they make sense of their lives (Lincoln. & Guba, 1985).

Phenomenology studies include explorations on the perceptions of its participants as experienced from the first-person point of view (Creswell, 2016). Additionally, the purpose of phenomenological research is to capture the universal essence of individuals' experiences with a phenomenon (Creswell & Poth, 2018). This qualitative phenomenological study used interview research as an approach to better understand the experience of transitioning to remote instruction/online teaching during the COVID-19 pandemic.

Research Question

RQ1: What are the experiences of Pre-K through 12 teachers and the immediate need to transition from a traditional classroom setting to virtual instruction as a result of the health crisis response to COVID-19?

Instrumentation

The researchers used semi-structured interviews conducted virtually using an online web conferencing platform to collect data. The interview consisted of 18 questions developed by the researchers and aligned to the established theoretical framework's primary sources: mastery experiences, vicarious experience, social persuasions, and physiological and affective states. Questions allowed flexibility for follow-up and/or clarification questions as appropriate. The questions were as follows:

1. How long have you been teaching?

2. What subjects and grade level do you teach?

3. What was your initial reaction to the news that you would need to move all instruction to an online format?

4. What are you finding as the challenges of this immediate need to transfer all instruction to an online format?

5. What has been helpful and/or who has been instrumental in making this work?

6. What concerns have the parents of your students expressed, and which concerns did you not anticipate?

7. What resources are you and your school district lacking that might have made this a seamless transition?

8. What do you miss the most right now?

9. What is it like now teaching without the immediate anticipation of STAAR testing?

10. With more planning and anticipation of online instruction, what might you have done differently?

11. What do you believe are the challenges that might prevent students from learning effectively during this time?

12. What student inequities have you seen come to the forefront through this experience so far?

13. What are you doing for self-care?

14. What are you most proud of in this experience?

15. What advice do you have for your students?

16. How will this change how you teach in the future?

17. How can educator preparation be better designed to meet this need for teachers who may experience this again in the future?

18. What do you hope policymakers and educational leaders will understand about your work and the teaching profession when this is all over?

Recruited participants were contacted via email and provided with a copy of the consent to participate. The form assured participants that anonymity was the top priority of the study. Upon the consent of each participant, interviews were scheduled at mutually agreeable times and conducted virtually. At the start of each interview, the researchers again clarified the intent of the research and asked participants to again confirm their willingness to participate. Participants were also asked for permission to record the interview to allow for transcription and coding at a later point.

Sample

To best capture the most authentic and realistic participant account needed for this study, the researchers used purposive sampling. Participants were selected based on their current service as teachers in the Pre-K through 12 education system in the spring season of 2020, the height of the beginning of the COVID-19 pandemic in the South Texas region. Participants selected were employed at school districts in South Texas which were forced to close

and transition to remote/online teaching. A total of nine teachers were included as participants in this study.

Data Collection

Participant interviews were conducted at a mutually agreeable time and virtually, in accordance with social distancing recommendations for safety and health. Prior to the start of each virtual interview, the researchers requested the permission of each participant to record the session to enable transcription upon its conclusion. Each interview lasted approximately 30-45 minutes. The researchers transcribed each interview to enable the process of analysis, coding, and theming.

Data Analysis

According to Creswell and Creswell (2018), qualitative data analysis can best be described as an ongoing process requiring the researcher(s) to move deeper and deeper into understanding the data. For this study, data analysis occurred in multiple phases. During the interview process, the researchers analyzed participant responses, connecting data collected to prior interviews. When necessary, during an interview, the researchers asked clarification questions to ensure exact understanding of participant experiences. To ensure the accuracy of the data collected, recorded interviews were immediately transcribed. Upon the conclusion of all nine scheduled interviews, the researchers engaged in a prolonged and repeated process of reviewing, processing, and analyzing the transcriptions to identify emergent themes and patterns.

Trustworthiness and Credibility

Reliability and validity in qualitative research are developed through a four-pronged process of establishing credibility, transferability, dependability, and conformability (Lincoln and Guba, 1985). Accordingly, the study was designed to include the perspectives of only those participants employed as current teachers working in South Texas school districts in grades Pre-K through 12 during the COVID-19 pandemic who could provide authentic details about their experiences. In an effort to further establish reliability and validity, the researchers used member checks, asking participants of the study to confirm the findings, and provided opportunities for further comment. The researchers further engaged in peer debriefing to compare and negotiate coding results which were independently derived and solicited external auditors to review the data and offer an objective assessment of the findings.

Participants

A total of nine teachers were interviewed for this study. All participants were current teachers in Pre-K through 12 classroom assignments in school districts located in South Texas. Participants represented a broad range of experience, spanning from 2 to 19 years of teaching, and a variety of subject areas. To protect the identity of the participants, pseudonyms are used, and only summary demographic details are provided.

At the point of the interview, June was set to complete her 12th year as an elementary teacher. She described her initial reaction to news of the need to transition to online teaching as one of anticipation stating, "I knew this was going to happen."

Gloria, also an elementary teacher, was in her 6th year of teaching. When she learned her district would also be making the move to online teaching, Gloria admitted feeling "surprised, shocked, scared."

Jess has been a teacher for seven years in multiple grade levels. At the time of the study, she was teaching in elementary as well. Jess reported confusion upon learning of the transition to remote instruction, unable to conceptualize how it would work simply asking, "HOW!?"

Marisol described herself as an early childhood teacher with over 19 years of experience. Despite that experience, Marisol admitted to feeling "worry, concern, fear" about teaching online.

Anna has been a teacher for 13 years, most of those in an elementary setting. Upon learning that she would need to transition to online teaching, Anna said she was worried, "but of course willing to do what needed to be done. I never anticipated having to do this in my career, in my life. Never."

Leslie has had a range of experiences in subject areas and grade levels in her 19 years of teaching. During the study period, Leslie was also assigned to the elementary level and had "no vision" for how online teaching would work for her or her students.

Melissa has been a teacher for 16 years in a variety of grade levels and is currently teaching remotely at the elementary level. Melissa described her "state of shock" when she learned her district would also be moving to remote instruction/online teaching.

Dolly admitted to feeling "overwhelmed at first" when she learned she would have to move online too. She has been a middle school teacher for eight years.

Elena described herself as a novice teacher in her 2nd year of teaching during the COVID-19 pandemic. As a secondary level teacher, Elena stated she was confused about what online teaching meant for her and her teaching field and was "convinced it wasn't going to work."

Results

The results of this study revealed six themes as lessons learned stemming from the experiences of Pre-K through 12 teachers who transitioned from the traditional classroom setting to remote instruction/online teaching upon school closures in response to the COVID-19 pandemic.

Findings

Upon a thorough and repeated analysis of the data collected, the researchers identified six emergent themes to describe the experiences of teachers transitioning from the traditional classroom setting to remote instruction during the COVID-19 pandemic: training and resources, teamwork and collaboration, self-care, student connections, positive support, and educator preparation.

Training and Resources

Training and resources proved to be a dominant theme in the data. A prevalent concern of most participants in this study was the lack of training needed to transition quickly, readily, and effectively to remote instruction or online teaching. The data revealed this to be not only a result of skills training needed to proficiently use online teaching tools, but also a concern about the lack of resources needed to make it work. June stated,
> "We were lacking the actual support and training. I think that if we'd already had some training it would have prevented a lot of frustration, heartache, tears,

ACTUAL tears. I just think some basic operative training would have gone a long way."

Jess agreed stating, "we need to be better prepared with training." Sharing the sentiment, Leslie was initially concerned that her teaching field was not a priority focus which meant she had even fewer resources and less guidance regarding her best next steps. She explained,
> "The district, I guess admin above us, was focused on core classes. They were only focused on core classes, so I didn't have any guidance about how I was going to do [her subject] online, my lessons, for all students."

With more warning, Leslie admits she "would have definitely sought tutorials, training, so that I could navigate Google Classroom without having to wait for someone to guide me."

Anna expressed a deeper concern in her assessment of the lack of training and resources she experienced in the transition. She said, "we really didn't have much set up. All content cannot be delivered online. Not the way we're doing it right now. This is not sustainable."

Teamwork and Collaboration

Another theme revealed in the data collected speaks to participants' appreciation and need for good teamwork and collaboration. Especially in what proved to be a time of crisis and massive change, teachers reported a sense of assurance and comfort in the ability to lean on their teams and their leaders for support through the transition to online teaching. Gloria commended her colleagues and district stating, "I'm really proud of my district. For the most part, everyone is on the same page, and we transitioned as successfully as we could, together."

Melissa expressed a direct appreciation for her district's efforts to keep a strong team even if socially distanced.
> "We need that time together. We are still having that form of communication, which is wonderful because without it, I would feel lost. We all want to be on the same page because the lack of communication would be our biggest downfall, and the community would see that."

Comparing her experience to prior workplaces, she elaborated that "all the teachers working together and problem-solving and collaborating….that part has really

taken my breath away because I've experienced other types of districts and this has just been a breath of fresh air."

Jess expressed regret that social distancing requirements also changed what teamwork and collaboration looked like. She said she missed "the interaction with coworkers, you know, getting face to face and saying, 'okay you're doing this in your subjects, let me do this in mine so we can correlate and the kids can have cross-curricular learning opportunities." Still, Jess admitted to feeling inspired by the dedication of her team to one another and appreciating the "passion that we have as a team, as a unit. Honestly, something I have never experienced to this level in my 12 years of teaching."

Although teacher collaboration is not a novel concept, Anna explained that only as a result of the pandemic, this was the first time her team collaborated with other elementary schools in the district. That collaborative experience revealed intra-district inequities that she was not aware were present.

> "The fact that we have to collaborate with other campuses makes it hard too because what we are seeing is that we were so far ahead of what they were doing with their kids, so we have to scale back. One teacher pushed back quite a bit because the assignments we had planned were going to be too much for her kids."

Self-Care

During the interview, participants were asked to describe their personal self-care routine. Most all participants had no plan or routine for self-care. Dolly said, "self-care is not quite working out." Marisol simply stated, "Oh, that's the last on my plate. Right now, I don't have personal time. I'm always their teacher."

In fact, some participants said they had not realized they were lacking self-care until that question was posed. Almost jokingly, Jess asked, "What's that?" and then answered, "NO. I have never hated a computer more in my life." Further expressing frustration with the uncertainty and complexity of the times, she said, "I don't want to hear that it's hard for you. It's hard for me, too. It's hard for everyone!"

June tried her best to think about what she could qualify as self-care. After a long pause, she said, "I

unplugged this weekend- so, unplugging and drawing a line." Gloria agreed stating that her best effort to attempt self-care was to "try to eat healthy and set boundaries. Know when to turn it off."

Anna also struggled to identify a self-care routine, answering instead that she "was up past midnight trying to get all the activities loaded" for the following day. She continued, "it's really a 24/7 job. I try to, I mean cook dinner and try to relax with my family, but now that you mentioned it, I realize not much. I'm not doing much for myself."

Family focus resonated with Melissa's response. "You know, I'm a mother first before I'm a teacher," and continued almost with conviction stating, "I have my own family in my own home so getting on Zoom with my students, I have to balance that, and you know they need the laptop as well, so that's a personal challenge I have."

Leslie's response offered a glimpse into what 'normal' teacher life was like before the pandemic. Her response indicated that what she lacked before the pandemic and its impact on her career was time. When asked to describe her self-care routine now, she proudly reported:

> "I've started exercising again! I mean, I am realizing how busy life was. And now our whole family dynamic has changed. We're able to do things we've always wanted to do—exercising, cooking, arts and crafts, and just making time matter. It's been good."

Student Connections

Data collected clearly revealed that teachers highly value the connection they work hard to have with each of their students. When asked what they most missed during the online teaching experience, the number one response was their students. Melissa said, "I miss them, and I think about them all the time." June simply wished she could tell them to "just do the very very best they can because that's all we can expect of them. I'm sorry (begins to cry)...um…and just for them to know that we miss them."

Each participant became emotional at this point in the interview. Each participant talked about how important their students are to them not only in the classroom but even more so in what they described as this stressful experience. Marisol talked about the students she worries about most.

"I have two CPS cases in my class, I know I'm their comfort. And of course, those are the two students I don't hear from in the past three weeks. So that's scary. Just that everyday connection. The hugs. Around my legs, you know? I miss them."

Positive Support

Participants talked about how important it is that they have positive support from their administration and policymakers to effectively do their jobs no matter the circumstances. Leslie explained when that isn't present, it is counterproductive to the mission. Speaking about policymakers, she said "I think their expectations are so high, but they don't realize, I mean they focus more on the test than the student needs."

However, when positive support is present, participants indicate that they feel safe, protected, and encouraged. In appreciation, Gloria said, "My superintendent has been open to all suggestions, extremely flexible and understanding." Melissa commended her administration which "has really emphasized that we need to come from a place of understanding and love because are multitasking at home."

Marisol, who was initially worried about how to effectively deliver her content to her students, was relieved when she realized that she had positive support from her leadership. "The administration has been beyond supportive of everything we are doing." She added, "The district has been really proactive. They've uploaded training, they've grouped us with other teachers so we can collaborate because they felt if we web a foundation with our schools the instruction will be strong. They're trying, and I love it."

Educator Preparation

Results of the coding process revealed educator preparation as an emergent theme. Participants took the opportunity to use this experience to detail what educator preparation programs should be included in the training sequence for new and upcoming teachers. Anna said, "Programs need to use this to change how they prepare teachers. It's stressful, so some preparation beforehand will be very helpful."

Reflecting on her years of experience after completing the teacher training program, June said,

"I mean even before this, I would have said that you know, you can sit through the educational courses and yes, you are learning the pedagogy, and you're learning things like that, but there's a lot of things that you get in the classroom, and you're like nobody taught me how to do this!"

Agreeing that that is probably most true at this moment in education, Marisol said educator preparation programs "gotta incorporate technology, like instructional technology, not learning how to use the smartboard. The smartboard ain't doing nothing for me right now." Gloria also talked about the need for a more meaningful focus on instructional technologies training stating, "It's more than smartboards and Elmos. It's knowing how to build and deliver a class online, communicating with parents through technology. It's just a new way."

Jess made a point to highlight the ability to communicate with parents as well, stating, "I feel like all teachers need to have customer service skills, especially when it comes to talking with parents." Speaking to the value noted earlier in the interview about teamwork and collaboration, Jess also suggested that educator preparation programs must work harder to emphasize good teamwork, "like in groups, PLCs. Like in my 4th grade team, we are a total of four teachers. Two of us work together really well, and the other two…I don't know what they do. They're not interested in collaborating. Regardless of how you feel about each other, you have to know how to work on a team."

Marisol also addressed a co-curricular focus in that educator preparation programs should include preparation pertinent to the "soft skills, how to communicate with each other, how to do conflict resolution with each other." She worried that those soft skills "are being thrown out the window right now because we are so concentrated on core academics."

Discussion

This qualitative study used interview data collected from nine Pre-K-12 teachers in South Texas to better understand the experience of transitioning to remote instruction/online teaching during the COVID-19 pandemic. Upon transcribing and coding interview data, six themes emerged: training and resources, teamwork and

collaboration, self-care, student connections, positive support, and educator preparation. The findings of this study renew a call to action for policymakers, school leaders, and educator preparation programs alike to revamp and redefine positive and intentional teacher support as a means of increasing and preserving high levels of teacher self-efficacy, especially in times of unprecedented crises and change.

Mastery Experiences- Training and Resources

Participants spoke to their frustrations as a result of a lack of training and resources needed to have been better prepared for the transition to remote/online teaching. A teacher's comfort is in the classroom. COVID-19 related school closures forced schools to swiftly enter the world of online teaching and learning evidently without proper training, preparation, and in some cases, without the appropriate tools needed. Though participants did reference the minimal technology training opportunities included in educator preparation program experiences (smartboard, Elmo, etc.), all noted that none of that had any impact on how prepared they were to build and deliver an online class. Participants also expressed concern that they lacked the knowledge and training needed to create and facilitate an online class that was developmentally appropriate for their students. Marisol was especially concerned about this as an early childhood teacher. She said, "how do I keep it developmentally appropriate for pre-k? How do we teach basic skills that you need your hands for through a screen?" For teachers, it wasn't just about building a class online. The transition to remote/online teaching also meant they had to quickly identify the deliver the content in impactful ways that work for their students at various levels of readiness.

The COVID-19 pandemic was an unprecedented event coupled with incredible ramifications that changed the landscape of education. As of this writing, many schools are still engaged in remote/online teaching, some now complicated with teaching online and students face-to-face simultaneously. Teachers need and deserve training to do so effectively and are owed the resources to do their jobs well. Inservice teachers desire thorough and ongoing training and support on instructional technologies beyond relying on (and potentially overwhelming) the resident technology gurus on their campuses. School districts must work to provide deliberate, intentional, and formal training

and professional development. Educator preparation programs are uniquely positioned to have observed this anomaly from a distance. In anticipation of what will prove to be a wave of massive changes to the teacher training sequence, preservice teachers must be trained and equipped with the tools, knowledge, and skills to successfully engage in remote/online teaching, too. Additional comments as to recommendations for improvements in educator preparation are included later in this discussion

To that end, another theme that emerged from the data collected focused on educator preparation. The researchers found it an appropriate time to ask participants what they believed was important for educator preparation programs to know using their experience with the transition to remote/online teaching. The participants were, after all, uniquely positioned to offer first-hand accounts of their experience to inform educator preparation program leaders what teaching is really like in this new era. The data revealed a call to improve teacher preparation to better incorporate instructional technologies. Preservice teachers must know, understand, and have good practice with technological resources beyond the tools they might expect to find in a traditional classroom. Aspiring teachers must be equipped with the relevant skills and proficiencies needed to reach all students across various modes of instruction.

This may prove to be a tall order. In fact, June admits that "there's a lot of things that I feel, um, are truly just baptism by fire when you get into the classroom." Still, participants offered some ideas to help get programs started. Elena suggested that educator preparation programs include opportunities for teacher trainees to:

> "work in groups where one is the teacher and the others are the students with multiple learning needs, and the teacher has to build and deliver an online class. And then they switch and do that multiple times with different content. You know, so they all get the experience."

Participants also talked about the importance of good communication and interpersonal skills. Whether referencing parent communication or the right disposition for teamwork, participants suggested a stronger emphasis on developing teachers as good communicators.

Vicarious Experiences- Teamwork and Collaboration

The findings of this study also shed light on the value of strong teacher teams, teamwork, and healthy and frequent opportunities for collaboration. Using words such as "community" and "lean on each other," participants talked about how important it was that teachers had opportunities to work together, to observe and engage with one another, to share ideas, and to learn from each other through this novel experience. During the COVID-19 pandemic, participants reported feeling reassured and encouraged to push forward despite the adversities because of their strong teams and as a result of their bountiful opportunities to collaborate.

To ignore the significance of teacher teamwork and collaboration is to ignore the potential for increases in student achievement. In fact, in the absence of strategic opportunities for collaboration, students suffer. Anna spoke about her experience working with a neighboring elementary school within her district—the first time district-wide grade level teachers gathered to discuss curriculum and instructional practices, only as a result of the transition to online teaching. During that collaborative opportunity, Anna began to piece together the potential causes for the disparities in student achievement within the district and formed alliances with struggling teachers to improve instructional approaches. Thus, school districts must work to ensure that as much and as often as possible, teachers across the district are provided with opportunities to collaborate with one another, to strategize and remedy areas of weakness, and to align instructional practice with success-proven approaches. To that end, it is worth noting that collaboration, even across district lines, is a recommended best practice. In fact, participants of this study commended teachers all over the country who jumped on social media platforms to share their ideas. If collaboration then knows no boundaries, then school districts and leaders must recognize and seize those opportunities in the best interest of student learning and to nurture a healthy and balanced work environment for teachers.

Social Persuasion- Positive Support

Almost as though in a direct call to administrators and education leaders, participants also discussed the importance of positive support. Data collected and analyzed suggests that teachers need to know they have support,

encouragement, and strong leadership from their administration. All participants in this study emphasized that they were appreciative of the level of support they felt from their administration, even though many of those school leaders were themselves lost and lacked confidence in the transition to remote/online teaching (Pollock, 2020). It is worth noting that good leadership does not mean having all the answers. Good leadership simply means a willingness to stand alongside your team in their time of need and a commitment to work together in taking the next best steps. Where participants used words such as "flexible" and "understanding" to describe what they treasured most about their administration during the COVID-19 pandemic, this study found evidence to support the notion that school leadership must work through change together with their team. Teachers desire to feel valued as professionals, particularly in times of uncertainty.

Physiological and Affective State- Self-Care and Student Connections

With increasing focus on mental health, perhaps one of the most concerning themes that arose from the data was self-care. Participants reported very little attention to self-care. As the saying goes, "you can't pour from an empty cup." As in any other profession or aspect of life, self-care is important for personal mental health, professional contentment, gratification, purposefulness, and happiness. Palmer (2019) wrote that by failing to use skills and strategies for self-care, teachers may experience emotional exhaustion, depersonalization, secondary traumatic stress, and burnout. Participants gave evidence to suggest that their inability to engage in self-care activities is due to either a lack of time or because they are too busy to think about working it into their schedules. Perhaps more so now, as a result of the transition to remote/online teaching, teachers are overworked, overwhelmed, and currently undertrained and short-resourced. These stressors compound the damage resulting from a lack of prioritizing the self and mental health.

The findings of this study support the contention for professional development activities targeting teacher self-care and mental health. Especially in times of crises and change, teachers need meaningful strategies to best take care of themselves, their health, and their well-being. Where research finds that teachers who neglect self-care are less likely to perform well in the classroom, less likely

to want to engage in collaboration and teamwork, and more likely to have a negative impact on students (Iancu et al., 2018), school leaders are encouraged to create space, time, and effort to positively support their staff. Some ideas include ensuring a healthy work environment, fun and engaging opportunities for social interactions, fitness and nutrition programs in the workplace, etc. The researchers recognize that school leaders are not solely responsible for teacher self-care but are well-positioned to aid in that aspect. With that said, teachers must learn to, as Gloria suggested, "unplug" and "draw the line." Teachers must learn to prioritize their personal and mental health as a direct contributor to their professional performance and satisfaction.

One of the unique elements in the data analysis revealed that teachers missed their students. Arguably compared to the other themes, this is not a theme that might have emerged if the circumstances were different, and teachers were working in their traditional classroom settings. In such a case, they would not miss their students because they'd be in the classroom alongside them. Nonetheless, it highlights the priorities that teachers value about their profession: students and student connections. It can be concluded that because teachers value student connections and, under these circumstances, those connections were interrupted if not disconnected, participants' professional contentment and personal mental health were impacted. Positive student-teacher relationships have incredible implications for students learning and student achievement, yes. But as evidenced in the data collected, those student-teacher relationships are also a source of teachers' professional and personal validation. The transition to remote/online teaching left participants longing for the chance to connect with their students on a personal level, something that they initially perceived as difficult in an online setting. Melissa noted, "I do get to see some of them, but it's not the same. We're limited in our time together because we have one hour to do our Zoom session, and then that's it."

The challenge now is to find constructive and meaningful ways to develop and maintain positive student connections in an online learning environment. The transition to online teaching in March/April 2020 interrupted what student connections may have already been established. The school year ended with many of those students and teachers never actually seeing each other

again. The current academic year began virtually, which likely complicated teachers' ability to *establish* positive relationships with their students. An important aspect then of training, professional development, and educator preparation will need to be focused on building and maintaining positive teacher-student relationships in an online environment. Teachers must now know how to get to know their students on a personal level, recognize and understand their interests and disinterests, and tailor to their learning needs and motivators from a social distance.

Recommendations for Future Research

Future research is recommended to understand the complexities of teaching online and in-person simultaneously. More research is needed to identify pedagogy best designed to effect increases in student learning when a teacher is trying to be present and engaged in two places at the same time. The COVID-19 pandemic made this a reality at all levels of education. Thus, investigations at both the Pre-K through 12 and higher education levels are appropriate. To that end, additional research may seek to explore compulsory online education.

The findings of this study suggest that, given the convolutions apparent in teaching during the COVID-19 pandemic, additional studies on teacher self-care and mental health are warranted. Given existing research, that shows this to be a major contributor to teacher burnout, and the findings of this study that indicate that teachers do not make time (or have time) for self-care, more research in this arena is vital to protecting the future of the teaching profession.

Conclusion

The 2020-2021 academic year began online for many school districts across the country. Research already finds that the impact of the COVID-19 on the teaching profession reflects decreased enrollment in teacher training programs and a propensity of current teachers to want to leave the classroom (Lachlan et al., 2020; Darling-Hammond & Hyler, 2020). In South Texas, a region already fraught with teacher shortages, some teachers instead opted to take advantage of options for early retirement or to resign rather than to risk their own personal health in the classroom or to continue engaging in online

learning. Education simply cannot afford more teachers leaving because they do not have the confidence of proper training, support, or mental health to continue effectively. Students at this critical point in time cannot afford to be in learning in classrooms, physically or otherwise, from teachers who are worried, overworked, stressed, and/or too tired to try anymore.

Despite the adversities, the fact is that teachers can, and as the results of this study have shown, teachers did. As a tribute to teachers' tireless work of heart, it is worth the time, effort, and energy to take these findings as lessons learned and turn them into resources for investing in our most precious guardians of the future.

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Student Teaching During the Time of COVID-19: The Impact on Preservice Teachers from a Regional Hispanic Serving Institution

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Abstract

The student teaching experience is highly regarded in the teacher training sequence. In the spring of 2020, COVID-19 altered many aspects of life, including a wave of massive changes in the K-12 education system with incredible implications for preservice teachers. Thus, educator preparation programs understand the impact of the COVID-19 pandemic on student teaching experiences. This study surveyed a group of student teachers enrolled at a Regional Hispanic Serving Institution in rural south Texas to understand experiences and perceptions during this unexpected and influential period. Results confirm student teacher perceptions of the student teaching experience as vital to developing professional teacher identity but detail a sense of frustration at the recognition of their self-described loss of invaluable opportunity for practice. Findings are reflective of the additional challenges present in rural schools for students and teachers alike. The authors also discuss the implications for policy and practice.

Keywords: preservice teacher education, student teaching, rural schools

The teacher preparation experience is a complex mixture of coursework and training that culminates in practical experiences intended to prepare future educators for classroom realities. Regarded as the most influential and career-defining period of a future teachers' professional development (Darling-Hammond, 2006; Liu, 2012; Smith & Rayfield, 2017), the practical experience, more commonly referred to as student teaching, allows preservice teachers to apply what they have learned in theory to what must be done in practice.

Education Preparation Programs (EPPs) throughout the United States place an estimated 200,000 preservice teachers in student teaching assignments every year (Greenberg et al., 2011). In the state of Texas, teacher candidates complete a minimum of 14 weeks of full days or 24 weeks of half days in a student teaching assignment that matches the grade level and subject area of the certificate

sought (19 Texas Administrative Code §228.2). Rules established by the Texas Education Agency require student teaching experiences completed in traditional classroom settings supervised by mentor and cooperating teachers where preservice teachers can be fully engaged in instructional activities with real students in real-time.

As a move to mitigate the spread of COVID-19, Texas governor Greg Abbott issued an executive order on March 19, ending face-to-face classes for several weeks (Abbott, March 19, 2020). On April 17, an extension of this executive order for the remainder of the 2019-2020 academic year occurred (Abbott, April 17, 2020). At the onset of that executive order, student teachers were only midway through this most crucial period of professional development and self-discovery. School districts entered a new world of online instruction and found themselves challenged with a wave of inequities to complicate the

process. In the absence of a precedent or emergency action plan, student teachers found themselves left out. Persistent health concerns forced many schools to begin the 2020-2021 school year online. Texas is home to the highest number of rural schools than any other state in the nation (Maxwell et al., 2019). Thus, it is important to study the experiences of Spring Semester 2020 student teachers to understand the impact of school closures on their professional development as future educators. This study used an open-ended survey to collect data from preservice teachers enrolled at a regional Hispanic Serving Institution (HSI) in rural South Texas during the start of the COVID-19 pandemic.

Theoretical Framework

This study was guided by the theory of workplace learning. Workplace learning is associated with learning in the natural workplace setting. In teacher preparation, the student teaching experience is the most classic example of workplace learning, where aspiring teachers are placed in classrooms with students and teachers and supported by administrators and mentors to create an experiential learning opportunity for professional growth and development. Imants and van Veen (2010) explained that especially as it relates to preservice teachers, teacher learning is achieved via individual or personal learning, social learning (collaboration), and "learning that occurs across the school organization as a whole" (p. 571). The underlying notion of workplace learning then is that there is a mutual and interdependent relationship between working and learning: the two come together, learning in context, to create a meaningful learning experience (Imants & van Veen, 2010), one which aids in the development of professional identity.

To that end, this study was also guided by the theory of teacher identity. According to Miller (2009), teacher identity is the result of constant negotiation of social and cultural understandings of the role, understandings which can be influenced by many factors. Those factors include school and classroom culture, community, and working conditions. Kim and Asbury (2020) noted that an important contributor to the development of teacher identity is positive relationships with colleagues, parents, and students; much of which were absent during the pandemic and related school closures. As Kim and Asbury (2020)

noted, "a shift to remote instruction, which disrupts or changes the nature of interpersonal connections, might be expected to affect teachers' sense of professional identity" (p. 1064).

Recognizing workplace learning theory as the near definition of student teaching and acknowledging the importance of healthy development of teacher identity, this study sought to understand how school closures as a result of COVID-19, affected preservice teachers during their student teaching experience.

Literature Review

Student teaching is a high-impact experience and is categorized as an important event in the development of a future teacher (Smith & Rayfield, 2017). Stripling et al. (2008) studied student teacher growth from the beginning of the experience compared to the end of the clinical period and found increases in student teacher efficacy in classroom management, instructional strategies, and student engagement. Where research points to a disconnect between a largely theoretical course sequence in teacher preparation and the actualities of the classroom experience (Cochran-Smith et al., 2020), the student teaching experience is the opportunity to narrow the divide, to bridge the gap. In a study of student teacher self-efficacy, Han et al. (2017) found that the student teaching experience provides an array of pivotal opportunities for the practice of pedagogical approaches making the experience one of the most important in the teacher training process.

Online learning can be beneficial in many ways, but depending on the skill set and digital proficiency of the learner, it can also be difficult (Fedynich, 2014). Children in the K-12 education system require developmentally appropriate curriculum and instructional approaches, often including hands-on and focused learning activities (Kim, 2020). The reality is that even before the COVID-19 pandemic, even the youngest early childhood students were dubbed digital learners exhibiting proficiency with touchscreen technologies and other online tools (Kim, 2020). This truth requires that educators are trained on and proficient with strategies and tools to appropriately "develop [student] thinking skills and understanding of technologies for learning in the 21st century" (Kim, 2020, p. 5).

Opportunities exist in teacher education to capitalize on current and future learning modes, namely virtual instruction (Kim, 2020; Sasaki et al., 2020). König et al. (2020) found that intentional training on communication technologies to develop digital competence is particularly essential in helping preservice and early career teachers adapt to a transition to online teaching. Thus, when this training is absent from the teacher preparation experience, teacher candidates are left underprepared and poorly equipped. In a study of physical education student teachers' feelings during the COVID-19 pandemic, student teachers reported feeling invalidated and questioning the purpose of physical education because they were not prepared to deliver that content effectively with only digital access to their students (Varea & Gonzalez-Calvo, 2020).

The value of the student teaching experience is well researched and justified. Thus, interruptions or circumstances that greatly alter the nature of the experience may negatively affect the preservice teacher. Alford (2020) found that student teachers during COVID-19-related school closures and shifts to remote instruction left them feeling unfulfilled, undertrained, and frustrated with the loss of time to connect and engage with students in an authentic and physical classroom environment. Such frustration manifests itself in many ways. Accordingly, the COVID-19 pandemic impacted college students' mental health. Kapasia et al. (2020) found that 42% of undergraduate and graduate students were dealing with stress, depression, and anxiety, many citing financial concerns as a cause, and 75% of students surveyed confirmed the possibility that the impacts of the COVID-19 pandemic may mean discontinuation of educational pursuits. Cao et al. (2020) found evidence to suggest that COVID-19 related delays in academic activity and progression created high levels of anxiety for college students. During COVID-19, student teachers also reported high levels of stress resulting in disengagement and absenteeism (Roman, 2020), worry, and loss of motivation *(*Ciğerci; 2020). Calls for social distancing to mitigate the spread of the virus complicated social interactions, and that presented a need to find ways to build community and nurture relationships from afar. Neglecting to pay due attention to mental health and concern for overall well-being may prove detrimental to the profession (Hill et al., 2020; Roman, 2020; Baloran, 2020).

The literature provides evidence to support the student teaching experience as vital to the teacher preparation experience. Studies have also detailed and validated the tremendous impact of the COVID-19 pandemic on the student experience. There is a gap in current literature to reveal what direct impact COVID-19-related school closures had on preservice teachers experiencing interrupted or terminated culminating clinical experience during the 2020 spring semester.

Research Design

To understand the impact on student teachers' perceptions of the student teaching experience during the COVID-19 pandemic, this study utilized qualitative survey research of a sample group of student teachers assigned to practicum experiences in K-12 classrooms during the spring 2020 semester. Surveys were the selected data collection method in consideration of two primary factors: (1) At the time of the study, the COVID-19 pandemic made face-to-face interviews impossible, and (2) Student teachers, especially as a result of the novelty of how the pandemic affected the traditional classroom, were overwhelmed in a drastically changed clinical experience. The researchers recognized that survey data collection permitted participant participation at a convenient time and in a convenient manner.

The study sought to use content analysis as an approach to find emergent themes in the data collected via survey research. Content analysis is the process of sorting data collected in qualitative research into groups according to consistent patterns or themes to derive meaning (Creswell, 2014). Nine open-ended questions were included in the survey administered to the sample group. Those questions were developed to encourage reflection of the semester-long student teaching experience during the COVID-19 pandemic.

Sample

The researchers identified a group of student teachers enrolled in an educator preparation program at a Hispanic-Serving Institution (HSI) of higher education in rural south Texas during the 2020 Spring Semester. The study is limited to student teachers assigned to K-12 classrooms across south Texas during the COVID-19 pandemic. Most student teachers were assigned to classrooms in rural

school districts across the region in a variety of teaching subjects and grade levels. Sixty-nine student teachers had the opportunity to participate in this purposive sample study. Thirty-three student teachers consented to participate and completed the survey for a 48% survey response rate. All participants were in their culminating year of teacher preparation and completed all other requirements for teacher certification, including state licensure examinations.

Instrumentation

The researchers developed a series of nine open-ended questions to encourage reflection of the student teaching experience during the COVID-19 pandemic. Upon consent, participants were directed to an online survey data collection site to type their responses to each question. Survey questions were as follows:

1. Describe your experience as a student teacher, both prior to and now, during the COVID-19 pandemic and related school district closure.

2. What have you personally experienced and observed as a preservice teacher in this challenging time?

3. From your perspective, are the experiences the classroom teachers experiencing similar to yours?

4. What challenges have you faced as a student teacher during the COVID-19 pandemic?

5. How are these challenges different than the ones you faced at the beginning of the semester?

6. How are your challenges the same and/or different than what your cooperating classroom teacher(s) is/are experiencing?

7. What do you qualify as your personal success(es) as a student teacher during the COVID-19 pandemic?

8. What have you learned that you believe you may not have had the opportunity to learn otherwise?

9. What concerns do you have about your personal student teaching experience during the COVID-19 pandemic?

Data Analysis

The purpose of this study was to understand the experiences of student teachers during COVID-19 school-related closures and thus the impact on the practicum of the teacher candidate. Analysis of the data collected helped researchers identify emergent themes/categories in participant responses. According to Lincoln and Guba (1985), a dependability audit is an effort to establish reliability in qualitative research. A dependability audit requires that researchers examine the research process, including an assessment of data collection, data storage, and the accuracy of the data. Data collected for this study used an online survey. Participants entered responses directly onto the online survey database. Thus, all data collected was the most accurate personal participant account. Because respondents were not required to provide identifying information on the survey, responses remained anonymous. Data was kept on the secure online survey database accessible only to the researchers until downloaded and externally secured to allow for evaluation and analysis.

The researchers coded responses to determine emergent themes. As a means of establishing internal validity of the data analysis, the researchers repeatedly engaged in a process of peer debriefing to eliminate bias and to test the emergent design. Once researchers categorized participant responses, the researchers exchanged analysis summaries and identified the emergent themes.

Results

From the sample of 69 student teachers, 33 respondents consented to and participated in this study for a return rate of 48%. Results are presented below according to each survey question. For each question, the authors provide summary details of responses as well as a list of emergent themes. Discussion for each survey question is pertinent only to the few themes with the highest coded frequency.

Question 1: Describe your experience as a student teacher during the COVID-19 pandemic and related school district closures

This question generated a total of 138 responses from the 33 student teachers. After a content analysis, responses emerged into 12 categories. Table 1 illustrates the categories with the highest response frequency for question 1.

Table 1
Question 1 Categories & Response Frequency

Categories	Response Frequency
Feelings	50
Experience	35
Remote/Online Instruction	18

Other themes that emerged from the data collected in response to question 1 were Requirements (10), Expectations (6), Classroom Activities (6), Sense of Community (4), Health and Safety (2), University Coursework (2) Classroom Instruction (2), Resources (2), and Professional Development (1).

Data collected in response to question #1 revealed a concentrated focus on feelings and experiences.

Feelings

Student teacher responses exposed a range of emotions resulting from the student teaching experience during the onset of the COVID-19 pandemic. Comments expressed feelings of worry, frustration, stress, and disappointment.

- "My experience as a student-teacher during the COVID-19 pandemic and related school district closures has been disappointing."
- "I worked so hard during this process for it all to be ruined."
- "I have been stressed about the circumstances around us."
- "Not knowing where we stand in terms of graduation makes it hard to deal."

- "I wonder whether I will be as well prepared as other previous student teachers."
- "Horrible missed out on valuable training."

Experiences

Separate from the disclosed feelings about the student teaching experience in Spring 2020, student teachers told of their perspectives on the experience. Responses were split, either expressing a positive perspective of experience or a more negative and general dissatisfaction with their experience. Respondents citing positive views of the experience spoke to the unique opportunity to learn and grow during the unprecedented events:

- "I am glad that I get to experience this**.**"
- "My cooperating teacher has been the absolute MOST AMAZING mentor of all time! I am so lucky."
- "We have the opportunity to see how teachers and the district deal with disasters like these."
- "I am really grateful that I was able to see how my teacher handled different situations throughout."

Student teacher responses which indicated dissatisfaction with their experiences pointed to a perceived sense of loss and lack of opportunity.

- "It has separated me from the students."
- "I feel that I missed out on my learning experiences."
- "I feel confusion, lost, and a sense of being robbed."
- "…the lack of opportunity, or the ability to contribute to the academic progress of students."

When investigating the student teaching experience, it was revealed that after spring break, some schools and districts allowed student teachers to continue working with cooperating teachers during the closure of campuses to face-to-face classes. Other schools and districts instructed student teachers not to report back to the campuses. This may be a major factor in the variances of feelings and experiences student teachers expressed, and the disparity is apparent in data collected for all nine survey questions.

Question 2: What have you personally experienced and observed as a preservice teacher in this challenging time?

This question generated a total of 111 responses from the 33 student teachers. After a content analysis, responses emerged into the following 19 categories. Table 2 illustrates the categories with the highest response frequency for question 2.

Table 2
Question 2 Categories & Response Frequency

Categories	Response Frequency
Remote/Online Instruction	30
Experience	15
Resources	11
Adaptation	11

Other themes that emerged from the data for question 2 were Communication (6), Requirements (6), Expectations (4), Classroom Instruction (4), Student Behaviors (4), Parental Instruction (4), Responsibility (3), Feelings (3), Student Activities (2), Classroom Management (1), Exercise (1), Quit (1), Sense of Community (1), University Coursework (1) and Health (1).

Responses to question 2 centered on remote/online instruction, experiences, resources, and adapting. Student teachers observed school district and campus-level responses to school closures and the transition to online teaching from a unique perspective—as a learner, as a practicing teacher, and yet, still a student. Data collected here again highlighted the disparities among this student teacher group where some had the opportunity to fully engage with the school district and campus-level response, while others were prohibited from doing so. Thus, responses to question 2 teachers expose those opposing views.

Remote/Online Instruction

In placements where student teachers were restricted from any further participation, respondents found it difficult to continue their practicum experience in the virtual classroom.

- "My biggest challenge was to be involved during the online courses after the school decided to close and be able to put my own input."

For student teachers who were able to continue their practicum into the virtual classroom, most expressed concern that their cooperating and mentor teachers were not ready for the experience.

- "Some teachers need to be more tech-savvy."

- "Some teachers were not prepared."

- "I observed many teachers just as lost and confused as we are and being hit with this whole new platform of learning."

- "A lot of the teachers lack the knowledge on how to use apps, others don't have good internet service, and some didn't have any material or a computer to be able to work from home."

Data collected did also note more positive observations of remote/online instruction where respondents indicated that good teaching was still occurring:

- "I have seen many teachers willing to go the extra mile to make sure students are still receiving the best education possible."

- "Our main priority as our students' teachers during this time is to make sure they [students] are at least learning SOMETHING."

Experiences

Student teacher responses to question #2 also implied evidence of respondents' ability to critically evaluate the student learning experience during remote/online instruction. Reported observations pointed to obvious difficulty teachers and students had in achieving an appropriate and productive online learning experience.

- "I have personally experienced and observed the difficulty for some students who don't have any technology at home to complete and submit all assignments."

- "I have also experienced that the students are having a difficult time with working from home due to resources."

- "It is difficult for some students who have accommodations."

- "To [sic] many distractions in the background when the teacher holds a lesson on Zoom."

Resources

At the forefront of the school closures and the related transition to online teaching, student teacher respondents noted an observed concern about resources. Responses pointed to resources as a matter of inequity for students, teachers, and for themselves.

- "At the moment, most schools and families have the resources to improve and enhance student learning with technology."

- "A lot of the teachers lack the knowledge on how to use apps, others don't have good internet service, and some didn't have any material or a computer to be able to work from home."

- "I have seen the apprehension parents have towards technology. The lack of technology in a household as well…"

- "Student teachers are limited if they cannot have access to their students through online means."

- "I have also experienced that the students are having a difficult time with working from home due to resources."

Adaptation

Data collected in response to question 2 also revealed student teacher concerns about the ability of students and teachers to adapt to remote/online teaching. Student teachers noted observations of how the transition to online teaching proved challenging for K-12 students:

- "I have also personally experienced my students' stresses towards this new way of learning."

To that end, student teachers also noted observations about teachers' need to adapt to the new format of instructional delivery and the understanding that teachers must be able to adapt to even the most unpredictable of circumstances to best serve their students.

- "I observed the need to quickly transition and make changes to [a] different form of communication and teaching."

- "Things can be changed within an instant, and you must be adaptable."

- "Personally, I have seen teachers go from one element to another and be able to adapt."

Question 3: From your perspective, have the experiences of your cooperating teacher(s) been similar to yours?

This question generated a total of 107 responses from the 33 student teachers. After a content analysis, responses emerged into the following 17 categories. Table 3 illustrates the categories with the highest response frequency for question 3.

Table 3
Question 3 Categories & Response Frequency

Categories	Response Frequency
Experiences	28
Remote/Online Instruction	21
Communication	10

Other themes that emerged from the data collected in response to question 3 were Feelings (9), Pandemic (5), Student Activities (4), Adaptation (4), Requirements (4), Classroom Instruction (4), Expectations (3), Health (3), Student Behaviors (3), Classroom Management (2), Sense of Community (2), Resources (2), Classroom Activities (2), and Professional Development (1).

The researchers asked question 3 in hopes that student teachers would help to provide a better understanding of the relationship between the student teacher and the cooperating teacher during the inimitable Spring 2020 student teaching experience. Responses again were split based on the extent to which student teachers were permitted to participate in the districts' learning continuity plan.

Experiences

Student teachers who were not permitted to engage in their assigned school districts' learning continuity plan cited experiences that differed greatly from their cooperating teachers' experience.

- "My cooperating teacher's experience is far more complicated than mine."
- "They have plenty to do while I am stuck doing nothing at all, which does nothing to help prepare me."

On the other hand, student teachers who continued to work with their cooperating teachers and classroom students after the cessation of face-to-face classes indicated having similar experiences as their cooperating teacher, thus more closely in line with the aspired immersive and authentic practical experience for student teachers.

- "From my perspective, my cooperative teacher and I are similar."
- "Yes, I do feel that our experiences have been very similar."
- "My cooperating teacher and I are experiencing the same thing."

Remote/Online Instruction

Student teachers noted apparent differences between what they were experiencing during the Spring 2020 semester of student teaching and what their cooperating/mentor teachers were experiencing regarding remote/online instruction. Survey respondents expressed a more willing readiness and skill level to engage in remote/online instruction compared to their seemingly lesser prepared cooperating/mentor teachers.

- "My teacher is about to retire, so she isn't as up to date with technology as I am."
- "She has had more struggles figuring out how to do so much in a little amount of time."
- "My teacher isn't technology savvy at all."

Some student teachers capitalized on the opportunity to offer their more proficient skills and collaborated with their cooperating/mentor teacher to respond to the challenge:

- "I was able to create the google classroom and assign our lessons."
- "We both had to learn this new way of teaching."

Question 4: What challenges have you faced as a student teacher during the COVID-19 pandemic?

This question generated a total of 91 responses from the 33 student teachers. After a content analysis, responses emerged into the following 16 categories. Table 4 illustrates the categories with the highest response frequency for question 4.

Table 4
Question 4 Categories & Response Frequency

Categories	Response Frequency
Remote/Online Instruction	21
Feelings	20
Classroom Instruction	7

Other themes that emerged from the data collected in response to question #4 were: Communication (6), Classroom Activities (5), Health (4), Resources (4), Employment (4), Student Learning (3), Student Behaviors (3), Parental Instruction (3), Sense of Community (3), Experience (3), Expectations (2), Pandemic (2), and Adaptation (1)

Remote/Online Instruction

Student teachers expressed the desire to help with remote teaching but were unable to participate in the instructional activities due to district policies that imposed access restrictions on individuals who are not formal employees. This proved to be a point of frustration for student teachers.

- "Even if it is virtual work, I have no access to it because of confidential reasons [school district did not permit access to online LMS]."
- "For about two weeks, I was unable to join class groups because my email is not part of the school's database, so it took their IT a few weeks to finally get it in the system. I missed out on the initial weeks of online learning."

Responses also indicated a sense of insecurity in that student teachers did not feel prepared or adequately trained to navigate the transition:

- "My biggest challenge during COVID-19 is being involved in the process of transitioning to online schooling and knowing how to transition or prepare."

Feelings

Student teachers reported a myriad of feelings in response to question 4. Feelings centered on loss and longing for a better and more meaningful connection with the students they felt were lost when schools closed and transitioned to online instruction.

- "I really miss them and wish I could see them all one more time."

- "…not knowing if I would see these students again…"

- "…knowing that Spring Break was the last time I saw them (students) hurts…"

Student teachers also reported feelings of a desire to help their students, cooperating/mentor teachers, and their schools despite not knowing how to or not being permitted to do so.

- "I don't know if it is because I am a teacher that I always feel the need to help."

- "I cannot help, my cooperating teacher has a big momma bear complex and is trying to protect me, so she tells me to stay home."

- "I completely understand [not being allowed access to online LMS], but my heart is there, so I want to be there to help."

Question 5: How are these challenges different than the ones you faced at the beginning of the semester?

This question generated a total of 109 responses from the 33 student teachers. After a content analysis, responses emerged into the following 23 categories. Table 5 illustrates the categories with the highest response frequency for question 5.

Table 5
Question 5 Categories & Response Frequency

Categories	Response Frequency
Remote/Online Instruction	16
Feelings	11
Student Learning	10

Other themes that emerged from the data collected in response to question 5 included: Classroom Instruction (9), Expectations (8), Sense of Community (7), Experience (7), Time (5), Assessment (5), Communication (4), Classroom Management (4), Pandemic (3), Quit (3), Requirements (3), Classroom Activities (2), Student Activities (2), Parental Instruction (2), Responsibility (2) Employment (2), Adaptation (1), Student Behaviors (1), Resources (1), and University Coursework (1).

Remote/Online Instruction

Notably, a point of respondent focus is the novel reality of remote/online instruction. Student teachers who talked about remote instruction described the difficulty they were having with the online classroom, expressing a certain level of frustration and disappointment in what has been deemed an unexpected student teaching experience.

- "Now, the classroom is virtual and not in our element."

- "Now, we cannot get in contact with the students directly."

- "We are stripped of the normal everyday class day to a screen."

- "Not ONLY do I have to teach it, but I have to VIDEO myself for all to see, and let me tell you, that is not easy."

An interesting point that can be seen in these responses is that only a third of the student teachers talked about remote learning. What were the other two-thirds of the student teachers doing for their practicum at this time? Responses indicate that student teachers almost resent their inability to be as involved in the process as they surely would have in a standard student teaching, face-to-face experience.

- "It makes it difficult to help each student individually as I am not included as well as not knowing what they are studying at the moment."

Interestingly, student teacher respondents made a point to distinguish between what they deemed to be their more successful face-to-face instructional practice during student teaching (prior to school closures) and the remote/online experience thereafter, as though to suggest that they only equated face-to-face instruction as classroom instruction. To that end, respondents described the face-to-face experience with positive connotations:

- "At the beginning of the semester, I was able to connect with the students and understand the struggles they were having in their assignments."

- "During student-teaching I was able to present lessons and help students with work assignments."

- "I could differentiate on a moment's notice to guide the instruction for a positive outcome, and also reteach if necessary."

Feelings

Results of the survey show that the frustration of navigating the transition to online learning during the Spring 2020 student teaching experience manifested itself into a range of other feelings. Responding student teachers expressed disappointment, helplessness, defeat, and personal stress because of the end of face-to-face instruction and schools going to virtual instruction.

- "I also want to take the time to be kind of disappointed in this department."

- "In these times, I feel like I'm merciless to the virus."

- "I feel that there really isn't anything I can do to change my current situation."

- "These challenges are different because I feel unaccomplished."

- "Then, on top of school worries, you also worry about your family and how the virus can affect them."

Student teachers also expressed worry about the student learning experience via remote/online instruction, an otherwise important part of the professional development process for preservice teachers.

- "I struggle with making sure my students are understanding."

- "This has been a challenge to accommodate all students' needs."

Question 6: How are your challenges the same and/or different than what your cooperating classroom teacher(s) are experiencing?

This question generated a total of 95 responses from the 33 student teachers. After a content analysis, responses emerged into the following 21 categories. Table 6 illustrates the categories with the highest response frequency for question 6.

Table 6
Question 6 Categories & Response Frequency

Categories	Response Frequency
Remote/Online Instruction	18
Experience	14
Responsibility	10

Other themes that emerged from the data collected in response to question 6 included Communication (8), Student Learning (6), Uncertainty (6), Feelings (5), Parental Instruction (4), Assessment (4), Classroom Management (3), Classroom Activities (3), Expectations (3), Classroom Instruction (2), Online Professional Development (2), Student Behaviors (2), Clarity (1) Employment (1), Time (1), Organized (1), Sense of Community (1), and Resources (1).

Remote/Online Instruction

Responding student teachers again expressed the difficulties of transitioning to remote teaching for both themselves and their cooperating teachers. Although several of the responding student teachers perceived their experiences similar to those of their cooperating teachers, respondents highlighted again their inability to participate fully due to restricted access and their observations of disparities of technology proficiency.

- "She is having to learn how to use online classroom tools and such."

- "I'm more tech-savvy."

- "Since I don't have a school district email, I can't sign on to the google classroom account."

- "We are both figuring out all the different technology we have never used before."

- "In her case, she has never used technology outside of the classroom, and she is not familiar with what is out there to deliver her lessons."

Experience

In comparison to their own experience, a majority of responding student teachers admitted that although they were dealing with their frustrations as a result of their inability to participate fully, they recognized that the experience of their cooperating/mentor teachers was much more complicated.

- "The challenges between my cooperating teacher and myself are definitely different. I wasn't considered essential."

- "All of the pressure is on my cooperating teacher."

- "My challenges are not even challenges compared to what my cooperating teacher is going through."

Question 7: What do you qualify as your personal success(es) as a student teacher during the COVID-19 pandemic?

This question generated a total of 95 responses from the 33 student teachers. After a content analysis, responses emerged into the following 22 categories. Table 7 illustrates the categories with the highest response frequency for question 7.

Table 7
Question 7 Categories & Response Frequency

Categories	Response Frequency
Remote/Online Instruction	11
Feelings	10
Communication	9

Other themes that emerged from the data collected in response to question #7 included Classroom Instruction (6), Pandemic (4), Requirements (40, Classroom Activities (4), Expectations (3), Experience (3), Adaptation (3), Availability (3), Classroom Management (2), Quit (2), Sense of Community (2), University Coursework (2), Health and Safety (2), Resources (1), Parental Instruction (1), Employment (1), Hobbies (1), and Supervisor Assigned Work (1).

Remote/Online Instruction

Despite what student teacher respondents perceived as the most complex aspect of the Spring 2020 student teaching experience, approximately 30% of the respondents qualified the exposure to remote/online instruction as a point of success.

- "My personal success would be that I would be able to run online classes, and I would not be afraid of jumping into it."

- "Becoming prepared to use all different software to help teach my students…"

- "Being more familiar with technology and not being afraid of using it."

In reflection, respondents viewed their experience as one which afforded them the opportunity to explore new tools in ways to affect student learning in new ways.

- "Creating a mini blackboard for my 5th graders through google classroom…"

- "I have learned how to use the Zoom app."

- "I have learned how to create lessons that I can put on an online website in which the students can access."

Feelings

Question 7 sought to encourage student teacher respondents to reflect on their Spring 2020 student teaching experience through a constructive lens. One respondent powerfully recognized that "we are, so far, the only class who has gotten the opportunity to witness how a school district reacts during such an emergency." Other responses to this question generated a series of data emphasizing their feelings about the experience and how those feelings equated to a new definition of success in the practicum.

- "I like to think I was successful as being there as support for all students and [my] mentor teacher."

- "[I] am grateful for the opportunity."

- "My personal success would be learning that teaching/learning can be fun and is versatile."

- "I really fell in love with teaching during my student teaching experience."

- "I qualify my personal success during this pandemic that as a future teacher I learned to be flexible in any kind of situation, also being positive and keeping with our students in any moment."

Communication

Respondents also highlighted the importance of good communication skills during this unparalleled student teaching experience, a skill that, if ignored, might have changed the course of their preparation and disqualified their success in the practicum.

- "As a student-teacher during the COVID-19 pandemic, my personal success is being responsible by communicating with my cooperative teacher and discussing the students' progress and challenges while homeschooling."

- "I tried reaching out to my mentor almost on a daily basis even if I was unable to get online initially."

- "I was willing to adapt and communicate with the administration to get what was needed for the students."

Question 8: What have you learned that you believe you may not have had the opportunity to learn otherwise?

This question generated a total of 74 responses from the 33 student teachers. After a content analysis, responses emerged into the following 29 categories. Table 8 illustrates the categories with the highest response frequency for question 8.

Table 8
Question 8 Categories & Response Frequency

Categories	Response Frequency
Feelings	11
Remote/Online Instruction	11
Student Learning	5
Adaptation	5

Other themes that emerged from the data collected in response to question #8 were: Resources (4), Change (3), Pandemic (3), Experience (3), Expectations (2), Classroom Activities (2), Student Behaviors (2), Quit (2), Uncertainty (2), Technology Use (2), Family First (2), Prepared (1), Teamwork (1), Hoard (1), Isolation (1), Expendable (1), Creativity (1), Patience (1), Parental Support (1), Time (1), Employment (1), Classroom Management (1), Communication (1), Parental Instruction (1), and University Coursework (1).

Feelings

Question 8 brought us the most diversified, yet the smallest set of data, from responding student teachers. Because student teachers are preservice practitioners, the researchers expected to see responses pertinent to the teaching profession, and lessons learned related to such. Respondents, however, used this as an opportunity to instead detail some of the more personal lessons learned, including the value of personal connections and other matters of importance.

- "I have learned that I miss my kids. I mean, I knew I was going to miss them, but I didn't even get a chance to say goodbye."

- "I lost one of my students. They took their own life and going back to that classroom was painful."

- "I have learned that every day is a blessing."

- "I have learned to control my emotions."

- "Care for everyone closest to you and constantly check on them."

- "…not get frustrated."

- "…how to deal with an extremely stressful situation."

As a point of inspiration and grit, one student teacher respondent noted the realization that "a pandemic doesn't scare teachers away that easily."

Remote/Online Instruction

Responding student teachers did make a point of addressing the obvious novelty of learning how to teach remotely/online during the Spring 2020 student teaching semester. Student teacher respondents acknowledged that "remote teaching is one thing that I would never gotten to experience otherwise." The experience of learning how to teach remotely/online not only offered practice and proficiency but encouraged student teachers to think progressively about creative ways to continue to engage with students to impact student learning.

- "I learned that there is always a way to try and continue teaching to his/her students during a pandemic with different resources."

- "I have learned how to conduct an online face-to-face meeting with 1st graders."

- "Remote teaching has always been used, but with kindergarten, it is a whole different experience."

Student Learning and Adaptation

Data collected and themed found ties between student learning and adaptation. Respondents expressed recognition and appreciation that regardless of the situation, the goal and purpose of education is to help students learn. In this scenario, student teachers credited adaptation as necessary to do to help students learn.

- "I learned through my personal experience that at the end of the day, the goal is to make sure each student has learned a piece of new information."

- "I believe with the pandemic, I will learn more on how to find creative ways to help my future students to understand the material."

- "There is always a solution to be able to educate the young."

   "Always stay open-minded such as the students, parents, change of classroom, change of a meeting, planning day, absence, weather and now teaching online."

- "There is always a way to still learn."

Question 9: What concerns do you have about your personal student teaching experience during the COVID-19 pandemic?

This question generated a total of 75 responses from the 33 student teachers. After a content analysis, responses emerged into the following 13 categories. Table 9 illustrates the categories with the highest response frequency for question 9.

Table 9
Question 9 Categories & Response Frequency

Categories	Response Frequency
University Course Work	19
Employment & Uncertainty	19
Prepared	12

Other themes that emerged from the data collected in response to question 9 were Feelings (6), Classroom Instruction (5), Communication (4), Remote Instruction (2), Change (2), Lost Opportunity (2), Teamwork (1), Technology Use (1), Pandemic (1) and Health and Hygiene (1).

University Coursework

All student teacher respondents expressed concern as to whether the shortened/altered student teaching experience would qualify them for teacher certification and/or whether they'd be able to graduate. Common curiosities in response to question 9 asked:

- "Will this prolong my student teacher internship?"

- "Will [I] still be able to graduate accordingly on schedule?"

Clearly, student teachers were uncertain and equally anxious about what this meant for their immediate futures, having entered the student teaching experience with a certain degree of promise and completion but now immersed in a world of ambiguity.

Employment/Uncertainty

Accordingly, student teacher respondents also expressed concerns about the longer-term impact of the experience and perceived difficulty in finding a job after a shortened student teaching experience. Worries centered on whether they were properly prepared for the teaching position, for the job market, and again whether they'd be eligible for the Texas Teaching Certificate.

- "I do not want this to affect my certification."

- "I won't be able to find a job."

- "I believe the weeks that I miss due to COVID-19 really is undermining how I view myself as a future teacher and makes me think how it will affect me later once I have my own classroom."

Preparedness

Responding student teachers expressed their doubts about being prepared for their future classroom. Student teachers expressed fear that potential employers would view them as underprepared due to the shortened and altered student teaching experience of the Spring 2020 semester.

- "My main concern from my personal student teaching experience is that I don't believe I am well prepared enough as I was not able to complete all 15 weeks."

- "I know there is still a lot more I can learn and improve."

- "I know there was so much more to learn and complete while during student-teaching."

- "I am concerned that future employers will not see me fit for a job due to the lack of time in a classroom."

Conclusions

An overall analysis of the data revealed that remote/online instruction, feelings, and experience came through as the most frequent categories across all nine survey questions, indicating that student teacher responses centered in these areas. Table 10 illustrates the results.

Table 10
Overall Emergent Categories & Response Frequency

Categories	Response Frequency
Remote/Online Instruction	146
Feelings	120
Experience	84

Remote/Online instruction

Remote/Online Instruction is relatively new to South Texas K-12 education, and its prominence as a top category in this study is reflective of that reality. Student teachers expressed uncertainty about teaching online but also addressed a level of appreciation for the opportunity.

- "I have had to learn how to conduct an online face-to-face meeting with 1st graders and not get frustrated."

- "It is very difficult to teach young kids over an online platform, but my mentor teacher has taught me to take each login as a success."

- "Remote learning is not something that is usually used for elementary; we have the opportunity to see how teachers and the district deal with disasters like these."

The results revealed a group of respondents who were unable to continue at full capacity in their assignments due to school district restrictions. Comments from that group indicated a sense of frustration that they were unable to capitalize on the remote/online teaching training opportunity.

- "Now that schooling is done online, it makes it difficult to help each student individually as I am not included as well as not knowing what they are studying at the moment."

- "Student teachers are limited if they cannot have access to their students through online means."

Feelings

Student teachers expressed a range of feelings about the student teaching experience in general. Comments suggested that student teachers felt a sense of loss, frustration, and broad uncertainty about how this will impact their professional development.

- "As a student teacher, I feel frustrated."

- "I feel confusion, lost, and a sense of being robbed of my experience."

- "I feel unaccomplished, and it reflects on the job interviews I have had. I can't share my full experience of student teaching because technically, I have not completed it."

- "I feel that I was expendable to the district since I wasn't a paid employee. I feel like I got put on the back burner in this time."

- "I feel there was good experience I could've gained by at least helping the teachers hand out the meals-to-go to students."

Experience

Although there was a sense that the student teaching experience during Spring 2020 "has definitely been hectic," comments also reflected a sense of appreciation in reflection.

- "Being a student teacher was very hard during this time."

- "My experience has been great. The beginning was amazing. I was parred [sic] with an amazing cooperating teacher."

- "I have experienced challenges of still learning how to be a teacher first and foremost."

- "The experience is such an eye-opener to all that a teacher has to do and what a teacher does outside of the classroom."

Discussion

From these findings, it is clear that preservice teachers greatly value student teaching as an important part of the teacher training experience. School closures as a result of COVID-19 severely impacted that experience for this group of respondents. Whether citing dissatisfaction with the shortened and greatly altered experience or an

appreciation for the opportunity to observe and engage in what may be a massive shift in education, participant responses reflect a high regard for clinical practice as crucial to their journey toward professional teacher identity development. Thus, the same can be assumed for students enrolled in teacher preparation all across the state and the country.

The student teaching experience simply cannot be dismissed as routine or reduced to a mere requirement of teacher training (Varela et al., 2019). Student teachers who indicated they were able to participate in the district response to school closures were afforded a more comprehensive experience, thus their more positive perspective. It is worth noting then that there was a disservice experienced by the student teachers who were unable to fully participate in their school district's response to school closures. COVID-19 related school closures created a whole new world for K-12 education.

Districts were forced to plan for and transition to remote instruction in a matter of days. Teachers and administrators were challenged to find innovative ways to support all students under new circumstances and in the face of magnified student resource inequities. The stark reality is that in rural schools due to economic disparities, the technological infrastructure, logistics, and resources necessary for remote instruction are lacking (Hash, 2021). As a result, schools in rural communities were less likely to require teachers to lead real-time virtual instruction creating a wave of additional inequities for students in those schools (Gross & Opalka, 2020; Lai & Widmar, 2020). Thus, while during this immediate shift to remote instruction, schools across the nation innovated with new instructional technologies, new strategies, and new ideas, in the process, the ability of rural schools to keep up was tested. The findings of this study indicate that preservice teachers in rural community schools--a group of the most immediately new generation of teachers-- missed out on an unprecedented wealth of training and real-time experience.

Spring 2020 student teachers likely entered the teacher workforce in the 2020-2021 school year, one which in many school districts began virtually and, at the time of this writing, maintain some level of remote instruction. The first three weeks of an instructional school year are the most crucial to the success of novice teachers (McEwan, 2006). Arguably, starting a school year online may prove to be far

more complicated than was finishing a school year online. In either case, by preventing student teachers from full participation, exposure to the veracities of appropriately serving K-12 schoolchildren in times of crisis was denied.

Respondents expressed various levels of concern about the quality of the training experience and how that might affect eligibility for graduation, certification, and job marketability. These are natural and expected concerns, but what this also reveals is a desire for better communication from educator preparation program leadership (Varela et al., 2020). Granted, during COVID-19, there have been more questions than answers, especially as it relates to the education system. Still, this is a lesson learned for educator preparation programs and policymakers to strengthen the line of communication and to develop a clearly defined plan of action in the event of a future and similar occurrence.

Language in Chapter 228 in Title 19 of the Texas Administrative Code, a section of the code that provides in great detail the requirements for educator preparation program (ownership, governance, curriculum, training, etc.), made room for the possibility of school closures. Specifically, the rule states:

> (d) If the governor declares a state of disaster consistent with the Texas Government Code, §418.014, Texas Education Agency staff may extend deadlines in this chapter for up to 90 days and decrease clinical teaching, internship, and practicum assignment minimums by up to 20 percent as necessary to accommodate persons in the affected disaster areas. (19 Tex. §228.1(d)).

These rules were a result of natural disasters in the state, like Hurricane Harvey in 2017. To that end, a 20% reduction of assignment minimum for clinical teaching amounts to a little less than three weeks. In the Spring 2020 semester, schools closed for three months or more. There were (and remain) no rules or plans in place for events like COVID-19 that would close schools for three months or more, nor to plan for the possibility that closures would move K-12 education online. In fact, Chapter 228.35 specifies that field and clinical experiences take place in "*actual school settings rather than... a virtual school setting*" (19 Tex. §228.35(e)(6); 19 Tex. §228.35(e)(8)(A)) and that observations by field supervisors must be conducted at the candidate's face-to-face assignment (19

Tex. §228.35(g)(1); . As the COVID-19 pandemic has proven in many ways, education is forever changed, and as the experiences of student teaching during COVID-19 have shown, teacher preparation must change as well. Still, rules currently only make an exception to a face-to-face setting for clinical experiences for the 2020-2021 academic year (19 Tex. §228.1(e)). In September 2021, Governor Abbott signed into law Senate Bill 15, which grants funding for students attending school virtually in districts choosing to offer that model (Texas Education Agency, 2021). Thus, the results of this study encourage redevelopment of current rules guiding teacher preparation to better reflect where K-12 education is headed versus where it has been. If ever there were a situation that forced the transcendence of the status quo, this is it.

With that, it is important to note the implications of this study on teacher preparation. The next generation of teachers must be prepared to teach online. Teacher preparation programs must create space for meaningful learning experiences and high-quality practical experiences to understand how to deliver instruction, how to engage students and parents, and how to assess student learning online. Further, the findings of this study urge the need for teacher preparation programs to include an intentional focus on building teachers' capacity to provide learning resources for all students, regardless of their financial situation. Rural schools, like those in which many of this study's participants were assigned for clinical experiences, face socioeconomic challenges that impact student achievement (Johnson & Strange, 2007). Neglecting this obligation would be a disservice to the future of the teacher workforce and the potential impact to influences increases in student achievement.

There is also an opportunity to engage preservice teachers in action research. Student inequities are magnified during school closures; thus providing an equitable learning experience becomes more challenging. Student teachers are in a unique position, being both students and teachers, to research and practice strategies aiming for equitable learning experiences for K-12 students in an online world. The student teaching experience is a perfect occasion to not only practice what has been taught in the teacher preparation sequence, but also to find answers to new problems, to test new strategies, and cycle findings back to educator preparation as an approach to continuous improvement.

Colleges of education and educator preparation programs should also consider strategic partnerships with on-campus resources such as distance learning support and instructional technology services. At institutions of higher education, these staff offer training specifically designed to help educators enhance the online learning experience. Combining that kind of guidance with a developing understanding of student learning and pedagogical strategy, teacher educators and student teachers can work together to tailor to the needs of K-12 students learning in an online world. Further, as a means of developing stronger partnerships with local school districts, colleges of education and educator preparation programs are encouraged to engage K-12 teachers and administrators in the same instructional technology training opportunities. Additionally, collaborative opportunities exist for colleges and programs to aid rural schools in the pursuit of funding opportunities intended to remedy infrastructure and logistical issues in rural areas and to initiate a response to the evident need for new and ongoing professional development benefitting teachers' instructional practice.

Teacher education must be different going forward. Programs must work to design teacher preparation in a way that is both proactive and responsive to the changing dynamics of the K-12 education, not only as a result of the COVID-19 pandemic, but also because of the inequities that continue to complicate any ease of transition (Darling-Hammond & Hyler, 2020). Student teachers deserve the most immersive, authentic, and deliberate opportunity for professional development during their practicum (Varela et al., 2019). Teacher preparation programs in partnership with school districts owe it to themselves and to all students (K-12 and post-secondary education) to create and carefully facilitate that experience (Varela et al., 2020).

The results of this study highlight the various ways in which the student teaching experience during the COVID-19 pandemic was disconcerting and frustrating. The results also reveal perceptions of the experience as encouraging. To the best of their ability, student teachers rose to the challenge and qualified the experience as an opportune moment to inventory the *new* skills they'll need to succeed in their future classrooms. Without a precedent or plan, teacher preparation programs and student teachers adapted as well as possible alongside their K-12 partners. Going forward, the challenge will be to fortify and progress.

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TEXAS PRESERVICE TEACHER EDUCATION: HYBRID METHODS COURSE MODEL IMPLEMENTATION

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Abstract

With a movement toward a more flexible educational experience, courses have been developed that possess synchronous and asynchronous features as well as both online and face-to-face components. Although the use of online and hybrid platforms is very common, it is not as frequently used in courses that feature internships and clinical experiences such as field placements and clinical teaching situations for individuals training to be teachers. Not all that common in preservice teacher (PST) education, the hybrid model has shown a high level of promise, allowing students to receive quality content instruction while allotting them more time working in the field with expert inservice teachers. The hybrid model was developed to be flexible and meet the needs of the PST. Yet, ongoing, quality, and reciprocal professional development for all participants was a driving force for the online content development. This has resulted in a successful hybrid model for training teachers.

Keywords: hybrid methods, T-TESS, field experience, Texas certification exams

The trend of universities offering online courses and totally online programs has dramatically increased in the last several years. Now, it is not uncommon for universities to be completely online and free from the brick-and-mortar model altogether. The popularity of online coursework is due to its usefulness to non-traditional as well as traditional students in higher education (Dolan, 2009). Mostly asynchronous in nature, not only does online coursework allow traditional students greater flexibility when scheduling academic courses, it has also allowed non-traditional students to complete undergraduate degrees as well as seek graduate credentials. With its steadily increasing popularity, a focus on quality instruction has helped ensure the caliber of content delivered online remains high. However, one enduring and common complaint among teachers and students about online courses has been the lack of connection and engagement among students and instructors (Bolliger et al., 2019; Dolan, 2009; Sanga, 2018). This area of concern is being addressed by advancements in technology such as increased accessibility to high-speed internet, quality digital video formats, video response discussion platforms, and widely available inexpensive or free file-sharing programs. These have increased the engagement capabilities of online courses, making the platform more effective and more satisfying for those seeking a more interactive experience (Bolliger et al., 2019; Brunken, 2019; Casarez et al., 2019). With this online shift and a movement toward a more flexible educational experience, courses have been developed that possess synchronous and asynchronous features as well as both online and face-to-face components. Hybrid courses, as they are called, allow for flexibility for both students and professors because face-to-face components can be synchronously delivered

through virtual meeting software or asynchronously through recorded videos and other methods like video response platforms (Hass & Joseph, 2018; Lei & Lei 2019; Tuckman, 2002). Although the use of online and hybrid platforms is very common, it is not as frequently used in courses that feature internships and clinical experiences as in the case of field placements and clinical teaching situations for individuals training to be teachers. Despite the need for flexible formats to accommodate learners, the course delivery associated with internships and clinical placements has remained traditional and largely unchanged. This is in large part due to the fact that these types of courses not only possess a face-to-face internship component but also coursework to prepare for the internship experience as well as in-time supplementary activities to support fieldwork. However, courses that feature field experiences that require both an instructional component as well as time in a clinical setting can benefit enormously from the hybrid format (Hurlbut, 2018). Although not all that common in preservice teacher (PST) education, the hybrid model has shown a high level of promise, allowing students to receive quality content instruction while allotting them more time working in the field with expert inservice teachers.

Feedback from stakeholders involved in the traditional secondary methods course model conducted in the professional development school (PDS) setting demonstrated clear frustration with the traditional course mode of delivery. This mode of delivery traditionally entailed dividing PST time between their university class and time in the field teaching pre-school through 12th grade (P-12) students and working with inservice teachers. With this information, a hybrid secondary methods course model was designed and delivered to address the concerns of all parties involved and with the aim of increasing the instructional quality of the coursework, maximizing the benefits of the field placement, and ensuring the positive impact on the P-12 students with which the PSTs work. The hybrid model yielded dramatically different results from the traditional model, and feedback from various data collection points, methods students, and PDS mentor teachers demonstrate its efficacy and potential for additional positive growth.

The Hybrid Model

According to the Education Department's National Center for Education Statistics, while enrollment across the country in higher education has declined as a whole, enrollment in online courses has increased (2018). For many students, online courses are more feasible because they allow flexibility for interns to gain experience while attending to work and outside responsibilities (Ortagus & Tanner, 2019). While this trend is growing, teacher preparation is in a unique situation because of the opportunity to blend both online learning and internship obligations using a hybrid model for teacher preparation. Particularly during the two semesters leading up to clinical teaching or full-year internship when content and pedagogical instruction is still a major component of the coursework, PSTs enrolled in a hybrid teacher preparation program can fulfill the content expectations online while spending more intensely focused time working with P-12 students in their classrooms gaining experience.

In accordance with best practices in school-university partnerships, a school–university culture committed to the preparation of future educators that embraces their active engagement in the school community (National Association of Professional Development Schools, 2008) plays a critical role in this model. Traditionally, PSTs spend about half of their semester in the field with P-12 students and teachers and the other half in classrooms with professors working on content prior to clinical teaching. Our school-university partnership committee met and agreed that 100 percent of the semester would be more beneficial in terms of having PSTs in the P-12 classroom working with students and working alongside expert, inservice teachers. As the hybrid model allows PSTs more time, their experience includes tutoring, involvement in school-community events, and traditional P-12 classroom work. The outcome has resulted in students doubling the hours of experience in the field. The feedback from PSTs continues to be very positive, as exemplified by this quote, "I felt like I developed relationships with the students and my mentor by being in the field regularly. This model helped with my teaching."

Additionally, this model allows time for mentors and PSTs to engage in co-teaching. Co-teaching is a model that provides specific structures for mentors and PSTs to collaborate meaningfully in order to maximize the potential of the field teaching experience. The PST shadows the

mentor and collaborates using six specific strategies, allowing the mentor teacher to serve as the expert and scaffold for skill acquisition in a gradual release of responsibility for the PST. The model is meant to create more of an apprentice model as opposed to a sink or swim situation for the PST. Seven components of co-teaching include: 1) One Teach, One Observe, 2) One Teach, One Assist, 3) Station Teaching, 4) Parallel Teaching, 5) Supplemental Teaching, 6) Alternative/Differentiated Teaching, and 7) Team Teaching (Cook & Friend, 1995). Comments taken from course surveys demonstrate this. One PST stated, "Practicing with the different co-teaching models helped me feel more involved, and I never felt like I was just there to observe."

Not only was the hybrid model developed to be flexible and meet the needs of the PSTs, ongoing, quality, and reciprocal professional development for all participants was a driving force for the online content development. Not only did PSTs need online content support, but mentor teachers also needed professional development for mentoring and co-teaching support. For mentor teachers, they were given access to a one-stop website for mentor teacher support. For PSTs, the content was delivered using the online learning platform used by the university for both traditional face-to-face and online courses. This allowed students to track their progress using the grade book in the learning management system they were already familiar with, which helped ease their natural worries about grades and focus on their actual development as a teacher. The main features, comprising both synchronous and asynchronous aspects, of the online learning platform utilized were discussion tools, quizzes, reading assignments, and written assignment submission.

Components of the Hybrid Model

The following are featured in the current hybrid model discussed in the previous section. The hybrid format has three main areas that are important to address. Course content, communication, and the clinical internship component are discussed in further detail below.

Course Content

Course content was delivered in various ways, both synchronously and asynchronously. Instructors created and posted instructional videos to accompany the course textbook. The course textbook focused on current English language arts and reading (ELAR) pedagogy as well as cross-curricular literacy strategies. Synchronous mini-workshops on targeted topics were hosted by students and professors alike. Students created Google sites to display coursework so that their work became a dynamic living portfolio that they could access for use even after the course was completed and they no longer could get access to the course in the learning management system. Students were encouraged to put any tools, strategies, and ideas from their field experience as well as assignments on the site for later reference. A pacing guide was provided for students to follow, but they had autonomy over their schedule as field demands for individual students varied.

Literature circles delivered in blog format increased student collaboration and connectedness as well as modeled best practice content pedagogy. The in-person literature circle was adapted for online learning, and students "met" weekly, synchronously or asynchronously, to complete literature circle tasks. This also served as a model for students who may one day need to transition face-to-face in class literature circles to an online setting.

Self-paced Texas licensure tools such as Certify Teacher with interactive study methods and practice quizzes were included and allowed students to prepare for their upcoming exams. This was accompanied by a planning and pacing guide so students could set completion goals tailored to their specific scheduling needs.

Students received unit planning instruction, and the assignment was structured in such a way that students were in collaborative teams to create their own cross-curricular literacy-rich mini-unit. This collaboration not only gave them the benefit of working with peers to maximize learning when planning the unit, but it also provided another opportunity for peer connection that helped support students in the field placement. Students were given various platforms readily available within the context of the existing learning management system with which to collaborate. Students could use Zoom, Google Hangout, Google Meet, and course discussion boards.

Communication

Online discussion topics were assigned as part of the course content, but the topics were primarily meant to provide a forum for collaborative teacher talk. Preservice

teachers really appreciated the discussion board feature as one PST reported on her course reflection form, "I loved the discussion boards because we were in the field with our classes but also got to discuss what we were doing with our peers." The online discussion topics were designed to mimic the same kind of collaborative conversations that inservice teachers have in which they share pedagogical and management strategies. PSTs could bounce ideas around and talk about problems they were experiencing and share problem-solving techniques. The discussions also helped create a sense of community even though students were in the field and may be placed on different campuses. Typically, during the field placement time, students wouldn't necessarily be in contact with one another, so the discussions helped keep them connected to an additional support system in addition to the professor and mentor teacher.

For mentor teachers, a website, mentioned in further detail below, was created specifically for them that included training and support videos, forms, guidelines, contact information, and additional supports.

Pre- and post-synchronous teaching conferences with instructors could have been held in person but were mostly conducted using virtual meeting software such as Zoom, which allowed for location flexibility. This became even more valuable for social distancing purposes as in-person restrictions increased. For immediate communication, instead of waiting until students accessed their online course, a communication app, Remind, was used to broadcast important announcements to the whole class or communicate with one student in particular.

As an alternative to in-person pre-placement meetings with mentor teachers and administrators or cumbersome emails, which take up valuable time, mentors and administrators were provided with a central location for all pertinent information via a Google site that was shared with all involved parties. This site contained a placement calendar, forms, student handbooks, contact information for university supervisors, policy documents, mentor expectations, and helpful tips. The site also features co-teaching training videos and information to help new mentors learn about the co-teaching process, and experienced mentors review information as needed.

Clinical Internship

Video annotation was incorporated and dovetailed perfectly with the hybrid model as students in the field were able to record their teaching. GoReact, a video recording and annotation platform, allowed students to video their teaching and receive feedback from supervisors and peers when appropriate. Video annotation software holds the key to improving reflection, which is integral to the development of PSTs as GoReact allows for the documentation of critical features at specific and relevant points in the video which are documented and time stamped. This allows for an evidence-based reflection that is richer, more thorough, and more useful in improving practice. This type of tool provides scaffolding that is integral in the development of PSTs into successful practitioners. The use of video annotation software benefits preservice teachers in a myriad of ways and thusly aligns with the mission of educator preparation providers to prepare successful, reflective professionals using best practices. In GoReact, students can make specific connections in their teaching to the observation evaluation feedback provided by their supervisor. The visual connection of their teaching action paired with time-stamped feedback strengthens their ability to reflect and make significant changes in their classroom practice, leading to more significant improvement gains during the field experience. Because students could individually watch their teaching videos, view the feedback comments left by the instructor, and use that information for reflection, GoReact was an effective component for the hybrid model. In conjunction with the GoReact videos of their teaching, PSTs corresponding written lesson plans, lesson reflections, and formal teaching evaluations conducted by the university supervisor were submitted in a teaching portfolio to TK20, the college data collection system, at the conclusion of the placement.

Utilizing the data collection system TK20, mentors and PSTs could track and document time spent in the field for various purposes. PSTs used digital time log approvals to document observation and teaching field hours, allowing mentor teachers and instructors to track and verify individual students' time in the field. PSTs had the responsibility of creating the time logs and sending the verification emails to mentors. They were also responsible for making sure that they were accurate and approved in the system. Information about this aspect of the field placement

was also included in the mentor Google site provided to mentors at the first of the placement.

Lastly, all through the field placement, students were to collaborate with their mentor teachers by using the co-teaching models. PSTs were responsible for engaging in the co-teaching models starting the first week of the placement and were required to maintain and submit a log of all co-teaching dates, times, and strategies used throughout the internship.

Experience: Reflections from a Hybrid Model PST

Based on experience in Block B and clinical teaching, the hybrid model improves the overall effectiveness of preservice teachers' lessons, appropriate adjustment of future planning, and improved collaboration with the mentor teacher. The PST stated, "Spending more time in the field allowed me to be comfortable in the classroom. I got to know the students, and this made managing the classroom much easier. Working so much with the mentor and teaching more often than I would have without the extra time made me more confident in my abilities and made me improve a lot." Adding the video recording program to the hybrid model also increased the positive impact of the hybrid model. "During this pandemic, it has been extremely beneficial to not only to my mentor teacher and clinical supervisor but to me as well. I can quickly receive feedback and reflection." Video has the potential to help PSTs reflect upon and notice the impact of their actions in the classroom. Video allows PSTs to focus on specific components of their teaching, such as the impact of pedagogical decisions and their choice of management strategies. From watching themselves teach at different points in their learning process, they have the opportunity to develop critical reflective practices that help them move beyond shallow reflections based on recollections of what happened during a lesson in the past to recognizing and developing their abilities as teachers.

Discussion

Online delivery has often garnered criticisms on the part of both students and instructors because of its challenges to provide a cohesive and engaging environment due to the lack of interactions among the parties involved. In the ever-changing landscape of higher education, the hybrid model, when implemented in a systematic and thorough way, is just as successful and, in some arenas, even more beneficial than the traditional face-to-face format. This is especially true in terms of PST hours in the field and experience co-teaching. As online delivery and varied online degree options become more prevalent, and demands on traditional and non-traditional students increase, flexibility on the part of universities and education preparation providers will be the only way to stay relevant (Ortagus & Tanner, 2019). The recent pandemic has demonstrated that online course delivery options are a must when trying to accommodate the challenging situations that we have today that perhaps not an issue a decade ago. Also, hybrid delivery is more flexible and accommodating for today's learners and their unique situations. This small study demonstrates that students' learning during their methods field placement does not suffer through online course delivery. Also addressing common complaints of students not feeling connected was the professors' concerted effort to stay connected with students on every level. Teaching an online course requires

Mentor teachers were positive and displayed great enthusiasm in the field, particularly when referring to the traditional model. One mentor had a difficult time the year prior because of the time split and the confusion it caused with the bell schedule. After a semester with the hybrid model, she very enthusiastically stated, "This has been awesome! My preservice teacher is here more than required, and we are truly practicing the co-teaching model. This semester has been good for me also." Her point really highlights the mutually beneficial component of PDS and the hybrid's advantage of allowing for PSTs to have more time in the field.

Preservice teachers also appreciated the flexibility of the format as well as additional time working with students in the P-12 classrooms. As demonstrated in quotes earlier, PSTs felt they were able to establish better relationships with the P-12 students because they were there more often and on a more consistent basis. PST also indicated that they were able to establish a better rapport with their mentor teachers and better able to be involved in a true expert-novice internship experience. Another PST stated, "The extra and more consistent time in the placement let my mentor and I work together and use the different co-

teaching models. I really learned a lot from the experience."

Other points PSTs appreciated about the model aside from extra time in the field and more time teaching included the state test preparation options, optional Saturday workshops, and increased communication using Remind 101 and Zoom. PSTs felt there was increased time devoted to coursework focusing on content pedagogy. Additionally, lessons observed by university supervisors seem more student-centered and responsive and less scripted and mechanical, indicating, perhaps, the benefits of PSTs' strengthened relationships with students. This hybrid model will continue to evolve as we continue to collect data, analyze data, make informed changes to the model, and reflect in an ongoing research cycle to make

every effort to maximize our mutually beneficial relationship with our school district partners and provide the highest quality education to our PST.

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Using Empirical Evidence to Evaluate Teacher Preparation Programs: A Case Study for CAEP Accreditation

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Abstract

Guided by Standards 4 and 5 of the Council for the Accreditation of Educator Preparation (CAEP, 2020), the intent of the study was to provide a comprehensive evaluation of the quality of one teacher preparation program in rural East Texas. A case study with a mixed-method design was used to examine empirical data from a broad set of measures. Based on feedback from mentor cooperating teachers, recent graduates, and school principals, strengths and weaknesses of the teacher preparation program were identified. Results showed that our teacher candidates were well prepared with a good understanding of individual differences and the diverse backgrounds of learners. The candidates were well prepared to create environments that support individual and collaborative learning, encourage positive social interaction, and facilitate active engagement in learning. Results also revealed a need to better prepare teacher candidates with skills in assessment and leadership, and to consider ways to strengthen proficiency in classroom management.

Keywords: Teacher preparation, CAEP accreditation, case study

There is growing attention on the effectiveness of teacher preparation programs (TPPs) in preparing quality teachers. Teacher preparation programs are frequently asked to determine how effective their graduates are based on several factors such as job placement, retention rates, student learning, and graduates' perceptions on performance and effectiveness of their TPPs (Henry et al., 2012; Monk 2015; U.S. Department of Education, 2011, as cited in Coggshall et al., 2012). Investigating this topic is important because "Too many beginning teachers report that they do not feel well-prepared when they enter the classroom, and their supervisors often agree" (Levine, 2006 as cited in Coggshall et al., 2012, p. 3). Only as few as 20% of first-year teachers indicated they felt they were well-prepared to choose and modify curriculum, handle classroom management, and assess the students under their care (National Center for Education Statistics, 2011 as cited in Coggshall et al., 2012). Stakeholders have called for

increased research to improve the quality and effectiveness of teacher education programs (Bartell et al., 2018).

To evaluate and make decisions on program effectiveness, emphasis has been placed on collecting empirical evidence for improvement in the TPPs (Crowe, 2010; Ludlow et al., 2011). This is guided by the Council for the Accreditation of Educator Preparation (CAEP) Standard 5: Provider quality, continuous improvement, and capacity (CAEP, 2020), which suggests that a quality assurance system relies on a variety of comprehensive measures to ensure the continuous improvement of the TPPs (Ruben, 2010). For example, areas to measure program quality for improvement could be: a) candidates' characteristics, b) their knowledge, skills, and professional dispositions, and c) their impact on students' learning, which was recognized as value-added assessment (Bransford et al., 2005; Zeichner & Conklin, 2005). However, value-added assessment alone does not provide

detail as to what to improve (Noell et al., 2019) given the limitations of the grade or subject area tested (American Education Research Association [AERA], 2015; Henry et al., 2012). Classroom observation evaluation ratings of teacher performance are more informative when making decisions of hiring a new teacher, as indicated by school administrators, (Goldring et al., 2015), and can be a valuable component of TPP evaluation (Bastian et al., 2018). Given the complexity in the process of evaluating the effectiveness of TPPs, "attention should be given to incorporating a broader set of teacher performance measures" (Henry et al., 2012 p. 351).

Based on the suggestions from the current literature, as well as CAEP standard 4: 1) 4.2-Indicators of Teacher Effectiveness, 2) 4.3-Satisfaction of Employers, and 3) 4.4-Satisfaction of Completer (CAEP, 2020), comprehensive empirical data were collected from a broad set of outcomes with the intention to provide a systematic evaluation of the quality of the TPP. In the current study, investigators focused on beginning teachers with less than three years of teaching experience, given the fact that the influence of teacher education preparation might be weakened over time. Examination of similarities and differences between candidate performance during clinical teaching and teaching performance at the conclusion of at least one year of serving as a teacher of record in a classroom setting was conducted through multiple resources. These sources served to answer the following research questions:

1. How well did we prepare our teacher candidates?
2. What were the similarities and differences in their teaching before and after graduation?
3. What can be improved in our teacher education program?

Methodology

Participants

Graduates who successfully completed the Early Childhood through 6th Grade (EC-6) and Middle Level Grade (4-8) programs offered through the TPP and who had also served between one to three years as a teacher of record in a classroom setting served as participants. To begin with, a convenience sample of participants was identified by faculty members and program coordinators from within the Department. Faculty members nominated former teacher candidates with whom they had worked and who also agreed to participate. The final group of participants included ten graduates from the EC-6 and 4-8 programs, two males and eight females, who were African American, Hispanic, or White. These beginning teachers were placed in Pre-K, K, 1st, 3rd, 5th, 6th, and 8th grade classrooms. In addition, seven principals participated in this study. The principals were predominantly female, most of which were African American and White, and all served as administrators on the teachers' home campuses. Faculty members and mentor cooperating teachers (i.e., classroom teachers who supervised teacher candidates in their clinical teaching experience) also completed evaluations which provided data for this study. However, they were not considered primary participants.

Data Collection and Analysis

Data collection took place in two different periods. The first round of data was collected during the clinical teaching period. The second round of data was collected near the completion of at least one year of serving as a teacher of record in a classroom setting. Data were collected from multiple instruments as described in the following.

The Program Evaluation Survey

This survey included ten statements that were directly modified from the Interstate Teacher Assessment and Support Consortium (*InTASC*) standards by the Council of Chief State School Officers (2013). This survey was completed by the participants as they finished the TPP program just prior to graduation, and then, again, at the conclusion of at least one year of serving as a teacher of record in a classroom setting. The survey was also completed by the school principal or administrator responsible for the supervision of the participant, near the end of at least one year of service as the teacher of record.

The Candidate Performance Evaluation Survey

This instrument included ten areas of the *InTASC* standards by the Council of Chief State School Officers (2013). This instrument was completed by the mentor cooperating teachers upon candidates' completion of the program, just prior to graduation. The same survey was also completed by the graduates at the conclusion of at least one year of serving as a teacher of record in a classroom setting.

Formal Observations Using the Texas Teacher Evaluation and Support System (T-TESS) Evaluations

The Texas Teacher Evaluation and Support System (T-TESS) Evaluations (Texas Education Agency, 2016) is a state-approved educator evaluation measure. It was completed by district administrators and university faculty through face-to-face or virtual observation of the participant delivering instruction in the classroom setting using the T-TESS. It is important to note that, at one campus, a T-TESS was not used, but a state-approved measure was used to conduct a formal evaluation of the teacher of record.

Interviews with Beginning Teachers and Principals

Semi-structured interview questions were used, each of which was associated with one of the T-TESS domains. The interviews took place at the conclusion of at least one year of serving as a teacher of record in a classroom setting and were led by university faculty.

Student Performance Data

These data were mostly from the State of Texas Assessments of Academic Readiness ($STAAR^®$) tests or the STAAR practice tests (TEA, 2020), which ranged from 3rd grade to 8th grade and subjects included math, reading, and science. First-grade students' performance was evaluated using the Neuhaus Reading Readiness, the Fountas & Pinnell Benchmark Assessment, and Renaissance Reading and Math STAAR tests. Pre-K and Kindergarten student performance data were limited and not included.

Quantitative data were analyzed using SPSS 25.0 (IBM Corp., Armonk, NY). For all quantitative data collected from instruments, descriptive statistics were used to present the average in the responses. Non-parametric Wilcoxon Signed Rank tests were used to compare the similarities and differences between candidates', teachers', and principals' responses. For all interview data, open coding (Strauss, 1987) was used to seek patterns and themes. Data were transcribed, and then the two researchers coded all data separately. Interrater reliability was analyzed during the coding process, and 80.5% consensus was reached for the teachers' interview data, and 82.8% consensus was reached on principals' interview data. Researchers then came to agreement on each individual theme.

Results

Results are presented in a format to clearly answer the research questions. First, we wanted to know how our program prepared the teacher candidates? The results from the Program Evaluation Survey by candidates, teachers, and principals showed that they all believed that our program prepared quality teacher candidates. In detail, candidates believed they were fully prepared, shown through average scores of 3.0. When becoming teachers in the classroom, they believed they were prepared with averages ranging from 2.4 to 2.8. Principals rated similarly with averages from 2.4 to 2.85 in these statements. Non-parametric Wilcoxon Signed Rank tests showed no significant difference in program evaluations rated by candidates, teachers, and principals, indicating that they were aligned in their opinions about the quality of the candidates our program prepared.

When examining each statement, candidates believed they were fully prepared to teach as they rated 3.0 out of 3.0 in every statement. When they became a teacher, they believed they were fully prepared in response to the following statement: 1) To demonstrate an understanding of individual differences, diverse cultures, and communities to ensure inclusive learning environments that enable each learner to meet high standards. They felt a lack of preparation in these two lowest-rated statements: 2) understanding of how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues, and 3) understanding and use of multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and guide the teacher's and learner's decision making.

Principals believed these teachers were fully prepared in statement 1): To work with others to create environments that support individual learning, collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation. However, at the same time, teachers needed more preparations in statement 2): Seeking appropriate leadership roles and opportunities to take responsibility for student learning; to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth; and to advance the profession. Details are presented in Table 1.

Table 1

Program Evaluation by Beginning Teachers & Principals

Program Evaluation	n	By Beginning Teachers		By Principals	
		Mean	Std. Dev.	Mean	Std. Dev.
How well did the candidate demonstrate understanding of how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical area, and designs and implements developmentally appropriate and challenging learning experiences? INTASC-2010.1	10	2.800	.422	2.500	.527
How well did the candidate demonstrate understanding of individual differences, diverse cultures, and communities to ensure inclusive learning environments that enable each learner to meet high standards? INTASC-2010.2	10	2.900	.316	2.600	.516
How well did the candidate work with others to create environments that support individual learning, collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation? INTASC-2010.3	10	2.800	.422	2.850	.337
How well did the candidate demonstrate understanding of the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content? INTASC-2010.4	10	2.700	.483	2.700	.483
How well did the candidate demonstrate understanding of how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues? INTASC-2010.5	10	2.400	.699	2.700	.483
How well did the candidate demonstrate understanding and use of multiple methods of assessment to engage learners in their own growth, monitor learner progress, and guide the teacher's and learner's decision making? INTASC-2010.6	10	2.400	.699	2.500	.527
How well did the candidate plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context? INTASC-2010.7	10	2.600	.699	2.600	.516
How well did the candidate demonstrate understanding and use of a variety of instructional strategies to encourage learners to develop deep understanding of content areas, their connections, and build skills to apply knowledge in meaningful ways? INTASC-2010.8	10	2.700	.675	2.800	.422
How well did the candidate engage in ongoing professional learning, adapt practice to meet the needs of each learner, and to use evidence to continually evaluate my practice; particularly, the effect of my choices/actions on others (learners, families, other professionals, and the community)? INTASC-2010.9	10	2.500	.972	2.800	.422
How well did the candidate seek appropriate leadership roles and opportunities to take responsibility for student learning; to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth; and to advance the profession? INTASC-2010.10	10	2.500	1.080	2.400	.699

The students' performance data also demonstrated how our program prepared the teacher candidates. It was evident with the positive impact that our graduates had on students' academic achievement. Multiple sets of the same tests from the same teacher results showed increased passing scores on their academic performance tests. For example, 70% of the first-grade students reached the grade level of reading accuracy on the first test, and this accuracy increased to 95% in the second test. Of these students, 60% reached a score of 100 (the maximum score) in comprehension on the first test, but 90% of them reached the maximum score of 100 in comprehension on their second test. The same pattern was found for their Renaissance reading and math results, with test scores increasing in each test (see Figures 1 and 2). Students' growth was evident in 8th grade English language arts performance as scores went from 95% to 100% in passing rates for one group of students and 90% to 94% for another 8th grade class. Math test results and science test results were a bit lower, with the average passing rate of 66% for 3rd grade math tests and 69.97% for 6th grade science tests.

Figure 1

First Grade Renaissance Math Test Results
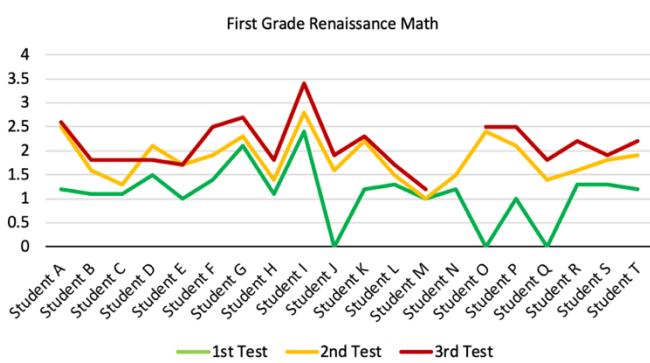
Figure 2

First Grade Renaissance Reading Test Results

The Similarities and Differences in Teaching Performance Before and After Graduation

For the Candidate Performance Evaluation Survey completed by the mentor cooperating teacher, the average scores ranged from 2.500 to 2.929, with SD ranging from .189 to .608 in these ten statements. Candidates received the highest ratings on these areas:

1. Understanding of how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

2. Understanding of individual differences, diverse cultures, and communities to ensure inclusive learning environments that enable each learner to meet high standards.

3. Working with others to create environments that support individual learning, collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation.

Our principal interview responses also echoed statements regarding strength in creating inclusive environments that support individual students and working with others to support learning. In particular, a principal stated that one of her new teacher's strengths was

"her willingness and drive to become a great teacher. She has asked to meet each week with the curriculum AP before her team plans so that she can contribute to planning. She works with her team and the Curriculum Assistant Principal to plan lessons weekly."

Of a second teacher on her campus, the principal stated that she, too, "participates in PLC discussions each week to answer the questions: (1) What are you going to do for the

students who did not get it? (2) What are you doing for those who already know it?"

On another campus, a principal spoke to the positive environment that his novice teacher cultivated in his classroom and how this familial environment motivated students to engage in learning by saying:

> "One of the things that make his room so fun almost is right at the beginning of the year he spends a lot of time creating their family and you know, and that's when you walk in at 8 in the morning, they're on the carpet together sharing about what they ate for dinner last night or you know, I mean anything. Somebody gave their dog a bath, you know, but they all know it, and they all are part of each other's lives, and that's their family during the day, and so he takes a lot of time to create that environment which goes right along with he's got the kids engaged in the problem, you know, and they're going to do whatever Mr. Smith (pseudonym) says because that's the family and that's the environment that he's created."

They received the lowest rating in the statement: Understanding and using multiple methods of assessment to engage learners in their own growth, monitor learner progress, and guide the teacher's and learner's decision making.

For the Teacher Performance Evaluation rated by principals, the average scores ranged from 2.286 to 2.857, with SD ranging from .378 to .756 for these ten statements. Graduates received the highest rating on: Engaging in ongoing professional learning, adapting practice to meet the needs of each learner, and using evidence to continually evaluate his or her practice; particularly, the effect of his or her choices/actions on others (learners, families, other professionals, and the community).

They received the lowest ratings on these areas:
1. Understanding of how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

2. Understanding and use of multiple methods of assessment to engage learners in their own growth,

monitor learner progress, and guide the teacher's and learner's decision making.

3. Seeking appropriate leadership roles and opportunities to take responsibility for student learning; to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth; and to advance the profession.

This is also echoed in the Candidate Performance Evaluation Survey completed by mentor cooperating teachers, as well as the principal interviews, that some beginning teachers need support on assessing students and using students' data for planning.

At one elementary school, the principal stated that her newly hired teacher's "biggest weakness is assessment. That is her biggest concern. She wants to know how they are created and aligned to STAAR. She's uncertain how to create her own assessments that are aligned to the skills" that are to be learned.

Another principal noted a similar area of need in one of her teachers. Although she considered the new teacher to be proficient and, in informal conversations with the researcher, mentioned that she is really strong as a new teacher, in the formal interview, the principal stated that "the area that she needs to do some work on would be gathering and using formative assessments throughout the lesson cycle."

Correlation analysis showed the relationship between mentor cooperating teachers' rating on candidate performance and principals' rating on teacher performance were all positive, ranging from .167 to .750, with mostly median to high correlation. There was a significant positive correlation between mentor rating and principal rating on the statement of working with others to create environments that support individual learning, collaborative learning, encourage positive social interaction, active engagement in learning, and self-motivation? with r = .881, p = .009.

We compared the means of candidate performance evaluation by mentor teacher and teacher performance evaluation by principal using the non-parametric test. Results showed that there was a significant difference in statement of demonstrating understanding of how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the

cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences? Principal rated this statement significantly lower than mentor teachers, with $Z = -2.121$, $p = .034$.

University supervisors utilized the T-TESS during teacher candidates' clinical teaching experience. Again, this measure was used by school principals and faculty researchers, following the rubric which measured observations in a five-point Likert scale, ranging from Improvement Needed to Distinguished. There are 15 statements in this T-TESS, measuring the effectiveness of teachers in four domains (i.e., planning, instruction, learning environment, and professional practices and responsibilities). Results showed that the T-TESS average scores rated by university supervisors ranged from 1.80 to 3.00, with $M = 2.52$, $SD = .34$. The average scores rated by

faculty researchers ranged from 4.00 to 4.33, with $M = 4.18$, $SD = .14$. The average scores rated by school principals ranged from 2.22 to 3.67, with $M = 3.26$, $SD = .41$.

Non-parametric tests showed that there were significant differences in the T-TESS average scores rated by university supervisors, school principals, and faculty researchers. Overall, supervisors rated significantly lower than school principals and faculty researchers in 12 statements. School principals rated significantly higher than faculty researchers on the following two statements: 1) Data and Assessment Dimension 1.2, with $\chi^2(2) = 2.750$, $p = 0.018$, and 2) Professional Development Dimension 4.3, $\chi^2(2) = 2.691$, $p = 0.021$. University supervisors rated significantly lower than faculty researchers on the following 12 statements (see Table 2).

Table 2
T-TESS Results Comparisons

T-TESS	χ^2	p
Standards and Alignment Dimension 1.1	-2.799	0.015
Data and Assessment Dimension 1.2	-3.763	0.001
Knowledge of Students Dimension 1.3	-3.484	0.001
Activities Dimension 1.4	-3.042	0.007
Achieving Expectations Dimension 2.1	-2.416	0.047
Content Knowledge and Expertise Dimension 2.2	-3.377	0.002
Communication Dimension 2.3	-2.609	0.027
Differentiation Dimension 2.4	-2.753	0.018
Classroom Environment, Routines and Procedures Dimension 3.1	-2.671	0.023
Professional Demeanor and Ethics Dimension 4.1	-2.915	0.011
Goal Setting Dimension 4.2	-2.419	0.047
Professional Development Dimension 4.3	-3.112	0.006

Areas To Be Improved

Our findings indicated that candidates felt a lack of preparation in statement of understanding and use of multiple methods of assessment to engage learners in their own growth, monitor learner progress, and guide the teacher's and learner's decision making. Mentor cooperating teachers and principals also rated this statement with the lowest scores indicating the weakness of our program in preparing teacher candidates with adequate knowledge and skills in assessment.

According to principals, another aspect for program improvement is to develop candidates' leadership skills. For example, regarding a new teacher on her campus, the principal stated that "I would like to see her take on more of a leadership role and exposure to other grade levels. I am planning to utilize her expertise in preparing her to facilitate staff development."

Although data from principals, cooperating mentor teachers, and university supervisors did not indicate classroom management to be a weakness, during their interviews, beginning teachers spoke to classroom management skills as an area of growth. This would be an important area to consider, especially since many new teachers do not feel prepared in this area. As one new teacher stated:

> "Across the board, it's discipline, especially the students that I have. I have a lot of helicopter parents and a lot of very expressive and verbally liberal parents. So, it's really on how to strategize on dealing with that and how to deal with it in the classroom. Another teacher discussed that he would like to learn more "ways to be a little more firm without being mean or shouting. I want to be effective, and, at the same time, there are elements where I feel like I can just get lax on, so I think classroom behavior and classroom management and not letting there be big gaps in between, that's something that I need to work on, personally."

Discussion

This study used multiple resources to evaluate our program by surveying candidates, graduates, mentor cooperating teachers, university faculty, and school principals, which was recommended by many researchers

(Bastian et al., 2018; Henry et al., 2012; Ruben, 2010). The results showed that our candidates were well prepared with an understanding of individual differences and the diverse backgrounds of learners. They were well prepared to create environments that support individual learning, collaborative learning, and encourage positive social interaction and active engagement in learning. This finding is contrary to the findings of a qualitative case study conducted by Lehman (2016, as cited in Lehman, 2017) that preservice teachers were lacking multicultural competence and needed professional development training. It is also in contrast with another case study (Rizzuto, 2017) who discovered early career teachers who taught English language learners (ELLs) lacked skills in working with diverse students and were reluctant to use a culturally responsive approach to teaching their ELLs. Our finding indicated the strength of our teacher candidates in terms of working with diverse students inside and outside of our teacher education program, which might be due to high-quality training with diverse students in the field.

Assessment seems to be a weak area that needs to be improved in our teacher education EC-6 and 4-8 program. Our findings revealed the weakness in preparing candidates with adequate knowledge and skills in assessing individual learners to guide instructions. Weakness in assessment to guide instruction seemed to be common and was also discovered in a national sample of beginning teachers (Darling-Hammond et al., 2002, as cited in Darling-Hammond, 2006). However, given limited studies focusing on developing assessment knowledge and skills among preservice teachers, it might be meaningful to research and develop additional curriculum that can be adopted during the teacher preparation program to focus on assessment and planning instructions based on assessment results. Professional learning communities formed by schools and districts can foster teachers' skills in the use of assessment to guide instruction (Hamilton et al., 2009). It is suggested by case study work (U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, 2010) that teachers' skills in assessment could be developed through their continuous practices on using students' data for instruction with facilitations from colleagues and mentor teachers.

Leadership skills should also be developed and practiced among our teacher candidates. Leadership skills are critical for school reform and improvement (Kise &

Russell, 2008, as cited in Xu & Patmore, 2012), which, ultimately, lead to enhanced student achievement (Gabriel, 2005, as cited in Xu & Patmore, 2012). However, less attention has been paid to preparing teacher leaders by providing a course on leadership skills in teacher education programs (Xu & Patmore, 2012). Teacher candidates lacking leadership skills seems to be a common problem not only in our teacher education program but also in others as well. For example, Silvernail (1998, as cited in Darling-Hammond et al., 2002) surveyed approximately 3000 beginning teachers, and results suggested that teachers who graduated from TPP received high ratings on only two items out of the four regarding instructional leadership. Formal training, such as attending a course (Xu & Patmore, 2012) and teacher-led professional development (Semadeni, 2010; Xu & Patmore, 2012), could be adopted to enhance leadership skills and should be encouraged in any teacher education program.

Limitations and Future Research

There are limitations related to this case study that could be addressed in future research. First is the small sample size of participants in this study, which might not provide a true picture of our TPP. The second limitation is the missing representatives of our teacher candidates from the early childhood grade levels, such as the ones who served at the childcare facilities. The findings could not be generalized to the early childhood TPP. A future research agenda would be to enlarge the sample size to include more participants. It may also be valuable to include not only more teacher candidates and school principals in different grade levels but also field supervisors, teacher peers who worked at the same school, and university faculty who taught our candidates to gain a more comprehensive perspective on the performance of our teacher candidates. The students taught by our beginning teachers could also be interviewed to understand their perceptions regarding teacher proficiency.

Conclusions

Despite the limitations, our study is significant in two aspects. First, we used multiple evaluation ratings to assess the effectiveness of our teacher candidate preparation and performance in their early career. Our data were comprehensive in scope, therefore, provided clearer directions for program improvement. Second, this study provided strong evidence of the benefits of using evaluating ratings in assessing TPP performance and effectiveness, which is echoed in research findings from Bastian et al. (2018). Especially when synthesizing all the feedback from multiple personals from clinical teaching to an early teaching career, evaluating ratings provides important information about teacher quality and clearer directions for what to improve and how to accomplish the improvement, which is currently limited in literature (Noell et al., 2019). Our study provided a good example of the utility of multiple performance evaluation ratings from different personnel inside and outside of TPP, which can be beneficial for both accountability and improvement of TPP.

Through this study, we gained a better understanding of our TPP in terms of strengths and areas of growth. Based on the results, our TPP should consider providing curriculum revisions to strengthen the teacher candidates in terms of their skills in assessment, classroom management, and leadership throughout our program. We will continue to monitor our teacher education program using multiple, comprehensive measurements to ensure our TPP continues to grow and improve.

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Contribution of Research

Preservice Science Teacher Attrition: Critical Experiences, Relationships, and Timing

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Abstract

Attracting, retaining, and graduating qualified science teachers are well-documented challenges. Via a sequential explanatory mixed-methods study, we followed the educational route of 10 years of secondary science teaching candidates. Descriptive statistics were analyzed with particular attention to the timing of attrition when it occurred. Interviews were then conducted with students from the different outcome groups, and researchers used content analysis to identify common themes. Results indicated that attrition, both from the sciences and from the educator preparation program (EPP), occurred quickly – often before traditional support and engagement structures within the program would have had time to work. Findings concluded that specific institutional supports, mentoring support, and peer relationships directly affected students' persistence. In particular, participants who engaged in an NSF grant-sponsored mentoring program demonstrated dramatically higher persistence rates than traditional EPP participants. The research concludes with a list of actionable steps programs might take to support and engage science-teaching majors prior to the timing of peak attrition.

Keywords: attrition; engagement; science teacher preparation; mentoring

Nationwide, the number of undergraduate students who earn educator certification or major in education has decreased since 1970 (Possy, 2018) and mirrors the consistent annual increase in teachers who leave education (Sutcher et al., 2016). In STEM teaching fields specifically, as the supply of quality mathematics and science teachers languishes, the demand for professionals in mathematics and the sciences continues to rise (National Academy of Sciences, 2010; Watt et al., 2007). Education experts and researchers argue that these attrition rates will continue to increase due to the stresses educators are under because of COVID-19 (Keown et al., 2021). These challenges, both new and old, put pressure on both K-12 and post-secondary educational structures to recruit and retain mathematics and science teachers with the pedagogical content knowledge and the classroom efficacy to excel and persist in the STEM classroom (National Research Council, 2011; National Academy of Sciences, 2010).

Literature Review

The National Academy of Sciences (2007, 2010) has warned repeatedly of our nation's desperate need for a STEM workforce that will keep pace with project growth in demand, and specifically the shortage of highly qualified STEM educators capable of engendering the interested and cultivating the expertise this next generation of STEM professionals will need. The challenges facing institutions seeking to attract and retain aspiring science teachers are myriad: increasing economic impact of student debt and the rising costs of higher education (Sutcher et al., 2016), an increase in for-profit teacher certification entities, teacher salaries that do not keep up with the cost of living, hyper-accountability organizational structures and micromanagement of teachers, decrease in state and federal education budgets, increased federal and state assessment both in teacher education and in public schools, federal and state political rhetoric that disrespects and commodifies the profession of teaching and public schools, and political efforts to privatize education nationwide (Betancourt, 2018; Zeichner, 2010).

In one instance of the staggering costs related to this endeavor, the Texas Center for Educational Research released a study in 2000 estimating the costs of teacher turnover to the state at somewhere between $300 million and $2.1 billion per year. Had the analysis included the state's costs for training prospective teachers who never certify or enter the classroom, the cost would have been markedly higher.

Hopefully, Watlington et al. (2010) analyzed a large volume of teacher turnover research and concluded that much of it is avoidable given appropriate training and support. Hong et al. (2018) examined preservice teachers' processes of choosing and committing to a teaching career. Their research findings indicate that their participants' pathways to choosing and persisting to teacher certification were complex, non-linear, and evolved with social and environmental contexts. They also indicated that the developing personal identity of preservice teachers was intrinsically connected to their choice of teaching as a career. They state,

> [T]he process of preservice teachers' career exploration inevitably involves the exploration of various considerations such as sociocultural conditions (e.g., the levels of support from family to friends, financial benefit, and societal perception of the teaching career),

specific tasks embedded in the social context (e.g., teaching experiences in formal or informal educational settings, learning experiences in teacher education programs), one's own psychological attributes (e.g., self-efficacy and value orientation). (Hong et al., 2018, p. 410)

They argued that prospective teachers need to receive constructive feedback from practitioners they trust. Other research concurs that such support, paired with early exposure to the teaching profession, would improve persistence to graduation (Day et al., 2007; Smith & Ingersoll 2004; Darling-Hammond, 2010).

Wang and Grimes' (2000), research in college student retention rather than education, framed retention research in terms of three elements: determining dropout predictors, identifying critical points, and validating outcomes assessment of retention endeavors. Their work built on the work of Levitz and Noel (1985) in aspiring to identify precisely timed interventions for specific subpopulations of students. If the STEM teacher shortage is to be addressed, there must be measurable and attainable steps identified toward the lofty goals of a robust professional community. Wang and Grimes' elements provide a measurable, step-by-step frame for the vocational exploration and interpersonal sense-making recommended by Hong et al. (2018) and Day et al. (2007).

In her dissertation, Groves (2019) concluded that Hispanic STEM teacher candidates were best served by multiple systems of support, including peer support, family support, Master Teacher support, programmatic support, and financial support. Kuh et al. (2006) concluded that the same is true for all college students, arguing robust support systems involving faculty, mentors, and peers benefit *all* students, and particularly students from historically underserved populations. The findings of both Groves and Kuh et al., however, remain largely silent on the timing of these supports. Specifically, how long does an institution or a program have to establish engaging support systems with a particular student before that student is likely to leave?

Once preservice teacher candidates enter the classroom, the character of their preparation continues to have an impact. Latham et al. (2015) examined attrition data from over 6,500 teachers in Illinois and found that those teachers prepared through Professional Development Schools persisted at a markedly higher rate than those

traditionally prepared. More broadly, Ingersoll et al. (2012) examined differences in teacher preparation methods nationally and how those differences affect teacher retention. Their research findings indicate that STEM teachers are more likely to pursue alternative certification routes with lower quality pedagogical content training and have lower retention rates once they enter the teaching field. Alternative certification pathways often have less field experience and fewer opportunities for candidates to get quality, discipline-specific feedback and mentoring as they pursue their teaching certificates. Ingersoll et al. (2012) found that 24.5% of teachers who have little or no disciplinary pedagogical training leave teaching after one year, compared to 9.8% of teachers who have had comprehensive pedagogical training. This study may indicate that the absence of a STEM-specific EPP at a university contributes to the attrition levels of STEM teachers not only before graduation but also after they enter the profession.

Digging into what specific benefits these programs might provide, Hong's 2010 study attempted to identify specific aspects of preservice and beginning teachers' professional identities in relation to what caused them to leave the profession. Hong identified six factors: value, efficacy, commitment, emotions, knowledge, and beliefs, and micropolitics, through a mixed-methods study that included participant surveys, then interviews of participants at different stages of teaching. Hong concluded that teacher candidates tend to have much more vague concerns about teaching, while inservice teachers tend to have much more concrete concerns. This raises the related question of which specific interventions might best assist teacher candidates in anticipating and preparing for the more concrete concerns of their future colleagues. Still, these studies rely largely on general characterizations of the teacher candidates' educational experiences, while Wang and Grimes (2000) recommend very specific time-bound identification of issues for specific subpopulations.

A recent study of STEM majors' and graduates' attitudes towards pursuing teaching (Marder et al., 2018) indicated that they would be more interested in pursuing a teaching career if there was access to a STEM specific teacher certification program at their university, if teachers earned a higher salary, if there were student loan payoff, tuition, or scholarship incentives attached to getting teacher certification, and if the teacher certification added less time

to their degree plan. These factors likely contribute to the attrition rate of STEM majors from EPP programs at most universities. These studies highlight the need for additional work to identify events and critical points that influence attrition while attending to relational supports that foster persistence.

Theoretical Framework: Conceptual Model

In the field of higher education retention, Levitz and Noel (1985) proposed a popular theoretical framework based on Forrest (1982), which conceptualized retention research as inextricably connected to action. Their six objective framework was:

1. To study success – to find out what the institution is doing well in order that it may do more of it.

2. To pinpoint campus services that need further attention so that they may be improved.

3. To determine the type of intervention programs and practices that are linked to student success and student persistence.

4. To follow those students who receive special attention or participate in special programs to determine whether the intervention is having the desired impact.

5. To target students who will benefit from interventions known to have a positive impact.

6. To provide validation of the outcomes that an institution is striving to achieve (Levitz & Noel, 1985, p. 350).

Wang and Grimes built on this framework by identifying three major components within retention research: determining dropout predictors, identifying critical points, and validating outcomes assessment of retention endeavors. They wrote, 'Retention research should promote a spirit of continual improvement instead of just seeing what went wrong … the data gathered should serve as a catalyst for intervention as well as for administrative policy-making.' (2000, p. 61)

The Wang and Grimes (2000) framework lends itself to an explanatory mixed-methods approach. Initially, we gathered student performance data captured for all university students to identify dropout predictors and the timeframes in which particular attrition patterns most

frequently take place. However, the Wang and Grimes framework also recommends examining non-cognitive factors such as social motivation and receptivity to institutional support services, which are better identified through interviews and qualitative data analysis rather than institutional datasets.

This methodological framework allowed us to examine aggregate science major quantitative data, then move to a qualitative analysis of a small cross-section of those students to 'explore the participants' views in more depth' (Ivankova et al., 2006, p.9). An IRB was obtained at the university where the study was completed to ensure the protection of student rights.

Methodology

Utilizing a mixed-methods approach, this research study is framed at the intersection of the fields of science education and research in student engagement and retention. This study sought to address the following research questions:

1. What preservice science teacher attrition patterns exist at our public regional comprehensive university?

2. What social and experiential factors influence undergraduates pursuing science teacher certification to change majors, not certify, or choose other certification pathways?

3. What is the timing of major change or change in certification pathway if it occurs?

This study first analyzed all declared science teaching majors over the past decade at our state university, attending to their persistence pattern in science, their persistence pattern in education, and the timing of any change in course. Through this analysis, a disparity between students in the Robert Noyce funded NSF STEM teacher recruiting and support program and students outside the program was identified. Students in the NSF program were four times more likely to graduate certified to teach science than those outside the program. Following the data analysis, participants were interviewed who were a part of three key outcome groups: science teaching majors who left the sciences, science teaching majors who persisted in science but left teaching, and science teaching majors who persisted in science teaching. The influences of peers, mentors, and faculty, either toward staying or leaving,

appeared repeatedly in the qualitative analysis of interview data.

Context and Participants

This research was undertaken at a rural comprehensive university that was founded as a teacher's college. With an enrolment of roughly 13,000, approximately 50% of the university graduates report being the first in their family to graduate from college, and just over 70% of STEM majors qualify as Pell Grant eligible. The university offers undergraduate science certifications in biology and chemistry. At the time this research was undertaken, these certifications included a major in biology or chemistry taught exclusively by the Department of Biology or the Department of Chemistry, respectively, with eight additional courses in an Education Preparation Program (EPP) taught exclusively through the College of Education. The traditional EPP pathway included mandatory field experience in six of the eight courses but did not include an early intense field experience component, consistent mentoring by faculty or mentor teachers, or a peer support network.

Additionally, STEM teaching majors could apply to participate in The National Science Foundation Program Talented Teachers in Training for Texas (NSF 1136416, NSF 1556983), T4 for short. T4 Scholars are STEM majors who apply to the program and are selected based on GPA, professor recommendations, essay, time to graduation, and responses during a face-to-face interview.

T4 is a Robert Noyce Scholarship initiative based at the university with the goals of:

1. Creating experiences through which university STEM majors can examine careers in high school teaching through early intensive field experience (Hubbard, et al., 2015)

2. Targeting aspiring STEM teachers for authentic engagement in a community of practice with a structured mentoring network (including experienced classroom teachers, aspiring STEM teachers, and STEM and education university faculty) for two years before graduation and three years after entry into the teaching profession (Hubbard, et al., 2013)

3. Longitudinally examining prospective STEM teachers for the purpose of identifying most effective practices in long-term STEM teacher training and retention.

During their undergraduate coursework, T4 preservice teachers receive biweekly mentoring and training while undergraduates, regular mentoring from STEM and education faculty members, a STEM expert supervising teacher during student teaching, induction mentoring once they enter the classroom, and sizable scholarships equivalent to roughly three years' tuition. T4 Scholars commit to regular participation in the mentoring network community and four years of teaching in a high-need school district. Scholars also have opportunities to attend discipline-specific state conferences as well as regional and national Robert Noyce Conferences.

Data

Our initial data gathering included quantitative academic performance data for all biology and chemistry majors who had attended the university since 2007 and who had at some point identified secondary education as a minor or emphasis. For these 97 students, we tracked graduation rates, secondary education courses taken, and majors and minors declared or completed. Parallel data was also gathered for all mathematics teacher majors, believing this to be the most similar teaching population within the university and hoping to use that population's attrition patterns might serve as a reference point for preservice science teacher attrition patterns.

Our framework called for specific attention not only to *what* predictors of attrition existed but also *when* particular attrition patterns took place. Since different students started in different academic years, we measured time units in either semester since beginning at the university or number of courses, depending on the context of the variable.

Finally, data from the Texas Education Agency (TEA) was also examined to identify which science and math teaching majors went on to teach in a Texas public school setting, even if they did not get certified at the university.

This quantitative data analysis culminated in the identification of three emergent groups with different characteristics based upon persistence to graduation or certification. These groups were:

1. Science teaching majors who had persisted to certification and a degree in major;

2. Science teaching majors who had persisted to a degree in major without certification; and

3. Science teaching majors who had not persisted to a degree in major.

Student Interviews

To understand more thoroughly what influenced science teaching majors toward persistence or change of major or career, and to understand their perceptions more adequately, interviews were conducted with individuals representing each of the identified three key groups of students from the data analysis.

Interviewees were selected from three identified categories based on the descriptive data analysis of the 97 science majors. Within each category, interviewees were contacted in order of most recent enrolment at the university. This criterion was intended to maximize the relevancy of feedback to current university programs and shortcomings, as well as to maximize the likelihood potential interviewees would respond to a request for an interview. If a potential interviewee did not respond after three attempted contacts, they were replaced with the next most recent candidate in that category.

Seven individuals were interviewed by three different faculty members using the same semi-structured interview questions. Interview questions (see Appendix A) were designed to identify critical experiences within candidates' educational journeys, along with how they interpreted those experiences. The questions were based upon the theoretical framework of Wang & Grimes (2000) and designed to identify key points in persistence or attrition for the participants. The interviews focused particularly on challenges during the students' certification pathway, and what influences had positive or negative impacts on their choices to persist in STEM teaching, and how those influences helped the participants choose to not certify to teach or choose another major. Interviewees were offered the option of a phone interview or a face-to-face interview.

Data Analysis

The mixed-method analysis began with a quantitative examination of existing institutional data along with the

data from the TEA. Descriptive statistics were calculated with particular attention to the timing of attrition actions.

After identifying descriptive trends, participants were identified for qualitative interviews to explain these patterns more robustly via interviews. The interviews were recorded, transcribed, and coded independently by three researchers to identify themes through open coding. Interviewers took written notes during the interview, which were scanned and compared to the open coding to improve the fidelity of analysis. Common themes were compared between all three researchers to ensure trustworthiness and dependability (Lincoln & Guba, 1985).

Results

Attrition Themes within the Quantitative Data

Institutional data was gathered for 97 science majors with a secondary teaching minor or concentration since 2007. Of those students, 36 students were still enrolled as undergraduates at the university when the study began, meaning that most calculations focused on the 61 students who were no longer enrolled. Of those 61 students, 49 initially declared biology as a major while 12 began in chemistry. Over the same period, there were 1,170 biology majors and 171 chemistry majors at the university, so these STEM teaching majors made up only 4.2% of the biology population and 7.0% of the chemistry major population before attrition.

Of the 61 science teaching majors, 22 students, or 36%, graduated in their science majors and were certified to teach. Eighteen, or 30%, left the university without graduating. Ten students, or 16%, graduated in their initially declared major but did not complete the teacher certification coursework. Eleven students, or 18%, graduated in a different major than initially declared. We sought a pattern within the group that changed majors but found none. Two majors switched to interdisciplinary studies, while one major each went to geology, accounting, creative writing, environmental science, mathematics, communication studies, finance, hospitality administration, and kinesiology.

Figure 1

Outcomes for Aspiring Science Teaching Majors by Percentage
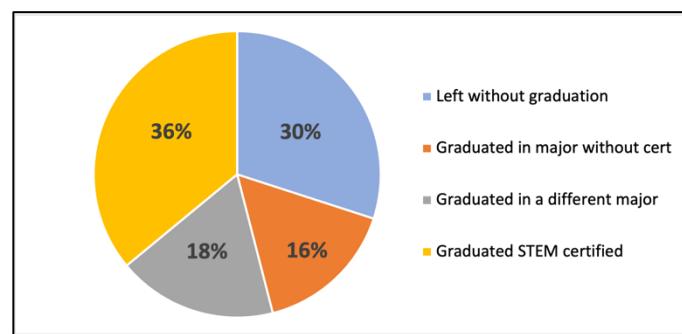
These persistence and attrition patterns are summarized in Figure 1. Roughly one-third graduated prepared for science teaching, one-third graduated but left the educator preparation program, and one-third did not graduate. This pattern was then compared to the same populations for mathematics teaching majors at the university over the same period. Beginning with 164 mathematics teaching majors who are no longer at the university as undergraduates, 28% graduated in major and certified to teach, 31% graduated but left the educator preparation program, and 41% left without graduating.

The rate at which this same population of students taught in a Texas public school was examined. This analysis required the removal of the 12 individuals who had discontinued (by graduation or otherwise) their university education within the last year since these individuals have not yet had the opportunity to teach for a year. Of the remaining individuals (n=49), 18% of those who left the university without a degree taught in a Texas public school; 39% of those who graduated but did not certify taught in a Texas public school; and 80% of those who graduated certified taught in a Texas public school. These percentages are almost certainly lower than actual entry into the teaching profession since it does not include those who taught in private school, those who taught outside of Texas, or those who will teach after this study is completed. However, since the measurement is the same across all three groups, teaching in a Texas public school is arguably a meaningful relative measure of entry into the teaching profession.

Table 1

Teaching Outcomes of Former Science Teaching Majors by College Outcome

Status Leaving University	Percentage Who Taught in Texas Public Schools
Without a degree (completed degree elsewhere)	18%
Graduated but did not certify through EPP	39%
Graduated in STEM with an EPP cert	80%

Table 2

Comparison of Academic Outcomes for T4 and Non-T4 Science Students

	Graduated Science, Certified	Graduated Science, Not Certified	Graduated, Not in Major	Left Without Degree
Non-T4 Science Students	25%	19%	21%	35%
T4 Science Students	100%	0%	0%	0%

Attrition as Related to the T4 Students

The analysis above neglects, however, to illuminate one important aspect of the persistence puzzle. Since 2012, 13 science teaching majors have participated in the T4 program as a supplement to the EPP and received additional supports from that program. Four of these students are still enrolled, and the other nine have *all* graduated in major and certified. Removing these 13 students from the general science teaching population makes the contrast more extreme. Figure 1 summarizes the attrition and persistence outcomes of both T4 and non-T4 students but disaggregated. While it appears from Figure 1 that the most common outcome for a science teaching major is to leave without graduation, Table 2 clarifies that this is only the most common outcome for non-T4 science teaching majors. For T4 science teaching majors, the *only* outcome is to graduate certified. This comparison of the traditional certification pathway and the T4 certification pathway aligns with Wang and Grimes' (2000) theoretical framework, which recommends validating outcomes assessment of retention endeavors, such as the T4 Noyce scholarship program.

Attrition Timing within the Quantitative Data

Following the framework of Wang and Grimes (2000) that recommends determining dropout predictors, identifying critical points in the EPP, the timing of attrition from either the EPP coursework or the science major coursework was examined. During the traditional EPP, we examined attrition during the number of courses completed within the EPP. As Table 3 outlines, attrition is heaviest within the first two education courses. Of those who did not complete the program, 77% left before beginning the third course. For those that entered the third education course, the likelihood of completing the EPP course of study was 71%.

Table 3

EPP Courses Passed Before Leaving Program or Leaving University (n=42)

EEP Courses	Number of Students	Percentage of Students
0	7	17%
1	8	19%
2	19	45%
Application to EPP		
3	1	2%
4	4	10%
5	0	0%
6	0	0%
Application to Clinical Teaching		
7	3	7%

The same method to identifying points of attrition during the science major coursework was applied. Both the number of semesters students persisted in major before switching and the number of science courses students took before switching were examined. The analysis was restricted to science teaching majors who switched major or left the university entirely. Over the course of the study, 29 individuals fit that category. Table 4 summarizes the number of semesters that a science major identified themselves as the given major before switching majors out of science or leaving the university. Notice that the median is only two semesters, and the mode is one semester. (For the sake of this analysis, the summer was interpreted as a semester if students were enrolled for at least one course.)

Table 4

Semesters in Major Before Switching Major or Leaving University (n=29)

Semesters	Number of Students	Percentage of Students
1	10	34%
2	8	28%
3	4	14%
4	4	14%
5	2	7%
9	1	3%

Similarly, in Table 5, the number of courses successfully completed by science teaching majors who left their major field of study or left the university was examined. Again, the median number of science courses is telling. This subpopulation successfully completed an average of just one science course, counting those inside or outside their major, before switching major or discontinuing at the university entirely.

Table 5

Science Courses Passed Before Switching Major or Leaving University (n=29)

Science Courses	Number of Students	Percentage of Students
0	8	30%
1	9	33%
2	5	19%
3	2	7%
4	0	0%
5	3	11%
6	2	7%

Themes within the Qualitative Data

Several themes emerged from the interviews with science teaching majors across the persistence spectrum. The first theme was a skeptical view of EPP coursework. In five of the seven interviews, various types of skepticism emerged about the coursework. Two argued the EPP coursework was "overly general" or "unfair" because there were no specific resources provided for passing the science certification exams. Two others questioned how much they were learning, even as one of those interviewees praised their individual instructor. One stated, "It felt too easy… I don't think I was being challenged." Another recalled, "I was really bored in my secondary education classes. I didn't feel like they were very challenging, and I like a good challenge. So, that's when I decided to switch over."

The EPP at the university did not offer a science teaching methods course, so students' dissatisfaction with the curriculum of the EPP might be expected for students who are working to certify to teach science (Marder et al., 2018).

It appears plausible that STEM teaching majors, having gravitated toward highly quantifiable fields and having been enveloped in an educational environment where 'what is tested' is deemed most important, did not attach high value to the EPP training with its focus on sociological or psychological course content such as 'culturally responsive pedagogy,' 'sociocultural and historical perspectives,' etc. This viewpoint is common for preservice teachers who

never experienced STEM classes that utilized culturally responsive pedagogy or practical and sociocultural application to course content (Koch et al., 2017). It is easy to understand how these students might reasonably ask if there exists a quantifiable benefit to traditional undergraduate certification as opposed to certification by another means.

A second related theme emerged among the participants: students who left teacher preparation had limited mentorship or role models in the teaching profession. Not a single participant who left the STEM teaching career path indicated that anyone had been concerned to see them go. The closest was one student who indicated that her parents had originally liked the idea of a career in teaching because 'they wanted me to stay close to home.' On the contrary, most participants who left teaching experienced only attitudes of indifference about teaching, and most who left biology or chemistry experienced no encouragement to stay from faculty, family, or friends. One shared, "It felt like an unknown field to me," despite having been in the program for a full year and taken multiple biology courses. Another participant recalled a faculty member saying to her, "I'm sorry you're not competent to get through courses." That student did persist in coursework but in a different major.

In all five interviews with participants who left the EPP, no STEM teacher had established an ongoing relationship with the student. Several mentioned positive experiences and interactions with STEM and education faculty members, one saying they were 'very supportive,' but this support was not a concerted, continuous one.

Another participant revealed that they were discouraged by the fact that after years of being a STEM major, faculty in her major discipline still did not know her name. Only one participant described an instance where a faculty had encouraged them to teach.

In contrast, interviewees with participants who persisted to teaching mentioned professional mentors and also faculty encouragement. These students described being a part of Talented Teachers in Training for Texas (T4) as a positive influence in very specific and individualized ways. One recalled her T4 education professor; she "is always really supportive just always encouraging me like 'you're doing really well,' 'you could improve on this,' and 'this is how you can do this.' She was

always there and available to help or just whatever you needed." The other graduate highlighted the contrast, "Like not once did we ever talk about, other than T4, talk about lab safety and what I need to do and how to approach [science teaching] in my classroom." It is noteworthy that one of these two participants mentioned a faculty member telling her, "You have so much potential to do something else [besides teach]." But it appears for this student that the positive influences toward teaching had a greater impact than the advice to pursue a different career.

A third related theme emerged: students' decision to persist often hinged on one person's input or influence from individuals with limited knowledge of STEM careers or teaching. One student who switched to nursing indicated that college friends in the nursing program were the primary influence to switch majors: "I decided to switch to nursing I think because my friends [in nursing], they would ask me for help. They were taking anatomy and physiology, which I had already taken in high school as dual credit, and I like those classes more than the ones I was taking myself." These individuals were peers who had never experienced the nursing profession or any other and ironically ended up switching out of nursing themselves.

Another participant switched to health sciences because her roommate seemed to like it: "My roommate, who is also one of my best friends now, she is a dietetics major. I was watching her work, and what she was doing, which was really cool, and that also influenced me as well." Another was encouraged to pursue teaching by her mother because "teaching is a better job for a mom." Although she did not certify as an undergraduate, she did go on to teach for three years.

Multiple participants described great uncertainty and repeated changes in direction surrounding their major course of study. It appears that in the absence of clear, objectively knowledgeable experience or direction, students are open to whatever major directions their social circle has to offer.

Discussion and Implications

Student Implications

The research findings indicate that aspiring science teachers are at a high risk of attrition from the beginning of

their undergraduate experience. Numerically, science teaching majors outside the T4 program were only one-fourth as likely to persist to a science degree and a teaching certification. These results appear quite similar to the results of aspiring mathematics teachers as well, so there is every indication that the concern is broader than just science teaching.

The timing of student attrition indicates that most students who leave the sciences do so in the first year and after only completing an average of one science course. Students who leave the EPP typically leave within the first two courses. Based upon these pinpointed times within the undergraduate experience, intervention needs to be quick and likely initiated based on a student's declaration of a science teaching major rather than passively off of a student's getting to a particular point such as a course, EPP admission, or classification designed to engage or support science teaching majors.

The data also indicates that students who leave the EPP do not appreciate the intrinsic value of the formal teacher preparation and do not see the extrinsic value of formal teacher preparation, especially when it is removed from the content area that the student is interested in teaching. This aligns with the findings of Marder et al. (2018), whose research findings indicated that STEM majors were more interested in teacher preparation programs that were specifically geared to their major and teaching area. Interventions that can intertwine both content area and EPP programs could negate the perception of disconnect between general education preparation and content-specific curriculum.

Program Implications

The research findings indicate that beginning students are often quite impressionable in their choice of career and major. Within the university EPP in the study, there is a dearth of influence from practicing science teachers or those who highly value the profession, at least outside of the T4 program. One clear implication is that programs seeking to address attrition should proactively connect with students who declare an intent to pursue science teaching rather than reactively waiting for students to take a certain course, reach a certain level, or connect to community themselves. A fruitful goal for systematic program efforts should include connecting students with a declared intent to teach science with individuals who value and are

knowledgeable about both the sciences and the teaching profession. Additionally, the findings indicate that peers often have an outsized influence on a career path as well, so facilitating this type of engagement in a venue where science teaching majors could connect with other science teaching majors would potentially have a compounding effect.

Proactive and early intervention is exactly the type of engagement described by those within the T4 program. The program connects aspiring STEM teaching majors outside the classroom with STEM teachers, administrators, and those who highly value the teaching profession. Further, programs events connect aspiring STEM teachers to others with the same declared interest, lending their aspirations legitimacy and creating a peer mentoring ethos. The program evidenced a 100% rate of science graduation and certification, which is four times the success rate of science majors seeking certification outside the program.

Specific, actionable implications, modeled off the T4 program, might include:
- actively contacting science teaching candidates in their first semester in major welcoming them and making them aware of activities available to science teaching candidates;

- providing social events early in the semester targeting new science teacher candidates to build community with experienced science teacher candidates, mentors, etc.;

- offering opportunities to experience real classrooms early in their course of study without long-term commitment (for some students, even commitment to a 16-week course may be too high a threshold);

- bringing new science teachers, veteran science teachers, and principals to campus to interact with prospective teachers;

- providing short professional development sessions for science teachers that explicitly include aspiring science teachers;

- providing intrusive advisors who meet with science teacher candidates multiple times a semester, communicate the value of science teaching, ask specific questions about student

success, and have the time to assist both in planning coursework *and* cultivating students' professional identity;

- having advisors, science faculty, and education faculty meet to discuss specific students' progress and risks

- discussing context-specific ways to provide science teaching majors the time and relationships formulate self-identity as science teachers.

Additional Discussion

One theme identified in the interviews that bears addressing was skepticism over whether traditional undergraduate teacher certification yielded any quantifiable value for science teaching majors. Although it might be argued that students should be concerned about more than 'quantifiable value,' the question of quantifiable value should be addressed. Utilizing Texas Education Agency data on Texas public schools in parallel with university records, over the past decade, only 1% of those entering the university as a STEM major certified to teach as an undergraduate. In contrast, 10% of those same students ended up teaching in a Texas public school. Which teachers persisted in their careers? Restricting our attention to STEM majors who enrolled in Fall 2007 or after, then graduated or discontinued in Summer 2012 or before, we examined five-year retention in a Texas public classroom. For those who did not earn an undergraduate certification, the five-year retention was 37%. Of those who earned undergraduate certification, the five-year retention was 88%. (We note again that this data only considers public school teaching in Texas as a proxy for actual teaching and retention rates. Also, the term 'five-year retention rate' is used to denote the percentage of those who taught at least one year in a public school that taught at least five years in a public school.)

Clearly, a vast quantifiable distinction exists between retention rates of teachers who chose a traditional undergraduate teacher certification and those who chose an alternative certification. This fits with the research of Ingersoll et al. (2012), Redding and Smith (2016), and Zhang and Zeller (2016), whose findings indicate that traditionally certified STEM teachers stay in the teaching fields longer than those from alternative certification programs. However, the fact that students seemed uninformed about the benefit of the program in terms of longevity in the profession speaks to a programmatic consideration. It appears there are no systematic mechanisms in place to communicate the value of traditional certification to science teaching majors (or any other majors). This evidence appears highly relevant to students' best interests and career prospects. Programs must work to clearly communicate the tangible value in terms of teacher retention that comes from their program. When considered in light of the relatively small number of education courses taken by those who left teacher certification, the urgency of addressing this issue *as soon as a student self-identifies as intending to teach* seems critical. The information is exceedingly relevant to students, and most institutions have such data or could get it for their specific student population.

These results are similar to the findings of Marder et al. (2018) in suggesting that STEM majors might be more interested in teaching if they received more information and additional support regarding STEM teaching. In their work, they found that students were ill-informed about the salary levels of STEM teachers and would have been substantially more interested in the career possibility if they had access to more accurate and readily accessible information about STEM teaching as a career.

Conclusion

If universities are to improve science teacher attrition rates, it is critical that programs must proactively engage these students with an eye toward the timing and the engagements that might serve them best. This research study results correlate to Hong et al. (2018) in suggesting that peer groups, family, and faculty are vital to the decision-making process of preservice teachers as they choose to persist or drop out of EPPs. But given that universities do not control family and that in-class faculty connections often appear too late an intervention, there is a need to develop comprehensive ways to connect students to faculty and mentors, along with providing potential connections to peer groups in science teaching that will best support science teaching majors' stated career aspirations. Programs must critically examine the timing of attrition points and peer social interactions with humble candor, and address existing structures that fail to serve students in their time of most need for engagement. Change

at the university level must include specific evidence-based interventions and a systemic and institutionally funded support pathway, including mentoring, peer connections, experiential learning, and interaction with practitioners in the field. The field of teacher education is facing challenging times in the midst of a global pandemic, but perhaps these uncertain times can serve as a catalyst to examine and alter teacher education to decrease attrition.

Appendix A
Interview Protocol

First, thank you for taking the time to do this interview. I just wanted to confirm that you received the informed consent via email and that you agree to let us use your answers anonymously.

1. Initially, you registered as a science major planning to certify to teach, but then you changed course. When did you first decide to pursue a different path?

2. What influenced that change in direction?

3. Were there any obstacles or barriers to certifying in science teaching that contributed to that decision?

4. How did peers or family influence your career choice, both initially and as it changed?

5. How did faculty or professional mentors affect that change?

6. Looking back, do you have any regrets about your major and career choices? Explain.

7. Are you or would you consider teaching in the future? Why or why not?

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YES, WE CAN: MOVING EDUCATOR PREPARATION PROGRAMS FORWARD TO MULTICULTURAL AND MULTIDIMENSIONAL PROGRAMS

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Abstract

Terms like social justice and culturally responsive pedagogy have become commonplace when discussing education, particularly in the K-12 system. A review of the new yearlong residency program at Tarleton State University provided a framework for taking these words from passive nouns to active verbs, from words to actions. We can all agree these things are essential, but how does one actually 'do' these things. Not only that, but how does one teach someone how to 'do' these things? These are the questions plaguing teacher education programs across the nation. This paper addresses a few of the critical components that should be present in every teacher preparation program and how Tarleton can use this new approach to help clinical teachers grow from a passive understanding of these theories and practices to their interactive and innovative application.

Keywords: social justice education, teacher preparation, multicultural education, teacher education, culturally responsive pedagogy

To meet the needs of an increasingly diverse population, Tarleton State University, a Texas A&M University System (TAMUS) member, has engineered a yearlong residency program to allow for an extended, innovative, and immersive teacher education experience for teacher candidates enrolled in their program. What follows is a brief description of that effort as well as an in-depth discussion of some of the vital components that must be present for the success of this program. The elements discussed below are imperative for any teacher education program, but we will focus on the Yearlong Residency Program at Tarleton State University for the context of this paper.

The 2018-2019 Numbers

According to the Texas Education Agency (TEA)'s report on teacher preparation, there are a total of 76 traditional Education Preparation Programs (EPP) in the state of Texas. Of these, 76, TAMUS lays claim to 10 (13%) of these programs giving TAMUS quite a stake in the future of education. According to TEA data reporting, TAMUS' overall new teacher satisfaction ranges from 2.55 to 2.17, with a minimum of 2 indicating sufficient. Data reported by TEA (accessed March 2021) from the Principal Survey of the Preparation of First-Year Teachers show that 30% of TAMUS' teacher graduates were rated as 'insufficiently' or 'not at all prepared to work with English Language Learners (ELLs). Further, 24% were deemed 'insufficiently' or 'not at all prepared to work with students with disabilities (SWDs). While the overall graduating GPA for TAMUS (3.29) is slightly higher than the national

average (3.25), the data reported by the TEA shows deficiencies in preparation when it comes to working with two of the largest diverse populations in the state of Texas SWDs and ELLs.

Diem and Carpenter's Five Key Issues/Concepts

Social justice has become a blanket term to cover concepts like equality, equity, inclusion, and diversity (Diem & Carpenter, 2012; Furman, 2012). The meaning behind social justice becomes even more convoluted when juxtaposed with terms like leadership preparation, making it nearly impossible for aspiring educational leaders to know what, if anything, they should be able to do once they have graduated from preparation programs boasting a focus on social justice. This lack of clarity inhibits educator preparation programs from fostering and developing the critical thinking and learning that must take place for the concepts of social justice to be synthesized (Brown, 2004).

After in-depth research, Diem and Carpenter (2012) found that the literature and curricula in educational leadership insufficiently addressed research that ties together issues of race with educational leadership and pedagogical strategies intended to address issues surrounding race. The authors suggest five key issues/concepts that educational leadership preparation programs must examine and address are as follows:
1. color-blind ideology,
2. misconceptions of human differences,
3. merit-based achievement,
4. critical self-reflection, and
5. the interrogation of race-related silences in the classroom (p. 98).

Color-Blind Ideology

Colorblindness pretends that racial recognition is the problem, but it does not do away with color. Instead, it "reinforces whiteness as the unmarked norm against which difference is measured" (Lipzitz, 2019, p. 24). Diem and Carpenter (2012) posit that color-blind racism is a pass to allow Whites to look the other way when trying to understand race. The authors further dive into the world of color-blind ideology by addressing the idea by citing

Bonilla-Silva & Dietrich (2011) interpreting racial phenomena through dominant frames that allow them to:
a) appear "reasonable" or "moral" while opposing policies that work to alleviate racial inequality (abstract liberalism);
b) use culturally-based arguments to blame minorities for their place in society (cultural racism);
c) claim that racial phenomena are natural occurrences in society (naturalization); and
d) argue that racism and discrimination are a "thing of the past" and no longer play a contributing role in minorities' life chances (p. 102).

In this manner, Whites use this ideology to justify their actions, as well as those of society and the system as a whole. Not addressing this in teacher preparation programs only furthers the acceptance of this idea as valid. We think many Whites who gravitate toward this concept may be ignorant of the fundamental issues of racial injustice and are afraid to address it at all, which gives them the chance to avoid it while claiming not to be part of the problem. "In a society plagued by pervasive racial stratification and subordination, race-bound problems require race-based remedies" (Lipsitz, 2019, p. 23). Multiculturalism has been offered as an alternative to color-blind ideology because it acknowledges and celebrates cultural differences. Perhaps most important to our current climate, multiculturalism does not shy away from acknowledging and learning from how others have suffered as a result of cultural conflict or discriminatory treatment.

So, how do we foster multiculturalism? Lipsitz (2019) states that few problems can be addressed and resolved by pretending that they do not exist. McCabe (2011) suggests that multiculturalism can be addressed by:
1. Recognizing and valuing differences,
2. Teaching and learning about differences, and
3. Fostering personal friendships and organizational alliances.

Misconceptions of Human Differences

Diem and Carpenter (2012) state that human differences, such as race, are not a result of biology but the longstanding, historical, socially constructed lines between those with minor differences. This concept dates back to

the first act of categorizing humans based on appearance and wealth. The long-term acceptance of the link between race, genealogy, and intelligence has only increased these misconceptions by suggesting that this specific difference has an implication that is out of their control and unchangeable (Diem & Carpenter, 2012). These misconceptions can be addressed by challenging those misconceptions of differences (Diem & Carpenter, 2012, p. 103). This shows the interconnectedness between the ignorance, fear, and irresponsibility of the color-blind ideology discussed above with these misconceptions. The lack of questioning has led to an ignorance epidemic. Educational leadership preparation programs lay the foundation of the classroom structure and environment that will be created, and there are many cracks in that foundation.

Merit-Based Achievement

The concept of merit-based achievement is deeply ingrained into our society, so much so that it is our default for measuring success. Our children and students are conditioned to think that if they work harder, they will be successful even though an entire system is designed to keep them from doing so. Diem & Carpenter (2012) echo the above with, "no matter how hard a student works toward achieving his/her goals, the systemic barriers existent within the educational system actually work to perpetuate inequalities within schools" (p. 105). Diem & Carpenter (2012) further posit that merit-based achievement fails to recognize the complexities inhibiting or even preventing student success (p. 105). Hard work is essential. Not all hard work is the same; there is an understanding in the educational community that every student has an equal chance. Once again, we see the interconnectedness between the previously discussed concepts.

Competency-based or progress-based instruction has received a push in recent years by many well-known academic researchers, including Robert Marzano and the Marzano Academies Organization (2021). Competency-Based Education operates within a system of mastery wherein the student must demonstrate mastery of specific concepts and skills before moving on to the advanced levels of learning. After reviewing the current curriculum, Competency-Based Instruction is not built into the curriculum for educator preparation programs. Rather than a competency-based approach, many EPPs employ the drill

and skill until clinical teaching. Once in their clinical teaching stage, students are plunged into a 14 week-long trial by fire to determine if they are able to apply what they have learned in the preceding semesters into a real-world setting. This has shown to be less than adequate, an assertion supported by the poor retention of first-year teachers within the profession (TEA, 2021). In response to this, some EPP's are exploring options, including yearlong teaching residencies. In these innovative efforts, competency-based training must be developed and demonstrated in a hands-on, evidence-based, and real-world experience.

Critical Self-Reflection

We think this is the most challenging of the five concepts because it can be painful to look at ourselves and realize problems with our own actions, values, and ideologies. As part of their required curriculum, students in EPPS must complete "reflection" assignments. To get the most out of these assignments' preparation programs should foster the development of socially just leaders through the facilitation of conversations that encourage critical self-reflection. This is not currently the standard and is starkly missing from the pedagogy of these programs (Diem & Carpenter, 2012, p. 105). This concept poses a challenge to the traditional power roles of the classroom with the teacher as the authority and the student as the subordinate through a "teacher/student with a collaborative model where both students and teachers cooperate in the critical intervention of social injustices" (Diem & Carpenter, 2012, p. 106). This method opens the teacher up to the possibility of learning from the student's ideas, thoughts, and values that only they possess. The art of teaching becomes a reciprocal practice rather than a one-sided practice.

Tatum (2003) considered reflection one of the chief elements all teachers must embrace to appropriately develop learning experiences for a diverse student population. Scholars such as Gooden and Dantley (2012) also suggest that critical reflection is especially important for aspiring leaders "as it can serve as motivation for transformative action in their leadership practice" (p. 14).

Interrogation of Race-Related Silences in the Classroom

It is commonly suggested that silence speaks louder than words. This concept addresses that idea as it relates to those race-related silences. It is tempting to assume that silence is compliance or omission, but Diem & Carpenter (2012) argue that race-related silences in the classroom are much more than that. Schultz (2009) employed sociocultural theory while working with elementary students to understand and work with student silence. Results of this study affirmed that teachers, including preservice teachers, should use careful observation and immersion to learn about the meanings behind their students' (Shultz, 2009). These silences are present in both the teachers and students, sometimes resulting from ingrained oppression, fear, ignorance, and flat-out resistance. Castagno (2008) posits that whiteness is legitimized by teacher silence around issues of race and other diverse and potentially uncomfortable ideas. This silence, according to Castagno (2008), "sends the message that race, and racism are either nonexistent—figments, perhaps, of students' imaginations—or unnecessary topics of thought and conversation—something students use to try to divert attention or stir up controversy" (p. 324). Educational researchers should examine the meanings behind the silences and demand the incorporation of "pedagogical strategies that surface issues of race and racism, while at the same time carefully exploring the existence of the silences that often occur" (Diem & Carpenter, 2012, p. 106).

Culturally Responsive Teaching

Culturally Diverse Instruction is the new "it" in education and is driven by multiculturalism. Culture is embedded into every concept and aspect of education, lesson plans, language, demeanor, dress, classroom expectations, and routines. Culture is central to learning. Culture holds a vital role in learning through the influence on communication, receiving information, and the overall thinking processes of the individuals in the classroom as well as the class as a whole (Diem & Carpenter, 2012). Ladson-Billings (2009) posits that pedagogical practices offer equitable access to education for a culturally diverse student body when they acknowledge, respond to, and celebrate fundamental cultures. Culturally Responsive Teaching is a pedagogy that recognizes the importance of including students' cultural references in all aspects of

learning. While this is the new practice in her writings, Hooks (1994) suggests that many teachers avoid curriculum and practices that include race, class, and gender out of the fear of overwhelming emotions resulting in a classroom environment unconducive to learning and potentially dangerous. "The unwillingness to approach teaching from a standpoint that includes awareness of race, sex, and class is often rooted in the fear that classrooms will be uncontrollable, that emotions and passions will not be contained" (Hooks, 1994, p. 39). Furthermore, Hooks (1994) suggests that this avoidance may cause students of color to shut down as a result of discomfort, isolation, and lack of safety. It is the absence of belonging, safety, and inclusion that serves only to prolong the silence and lack of student engagement (Hooks, 1994).

The Curriculum

Diem & Carpenter (2012) assert that leaders in education must be provided with a rigorous curriculum that offers "multiple opportunities to participate in the reflective examination of the ideologies/concepts that often limit and/or block discussions focused on race from occurring" (p. 97). Osterman and Hafner (2009) posit that there was a lack of curriculum cohesiveness in preparation programs. A growing body of evidence that cohesiveness matters in exemplary preparation programs. For example, Darling-Hammond et al. (2010) found that in addition to research-based content, "curricular coherence linking goals, learning activities, and assessments around a set of shared values, beliefs, and knowledge" (p. 42).

Davis et al. (2013) recommended preparation programs built on adult learning theories advanced by Knowles et al. (2005) and Mezirow (1997), in which programs are contextually driven; include problem-based and on-the-job learning activities; supply candidates with coaching, mentoring, and peer networking opportunities; gradually release candidates to more practice-based responsibilities and to rely more on their own inquiry and problem-solving abilities. Arguably, these principles form the rationale for program features found throughout this review but may not always be explicitly articulated in the original publications.

A growing body of literature has examined how equity, diversity, and social justice are taught. For example, multiple authors have identified critical skills necessary for building social justice knowledge and skills, including

experience in self-reflection and critical consciousness (Christman, 2010; Diem & Carpenter, 2012), connecting theory with actions (Dentith & Peterlin, 2011), integrating social justice throughout the program rather than isolating it to one course (Diem & Carpenter, 2013), creating cognitive dissonance and concern (Guerra et al., 2012), assistance in identifying appropriate entry points for making change (Guerra et al., 2013), international practicum experiences (Richardson et al., 2013), and deliberative dialogue (Mutchler, 2011). Several scholars have critiqued this area of the curriculum. Among the concerns raised is the lack of research connecting issues of diversity and race with leadership preparation curriculum (Boske, 2012; Diem & Carpenter, 2012, 2013; Hernandez & McKenzie, 2010) and the lack of research on what an entire program oriented toward social justice would look like (Hernandez & McKenzie, 2010).

Harry Wong's Views Positive and Negative

For Wong, everything is about classroom management and giving teachers strategies and training that will help them become more "effective." It could be said that Wong only views curriculum as a procedure to help reach the objectives that were lined out in the lesson plan. How those objectives are achieved is not as important as if they were achieved at all. Null suggests that Wong "wants enough system so that his methods appeal to busy teachers but not so much that his solutions shackle teachers to the point of neglecting unique classroom circumstances" (2017, p. 127). So, he wants to write a prescription but not tell the patient exactly how to use it. While in medication, this is not a good thing, in classroom management, it gives the teacher more freedom to use his suggestions because the prescription is not written completely. We just take it as needed. "Part of Wong's success rests in the fact that teachers can use his techniques to achieve whatever ends they have in mind" (Null, 2017, p. 129).

Wong's notable successes have not been in the art of curriculum development but rather in training teachers on things like classroom management. However, Wong seems to be "more interested in identifying phrases, statements, and 'tricks of the trade' that will have wide appeal than he is with offering a long-term vision for curriculum and teaching" (Null, 2017, p. 128). It would seem that Wong is dismissive of the importance of curriculum and chooses

instead to focus on flashy sales tactics. Nevertheless, Wong has a prominent place in the world of teacher preparation. This is a required text in many educational preparation classes, and the lesson plans, objectives, and goals were considered the key to effective teaching. As suggested by Wong, classroom management is vital because a teacher cannot hope to be successful if there is no management; Wong places this over everything else. He is essentially saying that how you teach is more important than what or why you teach. This is a take on the negative aspects of Wong's position, but it also highlights the positives. Understanding the importance of classroom management to the effectiveness of teaching can be easy to overlook, but it is vital for an effective classroom. Wong does a great job of offering strategies that could be applied in many different ways, which allow the teacher to adapt them to the uniqueness of the classroom and a particular situation. Null describes this by stating that,

> Wong's language allows him to concentrate on "training" teachers to be "effective" without requiring them to agree with him or with each other about the purpose of schooling. Part of Wong's success rests in the fact that teachers can use his techniques to achieve whatever ends they have in mind…. This is classic pragmatic curricular philosophy, which, ironically enough, has the effect of avoiding curriculum almost entirely (p. 129).

This universality has dramatically enhanced the popularity of Wong's writing. Conversely, the lack of value placed on what and why of it all casts a negative light on his position and presents it as incomplete. He suggests that if a classroom has effective management, all of the other pieces will fall in line, but we are not sure that is all a teacher needs to know to be "effective." Ironically even Harry Wong is color-blind, but because he is touted at university's education preparation programs, he is allowed to continue the one size fits all approach to classroom management with limited resources focusing on diversity and how that affects behavior, attitudes, and responses. Until universities seek multicultural approaches and choose to incorporate the approaches into the mainstream, we will remain stagnant.

Tarleton's Year-Long Residency Teacher Program (YLR)

Higher education is both a challenge to and collector of culture, and any change must be approached with the utmost thoughtfulness. Kezar (2018) offers five guidelines to help navigate change (p. 123); they include:

1. Develop systematic, systemic institutional, and environmental assessments.

2. Work with individuals, be inclusive, and realize this is a human process.

3. Be aware of the distinctive characteristics of higher education.

4. Realize the need to develop your context-based model of change.

5. Balance

John Tarleton Agricultural College at Stephenville joined an earlier form of the TAMUS in 1917, and after joining, the name was changed to Tarleton State University. A teacher himself, the founder of Tarleton State University founder understood firsthand the importance of education to the success of every citizen. Founder John Tarleton hoped to establish a space where students could receive the kind of quality, affordable education that would ultimately contribute to their future success and, thus, the success of the nation.

Taking the lead from our benefactor, Tarleton has embarked on creating a year-long teacher preparation residency. When re-imaging any program of study, the importance of deep exploration into the relevant scholarship and literature cannot be understated. Understanding where the gaps are at the local, state, national, and international levels will help to ensure that this new path is forged by those most well-informed, educated, and qualified to do so. Tarleton is one of the first members of TAMUS to employ this new approach to teacher preparation. We are coming to the close of the pilot year. What follows is how we hope to help forge that new direction to produce highly qualified, culturally responsive, and socially just educators in the nation!

Texas is home to an extensively diverse student population which only reinforces the need for culturally diverse teaching styles, methods, and strategies. With the support of their cooperating teacher, students will have the opportunity to apply their knowledge gained throughout their program to make them successful in the classroom. The YLR program seeks to heed the call for teachers who are able to meet the students where they are in the classroom. The YLR program recognizes that teacher candidates must not only possess a great deal of subject matter knowledge they must also be well versed in pedagogical practices to be able to communicate that knowledge. Tarleton will partner with rural and urban districts to immerse education majors in the experience that cannot be found in a textbook for two full semesters. According to a 2016 Harvard study, there have been innumerable discussions around inequity due to educational access because of economic mobility and privilege. In fact, the conversation is and has been that the ZIP code in which you are raised is often an indicator of how much access you will have to services, education, and ultimately income in the long term. Katz (as cited by Pazzanese, 2016) describes this dilemma when he states,

> But what we have been seeing is rising inequality with stagnant mobility, which means that the consequences of where you start, whether it's in a poor neighborhood, whether it's from a single-parent household, are more consequential today than in the past. Your ZIP code and the exact characteristics of your parents seem to matter more.

Findlay (1992) suggests that the current methods by which teachers obtain professional competencies may not be the most appropriate for preparing them for real-world application. By reducing the theory aspect of teacher education to only what is needed to perfect the practice, the prospective teacher will be trained to cope with various situations that may be encountered in the real-world classroom. Christina Bain alleges that effective teachers not only have a certification proving content knowledge, but they also possess something more intangible, such as understanding of the cultural climate and their students (2004). While university teacher education programs provide theoretical knowledge such as the developmental stages, theory does not guarantee that clinical teachers understand how to apply this knowledge in the actual classroom (Bain, 2004). Bain also asserts her doubts that a single test can predict the future of teaching success.

Transcendent Educational Leadership

Transcendent leadership involves accepting another's differences (values, culture, etc.), respecting another, being present when discussing with another, having the courage to self-reflect, appreciating and showing compassion towards another, and equity for the benefit of another (Stabens, 2017). Using these characteristics, we perceive educational leadership to include culturally relevant teaching in their school; showing respect to all students and staff; being present in the moment--actively listening--when speaking with students and staff; self-reflecting regularly to ensure growth for self, students, and staff; showing compassion to students and staff--trauma-informed care; and finally, possibly revising traditionally held beliefs in education that are not as beneficial as was once thought.

In their foundational text on leadership, Bensimon and Neumann write, "Team-oriented leadership assumes that differences exist among people -- searching actively and affirmatively for them and seeking to bring them to light -- rather than insisting on talking only about the views that people share in common" (1994, p. 30). Being a leader who can be proactive and highlight other innovative leaders within teacher education programs has multiple benefits. First, it can allow for a democratic process to take place. This means that decisions made to adapt to changing circumstances have buy-in and vetting from the people who are likely on the decision's frontlines.

Second, this type of leadership fosters a sense of the need to continue learning. By challenging the idea that a leader is the person with all the knowledge, a leader who pools from the collective wisdom demonstrates vulnerability and trust. As Bensimon and Neumann go on to say, "It fosters the continued development of people's intrinsic differences, rather than covering them up" (1994, p. 32). When we think of leaders as singular individuals, we can inadvertently homogenize the people they represent and support. This can lead to a deeply divided communication climate. Whereas, if a leader works with and reflects the group, it can be easier to navigate massive change. The leader, in this case, is the teacher preparation educator and the graduated teacher in the classroom.

Conclusion and Discussion

At the time of publication, Tarleton has completed the year-long residency pilot. The pilot started with approximately 24 undergraduate EC-6 students in their final year before graduation. Tarleton partnered with 2 Texas school districts to accomplish this pilot. We are pleased to report that all the approximately 24 students have completed the pilot and are in the process of completing their certification exams to enter the workforce. Moving forward, Tarleton students must take and pass their teacher certification exams before completing the year-long residency. After the success of this pilot, five additional Texas school districts have agreed to participate in Tarleton's year-long residency program.

Additionally, Tarleton has announced that the year-long residency is available to all EC-6 preservice teachers and will soon replace the traditional method of educator preparation at Tarleton. The vision for this program is to transform teacher preparation at Tarleton for all levels and eventually Texas and beyond. Tarleton is eager to see the results of this innovative approach to teacher education.

Diem & Carpenter (2012) conclude by calling for preparation programs to include "a purposeful focus on building the critical dialogical skills necessary to facilitate antiracist conversations" (p. 97). This will require an in-depth look at the five issues/concepts discussed above. It is not the idea that we cannot change the current educational leaders' frame of mind that this article was written. Instead sheds light on the root of some of the issues we are facing. The preparation programs are the sun, water, and soil that allow educational leaders to grow. Preservice leaders are most impressionable in those programs because they may not know any different. They are looking to their professors as the subject matter experts because that is what they have been led to believe. Many of the current programs segregate issues of diversity and race into a single course allowing some professors to avoid the topic altogether in other courses. This is to the detriment of not only the student but the professor as well. These issues should be incorporated into every course because future leaders will encounter these topics at every step of their professional journey. We regret that disability was not addressed more directly as part of diversity in this discussion. Still, we also understand that this is a big topic to tackle and thus should be afforded much more time.

The notion of equity as sameness only makes sense when all students are exactly the same. All children have different needs and addressing those needs directly is the best way to address them equitably. A one size fits all approach is a one size fits none problem. The same is true in the classroom. When teachers pretend not to see the racial and ethnic differences of their students, they are not able to see the students at all, which limits their ability to meet their educational needs (Ladson-Billings,1994). (Diem & Carpenter, 2012). In other words, we cannot treat all students (or staff members) the same. We have to take into consideration differences and how best to address those differences to produce equity. We must assist staff, teachers, and students in thinking about their intersectionality and making connections between their various identities. We must help students (and staff sometimes) consider the knowledge they already possess inside themselves instead of waiting for someone to "dispense" knowledge. We must build genuine rapport with stakeholders (students, staff, parents, community members). We must allow teachers to work collaboratively instead of traditional teaching in isolation. As educational leaders, we have to ensure all involved in our schools ensure equity in classrooms and any interaction with students. This equity includes culturally relevant practices.

We have also found, like many other 'uncomfortable' topics, there is no real effort to start a conversation about a particular event and its implications. It would be difficult, no doubt, to start, maintain, and keep civil any potentially controversial conversation. To be fair, many faculty are also being pushed to their limits just to keep up with the departmentally established requirements and curriculum, but this needs to come from the top down. We have to be willing to take ownership of our history, ideologies, and impact on others rather than rely on 'I am just going to be a good person if we hope to address these issues.

Discussion of controversial issues can deepen understanding, promote political interest, and help students develop skills needed to discuss and critically analyze controversial issues to aid in their efforts to understand their own beliefs and thoughts (Hess & McAvoy, 2014). Most students get their information from social media, which just regurgitates the popular conservative/liberal themes. When taken at the surface level, a proper understanding cannot be achieved. Having access to the information is not the problem it is understanding,

assessing, and evaluating the information we lack. We need to teach students how to recognize things like false ideologies and efforts that further social injustice. Further, Hess and McAvoy (2014)

> do not believe that merely teaching young people to deliberate will transform society. … Nevertheless, [deliberative values] can promote more productive classrooms, friendships, families, workplaces, and community organizations and can also shape how young people evaluate what is appropriate behavior in the public sphere (p. 9)

As we look at an ever-changing world, keeping in mind that leaders must be contextual and systematic is a different quality of a leader. Recognizing the need for culturally responsive, highly trained, and capable (not just educated) educators TAMUS is leading the way in creating a yearlong residency with these specific needs in mind. As we move forward into the new world of educator preparation services, we hope that the concepts outlined in this paper find a place in Tarleton's YLR program. Through this initiative, Tarleton hopes to help lead the TAMUS into a new world of teacher education that will meet our state's growing, diverse needs. We hope this work will aid other universities seeking to develop a more socially just and culturally responsive educator preparation program.

Culturally responsive teaching isn't a set of engagement strategies you use on students. Instead, think of it as a mindset, a way of looking at the world. Too often, we focus on only doing something to culturally and linguistically diverse students without changing ourselves, especially when our students are dependent learners who are not able to access their full academic potential on their own.

Zaretta Hammond
"Culturally Responsive Teaching and the Brain"
(2015, p.52)

Pitts (2016) poignantly states that teachers "may be uncomfortable talking about race, but we can no longer afford to be silent. We have chosen a profession, which—like parenting—requires that our comforts come second to those of children."

At the time of this writing, school boards, superintendents, principals, and teachers across the nation

are facing questions about critical race theory curriculum and its place in our schools. This debate will have a considerable bearing on the future of all EPP programs and pedagogical practices as we know them. This current research does not allow for the time nor the space to unpack this extensive, intricate, and controversial dilemma. It would be beneficial and insightful for future research to explore the specific impact of CRT on EPPs.

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Contribution of Practice

Perspectives From a STEM Event: Increasing STEM Knowledge, Literacy Practices, and Bilingual Language Use for Student Teachers at Puerto Educativo

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Abstract

This paper discusses the learning experiences of an educational STEM event named Puerto Educativo from the perspectives of a science educator, a literacy educator, and a Spanish-speaking student teacher. The discussion details how the STEM event at Puerto Educativo was theorized, its positive implications, and the use of this service-learning event in the community. The perspectives discussed by the educators indicate bilingual instruction accompanying STEM service-learning demonstrations help build positive science identities and create collaborative learning spaces for student teachers in border regions.

Keywords: STEM, literacy, bilingual instruction, student teachers

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Early intervention in STEM (science, technology, engineering, mathematics) experiences can diminish disparities caused by race in STEM achievement. Interventions that have significant long-term effects include supplemental instruction, bridge programs, meta-cognitive study strategies, tutoring, and promoting social networks of peers among STEM majors (Chang et al., 2014). Science teachers, especially student teachers in education preparation programs, who use these types of interventions, are more effective at encouraging STEM careers. Student teachers can face a variety of challenges as a result of their own experiences. Negative experiences, especially for new teachers, can alienate them from science. New teachers are less likely to be successful in teaching through scientific inquiry, especially if they lack experience (Davis et al., 2006). Students that identify as Latino\a or African American show less STEM persistence (Chang et al., 2014). Minority students who do not see people of similar backgrounds working in STEM can lose interest in science. Culturally responsive teaching methods can facilitate interest and connect students to the culture of science. One method of connecting the language of science to a student's background is to develop their scientific identity (Anderson & Ward, 2013).

Texas border school districts report higher proportions of English Language Learners (ELLs), economically disadvantaged students, bilingual students, limited English proficiency (LEP), and at-risk students; also, border regions typically employ a higher number of Hispanic teachers (Sloat et al., 2007). Gender disparities exist in STEM careers as well. Women are less likely to enter STEM fields because their interest in science and math is lower than their white, black, and Hispanic male counterparts (Cunningham et al., 2015). In combination, these factors can exacerbate STEM disparities, particularly for k-12 schools in border regions. One way to lessen STEM disparities is to better prepare science and mathematics

teachers in teacher preparation programs. The purpose of this paper is to articulate potential strategies to elicit interest in STEM with student teachers through the use of collaborative/community-based STEM learning events and study the use of cognates in the academic language of STEM learning events. Three educators will offer their perspectives on the use of the STEM toolbox, a bilingual strategy that incorporates academic and Spanish cognates, the everyday experiences of students with STEM tools, and learning activities that support STEM-DED demonstrations. The perspectives offered are from the observations of two teacher educators and one bilingual student teacher. All three educators worked together to coordinate the STEM discrepant event demonstrations (STEM-DEDs) and activities during a service-learning experience on the U.S-Mexico border named Puerto Educativo.

Literature Review

The following literature review will explore disparities in STEM fields and/or strategies and interventions that can better prepare student teachers. A study in West Texas disputes the claims of low enrollment of Hispanic students in STEM fields. They studied a paradox that occurred at their own institution. The researchers wanted to know what contributed to the increase in enrollment at an institution in the Texas Panhandle region and how this growth could be supported in the future (Hunt et al., 2014).

The focus of the study was to determine which specific elements contributed to the rise in STEM majors, their choice of institution, and whether or not there was a gender disparity between male and female Hispanic students. Emerging themes indicate students like learning communities connected to STEM fields- either through study groups for specific classes and professional groups, or groups created through scholarship programs (Hunt et al., 2014). Female and minority students could benefit from learning experiences that encourage a collaborative environment.

Certain fields in STEM are more encouraged for females than others. Emphasis is placed on nurturing fields – like biology, teaching, and nursing as opposed to more the physical science fields. This is evidenced by the stereotype threat: comments based on gender or ethnicity and/or actions by classroom teachers and students (Davis et

al., 2006). A study conducted in West Texas focused on nine female graduate students enrolled in a science education course for student teachers involving electrical circuits. These researchers postulate that "cultural mediation helped students go form new concepts or modify existing or spontaneous concepts," and when students worked together, they "viewed themselves as groups of scientists who are engaging in the scientific process and promoting positive dispositions" (Davis et al., 2006, p.57). These researchers believe that a strong relationship to content, creating a community of learners, and connecting content to individual students' everyday experience positively influences student attitudes towards science (Davis et al., 2006). This study points to the strong possibility that including a community-based dynamic, where students are cooperatively engaging in inquiry and see themselves as scientists, supports an increase in interest in STEM.

For bilingual student teachers, a dual language context can increase knowledge of science content and academic language development. Student teachers that are shown learning approaches and strategies that integrate science understanding can help students formulate their scientific identities (Garza et al., 2014). In another study conducted in the South Texas region, student teachers were exposed to a dual language education workshop at a park. Student teachers worked in bilingual pairs, that is, one bilingual and one monolingual speaker, which helped them develop cultural understanding. The teacher educators in this study used a multi-sensory environment where children were exposed to a nature walk and music to develop scientific ideas. Another strategy used was to use Spanish cognates during content instruction so students could relate new terminology with prior terminology. These strategies helped to develop student science identity and to challenge the student teachers' pedagogical approaches to learning (Garza et al., 2014). Accessing science curriculum and STEM curriculum can be difficult for non-English speakers.

Similar results are found in communities along the U.S-Mexico border. Diaz & Bussert-Webb (2017) analyzed how student teachers incorporated funds of knowledge as "third space" spaces other than home or school, otherwise known as an informal learning space. This is a space wherein school and home discourses integrate science and mathematics for youth. Student teachers in this study

completed pre and post reflections on two lesson plans, a questionnaire, and focus group instruction. Several major themes emerged from their analysis: hands-on inquiry experiences assisted teachers in connecting the children's everyday experiences to scientific tasks such as asking questions, gathering data, and considering evidence (Diaz & Bussert-Webb, 2017).

In consideration of these studies, this article outlines a pilot service-learning event involving a collaborative informal learning space where student teachers were encouraged to use bilingual instruction. Student teachers developed STEM-DEDs with peers in an informal public learning space, Puerto Educativo. This event employed a service-learning model to help student teachers to work reciprocally to engage children and parents in inquiry while integrating content for Spanish language instruction as well. This service-learning experience utilizes the DEAL (Describe, Examine, and Articulate Learning) model of critical reflection. The steps to this approach include examining the experience in light of the learning goals, articulating the learning, and articulating goals for future learning and/or refining learning (Ash & Clayton, 2009, p. 28). The DEAL model was utilized to inform teachers and to reflect on the learning process for the STEM-DED presentations.

Methods/Design of Service-Learning Event

Puerto Educativo is an indoor space in an open-air mall located on the border in South Texas. It features a public inclusive educational space for elementary-aged children. Puerto Educativo primarily encourages literacy-oriented activities. This space began as an initiative with a local university and has been extended to events of different disciplines. This location was used to implement the service-learning event with STEM-DEDs. Elementary science student teachers from a local University volunteered to participate as demonstrators. Twenty-five student teachers taught children of various age groups discrepant events that involved STEM-based education. The elementary science student teachers displayed their STEM-DEDs on a table with two or three student teachers per table. Children and parents who came to the event were welcomed and encouraged to participate. The student teachers were also encouraged to implement a STEM toolbox, a collection of paper manipulatives, in the context

of the STEM-DED instruction. The STEM-DEDs are inquiry-based learning discrepant events that involve an unexpected outcome. Student teachers are asked to integrate STEM instruction into their discrepant events. Because children, parents, and other adults varied in their fluency and preference of the Spanish language, student teachers who were fluent in Spanish were given the option to use dual language instruction as they presented their STEM-DEDs. This service-learning experience was designed to help student teachers teach science and mathematics content associated with the discrepant events and the STEM toolbox, practice questioning techniques, and integrate basic process skills. Basic process skills and questioning techniques included: measuring, estimating, observing, safety, inference, classifying, predicting, utilizing mathematics applications of data in charts, questioning techniques, and explaining content and concepts used (Goldston & Downey, 2012).

The STEM-DEDs are discrepant events that were modified by the student teachers to include mathematics and science concepts. Students were also encouraged to engineer different situations for the discrepant events and to use technology, either in the form of scientific instruments as technology or everyday technology to facilitate the discrepant events. The STEM toolbox is a paper envelope or foldable filled with different informal and formal scientific instruments and images. Some of these instruments included differing size paper rulers, a magnifying glass, Ziploc bags, a spoon, a plastic pipette, and non-standard units of measurement such as different colored lengths of yarn. The toolboxes contained both English and Spanish names on the images of science equipment. Student teachers were required to integrate the STEM toolbox as needed in the STEM-DED. A second and separate activity was presented by one student teacher. During this activity, children learned about the STEM toolbox in dual language instruction and how to use the scientific instruments in the toolbox. The STEM-DEDS were practiced and peer-critiqued prior to the demonstrations.

This study is a preliminary pilot study to determine the effectiveness of the STEM-DEDs in conjunction with a STEM toolbox and dual-language instruction. The teacher educators targeted three primary categories to analyze: effectiveness of the STEM-DEDs in terms of content and pedagogy, the effectiveness of the STEM toolbox with dual

language instruction, and the integration of literacy strategies. These strategies were studied through observational notes for their impact on dual language instruction and the possible impact on student science identity. Three different perspectives on the STEM-DED event will be discussed. The first perspective, from a science educator, will share an analysis of the effectiveness of the STEM-DEDs and the STEM toolbox as it relates to teaching pedagogy. The second perspective, from a literacy educator, will share analysis and observations of the STEM toolbox teaching event and dual-language instruction through a literacy lens as it relates to science identity. The last perspective offered in this paper is from a bilingual student teacher who facilitated the STEM toolbox teaching event. She will discuss her teaching experience using the STEM toolbox and dual-language instruction and the possibility of using dual-language instruction in the future.

The Perspective of the Science Educator: STEM-DEDs and the STEM Toolbox

As a part of this service-learning experience, student teachers improved their teaching techniques by conducting STEM-DEDs in groups that employed a service-learning model. From observational notes taken, students felt confident about three specific aspects of teaching: the discussion of the content and discrepant event, working with peers, and use of the STEM toolbox. Student teachers exhibited confidence when presenting the STEM-DEDs. The groups that practiced the STEM-DEDS more often knew how to move fluidly into different extensions of the discrepant events. The observational notes indicate these student teachers were eager to show the math and science discrepant events, to ask questions, and to engage students in more challenging situations. These groups relied on their members to provide support and did not struggle to integrate the STEM toolbox. Even though student teachers felt confidant using conversational Spanish in a public space, they were challenged to use Spanish cognates while teaching discrepant events. It was also observed that student teachers were more confidant working in pairs or groups of three but struggled with explaining content vocabulary effectively in both languages. Garza et al. (2014) provide some insight about conducting science events for dual language speakers. These researchers suggest student teachers are more confidant with science

when they have bilingual pairs, that , when students are grouped as one monolingual speaker with one dual language speaker. Also, Garza et al. (2014) suggest students be exposed to content vocabulary and cognates before the lesson/teaching event. In these demonstrations, student teachers who did not review content area vocabulary and Spanish cognates before implementing the STEM-DEDs were less confidant making connections between scientific vocabulary and their Spanish cognates. Another concern was the use of the STEM toolbox in the STEM-DEDs. Since the STEM toolbox had both Spanish and English labeling, student teachers may have felt pressured to explain the Spanish equivalent and relate that to the larger STEM-DED explanation. Children were given STEM toolboxes to take home; however, because student teachers were more focused on presenting the STEM-DEDs, children may not have understood the importance of utilizing the STEM toolbox items in everyday life. Thus, from this observational analysis of 12 presentation groups, there is evidence to suggest science identity and motivation for student teachers increased. However, the connection to the Spanish scientific terms and use of Spanish and English throughout the lesson was less apparent. The next educator will give insight into the literacy aspect of bilingual instruction and its connection to the STEM events at Puerto Educativo.

The Perspective of the Literacy Educator: Literacy Connections and the STEM Toolbox

A connection between language and literacy is evident. Reading and writing or literacy skills develop during the child's first eight years. Oral language skills must be developed first, followed by reading and writing. Writing is the skill that takes the longest to develop. Writing requires formal educational and academic support for many years after a language is acquired (Cummins, 2000). Literacy must be fully developed in the first language for it to transfer to a second language, assuming that the native language is based on the Roman alphabet, like Spanish. With a language that uses non-Roman characters, this transfer will not be as automatic, but children will understand that the printed word has meaning and is a form of oral communication in symbols to be deciphered. However, if literacy is not fully developed in one's native language, then the process of literacy development will be

more complex and may take longer than expected (Cummins, 2000).

Educators recognize that knowing words is critical for students' success academically. In addition, students who are successful and high achieving have a rich vocabulary and know many more words than students who are not as academically successful (Tompkins, 2016). According to some researchers, the vocabulary of the lowest-achieving high school seniors is the same as the vocabulary of high achieving third graders (Beck et al., 2013). Variations of children's word knowledge tend to connect with the socioeconomic class of the family and are evident from when the child enters kindergarten and first grade (Tompkins, 2016). Researchers have seen that children who come from lower SES have lower word knowledge than the higher socioeconomic status (SES) children. In fact, Beck and her colleagues (2013) demonstrated that the higher SES children know twice as many words as the lower SES children (Tompkins, 2016).

Additionally, Beck et al. (2013) also found that children who come from higher SES families have a vocabulary that is amplified by having more vocabulary-rich experiences with their families. Similarly, children who come from higher SES backgrounds who are read to daily, go to the library more often and have books at home that they can enjoy. Families who have a higher SES also use words that are more advanced when they are speaking to their children. Children who have less vocabulary have a very hard time catching up with those who have more word knowledge. This happens because high achievers learn more and acquire words faster than those who are low achievers (Tompkins, 2016). Children who come from high SES families accomplish acquiring 3000 to 4000 words a year as compared to low SES children who learn at a slower pace (Tompkins, 2016). When they graduate from high school, the high SES students have a vocabulary of 50,000 plus words (Tompkins, 2016).

Having stated all this, the children that came to Puerto Educativo were of a mixed SES, and most were bilingual. Children who are bilingual have knowledge of words in both languages. Put together, they may have a large, combined vocabulary bank, but when each language is measured separately, it may be less. Theories of bilingualism state that competent bilinguals form some of the same cognitive and neural bases to aid vocabulary

knowledge in their languages, meaning both of their languages (Hernandez & Li, 2007; Kroll, 2015 as cited in Ka et al., 2016). The STEM toolbox, which has vocabulary in both languages, becomes crucial for children and plays a role in connecting families to the Puerto Educativo event. Furthermore, researchers state that Latino\a native language allows children to be part of the cultural environment and experience traditions; this is a significant factor in their identity and this, in turn, provides an avenue for them to be able to develop resiliency which helps them to become academically successful (Stevenson et al., 2019). The resiliency developed through interacting in their native language and community helps them to build relationships, which in turn provides a support system. This support system then enables the students to be able to conquer obstacles that they may encounter following their interest in STEM (Stevenson et al., 2019).

In addition to learning content vocabulary, the children also gained knowledge of the content vocabulary in their native language. STEM vocabulary can be difficult for bilingual speakers and especially difficult for ELL learners. Teachers need to use multiple strategies to be sure that comprehension is being established in the lesson. Even monolingual students need to practice content vocabulary, as it may be foreign to them, and if not comprehended, may hinder understanding of concepts taught in the lesson.

The event that I observed with the STEM toolbox demonstrated enrichment of content vocabulary in Spanish and English benefited the student, parents, and teacher in multiple ways. Sometimes the students did not know the word in English, then the Spanish was very helpful and vice-versa. Children who are only familiar with conversational Spanish were also learning the content vocabulary in Spanish, which meant they were learning academic Spanish. This also worked in the other way; sometimes, children did not know English but understood Spanish. The student teachers gave both languages equal time and pre-taught the vocabulary before beginning the activity. With all this happening, children had important discussions in English and Spanish and were exposed to the spelling of words in both languages. Families participated more when the student teachers spoke Spanish. Thus, a strong rapport was built between the students, family, and teacher.

A science education class and a literacy class for student teachers have many avenues for the integration of language and literacy. Word walls in both Spanish and English can be useful, as can having student teachers create their own Spanish–English Dictionary of STEM words. In the future, I would like to see more integration of the literacy class with the STEM class and more fieldwork that allows student teachers to practice Spanish and English teaching skills. These types of informal learning experiences create community-based enrichment activities which benefit many members of the community, especially lower SES families.

The Perspective of a Bilingual Preservice Teacher

As a bilingual teacher, it is my duty to investigate new strategies that will benefit my students. In collaboration with professors at the university, the Puerto Educativo event was very successful. Through very didactic and hands-on instruction, children were able to grasp new knowledge in a very different and innovative way. The main tool in this project was the STEM toolbox: a toolbox created so children understand that science is everywhere. This toolbox is made from items that can be found at home for educational purposes. This way, children can practice their background knowledge about science. At the Puerto Educativo event, participants freely walked around to observe the STEM-DEDs presented by other future educators. This created an opportunity to focus on the laboratory tools being used at these demonstrations. It was a perfect moment to talk about the lab tools and incorporate the cognates of the names of these tools in Spanish.

As a Spanish speaker, science terminology can be very hard to understand. Therefore, we decided to incorporate visuals, the STEM toolbox, and whiteboards, to better explain the names of these tools and how they are used in the STEM-DEDs. Elementary students at this event were eager to learn the pronunciation of the tools in Spanish and English. As the instruction was presented to the participants, they began to talk about their past experiences in the laboratory. A third grader mentioned that an experiment was conducted in her science class. These types of activities are authentic and are much more meaningful for children as compared to a worksheet that they fill out after listening to a lesson about magnets, for example. During the explanation, a child mentioned the

connection between "microscope" and "microscopio". This was a teachable moment to introduce the meaning of cognates and how useful it is when you know the meaning of a word in your native language. This can also be easily connected to a language arts lesson since the root words in science terminology are sometimes the key to understanding the meaning of the word. For this activity, the children were presented with a picture and were asked to match it to the corresponding instrument in the STEM toolbox. Then they were challenged to figure out the name of the instrument. If they didn't know the proper name of the instrument, they were asked if they knew its use. Using their background knowledge, they made an educated guess, and then the student teachers explained the name and the instrument's proper usage. This was a fun activity for the students because they liked learning different pronunciations of the tools they just saw used in the STEM-DEDs showcase. It is very important to awaken their interest in science at an early age to surpass any stereotype in the STEM field. This strategy of dual language instruction will be used with my future students. The purpose is to encourage students to envision themselves as scientists and to further their education outside the classroom.

Conclusions

Collectively, from this pilot study, we suggest the following strategies can increase student teacher interest in STEM:

1. Building content knowledge by pre-teaching cognates and Spanish academic vocabulary before the STEM activity to children as well as student teachers. This helped increase rapport with the children, families, and student teachers.

2. The use of the STEM toolbox activity to challenge children's understanding and pronunciations of the tools in conjunction with the STEM-DEDs showcase, and

3. The use of collaborative groups to increase student teacher motivation, and Spanish academic vocabulary, and content vocabulary.

Literature suggests student teacher identity can increase with a multisensory environment which encourages the development of scientific ideas. Also, Spanish cognates used during instruction, especially with the use of bilingual pairs, help student teachers develop a cultural understanding (Garza et al., 2014). Other research also suggests when student teachers work together to create a community of learners, they develop positive attitudes towards science (Davis et al., 2006). The Puerto Educativo space served as a "third space" where children and student teachers alike felt comfortable making mistakes, and discourses of mathematics and science at home and school were discussed. Diaz and Bussert-Webb (2017) suggest hands-on inquiry experiences can encourage children to ask questions, look at evidence, and gather data. This was encouraged with the STEM-DEDs in the Puerto Educativo informal learning space.

The perspectives of these educators detail the use of bilingual instruction and literacy strategies that make STEM-DEDs more accessible for bilingual Spanish speakers. This event suggests where bilingualism is encouraged, more parents and children are likely to participate, and science identity can be increased for the student teachers. The student teachers in this article felt more confidant after using bilingual instruction to supplement her science activity. Student teachers used conversational Spanish when they encountered a child who needed Spanish language instruction. This was especially important in the addition of the formal science terms in Spanish to children's vocabulary.

A second lesson taken from the event is that student teachers need more understanding of science and math cognates before instruction. As a future concern, it would be more fitting to integrate literacy strategies in conjunction with the STEM-DEDs, the STEM toolbox, and specific peer critique before student teachers present publicly. It would also help to continue having student teachers work collaboratively in bilingual pairs to encourage the use of Spanish throughout the STEM-DEDs. It is also important to note the researchers did not assume all student teachers would use both languages. Bilingual student teachers were encouraged to use both languages throughout the STEM-DED as they saw fit. In these ways, STEM and literacy activities may aid lower SES children in acquiring word knowledge and STEM concepts.

Similar informal learning activities could be provided to children on a regular basis in hopes of increasing STEM-based vocabulary and concepts. These types of informal learning experiences need to start early and continue throughout elementary years on a regular basis. The library is also a wonderful place for children to check out books that easily lend themselves to STEM concepts and can be acquired readily in children's literature. Places, such as the local library, could offer free workshops for parents to demonstrate how to help their children. Other possibilities for this project are to extend the STEM-DEDs to an after-school family math and science night where members of the community can also encourage the use of bilingual instruction. Language and literacy are intimately related to a child's culture. We hope that this article can provide insight into how we encourage children from Spanish-speaking households into STEM careers and reduce the disparities that exist for STEM.

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FOSTERING ACCULTURATION VIA CULTURALLY RELEVANT TEACHING PRACTICES TO ENHANCE SECOND LANGUAGE ACQUISITION IN THE BILINGUAL AND ESL CLASSROOM

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Abstract

This paper discusses the topics of assimilation and acculturation, presenting the negative effects of assimilation in second language acquisition and how acculturation could benefit English learners' second language acquisition process. Additionally, classroom implications and strategies for promoting acculturation via culturally responsive teaching practices for the bilingual and ESL classroom are showcased.

Keywords: assimilation, acculturation, culturally responsive teaching, second language acquisition, teacher education

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The rate of diversity in the United States has been on a rapid rise for decades and through the efforts of cultural minority groups such as advocates and parents of English learners (ELs) and bilingual students, the U.S. education system has been trying to explore many ways to educate non-native speakers of English and children of different culturally diverse backgrounds. According to the Office of English Language Acquisition (2020) "By SY [(school year)] 2016-17, the EL population had grown more than one million students to a total of 4,858,377 EL's, representing 9.6% of total student enrollment". This rise in ELs means that educators need to start thinking about ways to better serve these students and make sure that all are getting the education needed to lead this country. Additionally, Samuels (2018) mentions that

> when working to advance educator preparation and better equip the next generation of teachers to advocate for educational equity, teacher educators and preparation programs must commit to fostering learning that examines how to meet the social academic needs of diverse student populations (p. 22).

Some of the efforts from the U.S. education system include placing laws and acts in order, developing programs, or simply training and educating teachers to better assist all of their students. Although the education system has come a long way in educating ELs from where it began, there are still programs that promote assimilation. Two of these are the submersion program, better known as the sink or swim model, and the subtractive bilingualism program (Brown, 2014). The submersion program was created in the 1960's and focuses on teaching ELs to acquire the English language and assimilate the United States culture. Meanwhile subtractive bilingualism basically forces out and belittles a students' first language and culture. It implies that students should leave their native culture at home and assimilate to the United States culture as quickly as possible. Students who emerge from these programs mention they felt excluded, discriminated against, and stereotyped from the rest of their peers.

In this article we explore and compare the concepts of assimilation and acculturation and how these two psychological changes have impacted underrepresented groups and second language acquisition. In addition, this

article showcases implications and teaching strategies to support acculturation best practices via culturally responsive teaching (CRT) in the second language classroom.

Assimilation and Acculturation

Assimilation is defined as "changing aspects of one's identity, including cultural identity, to fit societal standards" (Ali, 2020, p. 1). In a bilingual or ESL classroom, the use of assimilation would completely neglect the students' cultural identity and refrain from using the strengths from their home language to further their second language acquisition (SLA). Assimilation does not retain the individual's culture and forces them to conform to the dominant culture. During the assimilation process, the individual loses its cultural identity and is made to believe that their culture is inferior. Assimilation can be seen in many different ways throughout the educational system. For example, the classroom library only contains books in English that portray a specific race and the teacher only accepts the English language to be spoken in the classroom. For a student coming from a Spanish-speaking background, completely neglecting their first language creates a cultural shock due to the unfamiliarity with the American culture. The student may feel as though their personal experiences are not acceptable or validated. Assimilation in the classroom is detrimental to their individual identities and creates confusion for the student.

On the other hand, acculturation is defined as a process of cultural change, in which values, cultural traits, or characteristics of a new culture are being incorporated into an individuals' lifestyle (García-Vázquez, 1995). This is a process that occurs in all age groups and is seen in differing nations, not only in the United States. Cultural learning such as learning a new language and modeling what other cultures are doing is part of the process of acculturation (National Center for Cultural Competence, n.d.). Along with behavioral adaptation as different cultures have different behaviors such as when it comes to directness, formality, enthusiasm, and personal disclosure (Wang, 2017). During the process of acculturation, individuals pick up aspects from a different culture of their own and incorporate parts into their own lives. Not only do changes of an individual such as values, attitudes, beliefs, and

identity occur, but changes in social and cultural systems as well. Acculturation can mostly be seen among immigrants, especially in the United States. In education, for students whose first language is not English, the "first major cultural trait in which students must acculturate" is to learn English (García-Vázquez, 1995, p. 307). This is an aspect that schools believe is critical, in order for students to be academically successful. Yet, for students to become literate in English, it should "not have to come at the expense of one's culture, language, and identity" (García-Vázquez, 1995, p. 314). An assimilation is an extreme form of acculturation, yet people make the mistake of using the words interchangeably. The most obvious difference between both processes is that during acculturation, individuals' original culture is retained, while in assimilation it is not (Brown, 2014).

Implications for Second Language Teaching

Avoiding assimilation and focusing on acculturation is recommended for the bilingual and ESL classroom. Assimilation method can cause more harm than good in the learning process. According to McLauglin (1992), "over the length of the program, children in bilingual classes, where there is exposure to the home language and to English, have been found to acquire English language skills equivalent to those acquired by children who have been in English-only programs". Providing students with support from their home language and culture is actually not doing them a disservice or preventing them from learning any faster. In fact, McLaughlin continues, "the use of the home language in bilingual classrooms [actually] enables the child to avoid falling behind in schoolwork, and it also provides a mutually reinforcing bond between the home and the school" (p. 5). He mentions that the home provides a bridge for the students and thus encourages participation because the student feels more comfortable and understands what's actually going on. In addition, it is important to deliver the message to EL parents that using home languages won't hinder their child's ability to learn English and will enhance the development of rich language experiences (Fenner, 2014).

Acculturation can be fulfilled with culturally responsive teaching (CRT). Gay (2017) described CRT as education using diverse students' cultural knowledge, prior experiences, frames of reference, and performance

literacies to make learning experiences more relevant and effective. With culturally responsive techniques teachers can embrace multiculturalism in the classroom and make deeper connections with their ELL students. However, Gloria Ladson-Billings distinguishes between culturally responsive pedagogy (CRP) and culturally relevant teaching. Ladson-Billings has three pillars of CRP that focus on multiple aspects of student achievement and aid students to boost their cultural identities. In an interview with Colleen Patrice Clark (2021), Ladson-Billings mentions that the three pillars are "student learning, cultural competence, and sociopolitical or critical consciousness" (p. 26). In this interview, she briefly explains that "student learning reflects the difference between what students know and are able to do when they arrive in a classroom in the fall and what they are able to do when they leave in the spring" (p. 26). Along with making sure that ESL and bilingual students are adequately learning a second language, teachers should also be focusing on their academic success, measuring progress, and making sure that their culturally diverse students are learning the same things that their traditional non-ESL students are. She then explains that "Cultural competence reflects students' grounding in their culture of origin (i.e., language, customs, traditions, beliefs, etc.) while developing their fluency in another culture" (p. 26). Teachers should make sure they are assisting their students in developing positive multicultural and social identities by establishing a positive and welcoming environment in the classroom. She also mentions that students of the mainstream culture should "develop knowledge of and fluency in a culture beyond their own so they can better function in a diverse, multicultural, multilingual world" (p. 26). Teachers should be aware that CRP is not only beneficial for students that are a part of a cultural minority group or for any culturally diverse group, but also for traditional students. Samuels (2018) mentions that CRP is "...beneficial in relationship building, fostering cross-cultural understanding and inclusiveness, and influencing more diverse world views" (p. 26) in the classroom. Lastly, Clark (2021) asked Ladson-Billings to explain that "...sociopolitical or critical consciousness is the ability to solve real-life problems using the skills and knowledge school affords" (p. 26). All students, not just ELLs, bilingual, or other students from different cultural groups should be advocates for social change and teachers should prepare "...students to be citizens who are change agents,

active, engaged, and ready to participate in a diverse, democratic society" (p. 26). All students should be educated and prepared to recognize and take action against acts of social injustice, especially during these unprecedented times. The future of the world is at the hands of the upcoming generations and teachers should want to prepare them to fight for social change.

It is imperative for second language teachers to provide students with a sense of belonging in the classroom. Encouraging and embracing students' cultures create a positive learning environment, in which students feel comfortable. Students learning a second language, such as English, already have to acculturate to the language. They should maintain their culture while learning a different one. Patterson (2017) called this additive or bicultural acculturation, and it is recommended for educators to support this type of acculturation in the classroom. This is an approach that is noted to be helpful for immigrant students and English language learners as well, in order to "lead healthier and more successful lives at school" (p. 8). These kinds of learners already have to endure the pressures of conforming to the adopted culture and in consonance with their original culture. Educators need to facilitate the acculturation process for ELL students and bring aspects from their culture into the classroom. Have students bring an object or dish from their culture and share with the class how it is representative or important to their culture. Another way to celebrate students' culture is during free writing time and have them write stories of their home life and family holiday practices. They can draw pictures and students can volunteer to share in front of the class. Fellow students will gain an insight into their peer's cultural traditions and become more accepting of other cultures. Educators can also hang a world map on a wall and have students "mark the countries from which their ancestors immigrated from" (Lynch, 2016, p. 8). Students will be left amazed to see how diverse the classroom is. These kinds of activities can make students, especially ELL students, feel included and embraced in the classroom.

During the second language acquisition process, the students need acculturation to create a positive learning environment. English language learners face a wide range of struggles such as language barriers, cultural differences, and negative preconceived notions. A student who is placed in an environment where they are told that the life and language they know is wrong will make them feel as

though they do not belong. Also, if the student struggles to assimilate to an English-only speaking classroom, they will be segregated from the rest of the students. Assimilation is a setback from the Brown v Board of Education decision that implies that all children should learn at the highest levels despite their racial backgrounds (Weinstein et al., 2004). If the teacher promotes assimilation in the classroom, they are preventing the student from reaching their highest potential because they will not be able to use their home language to strengthen their second language. To avoid assimilation practices in the classroom, teachers must create a diverse environment that fosters acculturation via culturally responsive teaching practices. The teacher should make it clear that individuality is important, and that each student brings a valuable aspect to the classroom as a whole. The main goal is to practice acculturation so that the student can gain confidence and celebrate their identity. The teacher can promote cultural diversity and awareness by allowing students to ask questions about why everybody has unique qualities and provide resources that are diverse such as books, music, and pictures.

Acculturation via Culturally Responsive Teaching

Teachers have an important role "to create classrooms that will provide an effective educational experience for diverse populations" (Song, 2018, p. 9). An activity that fosters that experience in the classroom is having students share stories and information about their family's culture. This can be seen as "an opportunity for all students to learn more about their [own] family's cultures," not only other students' cultures (Song, 2018, p. 9). The activity is a project for students to conduct some research into their own "family's cultures and stories about their parent's childhoods" (Song, 2018, p. 9). Students may present orally with objects or pictures that resemble their cultures. They may also be creative and create a poster for their peers to visually gain an insight into their classmate's culture. Students learning about their own culture provides "opportunities for children to acquire the skill and sensibilities...need[ed] for intercultural competence" (Song, 2018, p. 9). Such activities like this one make students feel embraced and represented in the classroom, along with feeling accepted "as qualified members of the community with knowledge, traditions, and arts experiences to share with children, teachers, and the community at large" (Song, 2018, p. 9). When presenting, students "learn how to

interact respectfully with others, how to learn from others, and how to listen" (Song, 2018, p. 9). This is an activity that not only allows students to learn about each other's family's cultures but also about their own culture, which allows for greater appreciation and acceptance of their culture.

Culturally responsive teaching will provide optimal learning in a multicultural setting by linking the curriculum to the students' cultural identities. The teacher can create an environment that fosters cultural awareness "by educating themselves about the differences across and within cultures" (Byrd, 2016, p. 7). An activity that promotes acculturation in the classroom is having the students interview a parent or guardian and sharing their findings with the rest of the classroom. The teacher can provide a template with questions that will guide the conversation in a direction that ensures the student learns about their own culture. When the student is aware of their culture, the teacher can take this information and use it as an asset to create personalized instruction that is tailored to the student's needs. Students will be able to learn about differences within their cultures and explore other cultures that may have similarities and differences. It is important for the students to learn about their classmates' backgrounds in order to understand their traditions. The interview can be presented to the classroom through a poster or PowerPoint that analyzes the key findings and adds visuals such as their country's flag, dishes, and celebrations. By incorporating this activity, the teacher exercises their use of culturally responsive teaching and creates a welcoming environment for the students, encouraging them to be proud of their culture. This activity also serves as an informational piece for the teacher to avoid stereotyping students based on their race and learn about their cultural practices.

One of the most popular techniques to use is to incorporate culturally relevant literacy such as reading, writing, technology, and oral language into the curriculum. Gloria Ladson-Billings mentions that "Literacy teachers have the opportunity to use texts, film, writing, and speaking to illustrate and explicate situations with which students are familiar" (Clark, 2021, p. 26). These resources can also help provide topics and events that most ELL and bilingual students can relate to. For example, bilingual books help ELL students better understand the text because they are learning how to read in English while using their

native language to help make connections. While they do this, they are also reinforcing their native language and literacy skills thus shaping the bilingual skills that will benefit them in the future. Bauer and Manyak (2008) mentioned that "Martinez-Rolan and Lopez-Robertson (2000) also found that open-ended literature discussions of culturally relevant books...revealed [the students'] ability to live through the experience of the text, make use of illustrations and text, explore social issues, and make connections to other texts (printed and oral) and life experiences" (p. 178). With the use of culturally relevant books, teachers are encouraging student engagement and helping their students develop a strong sense of meaning-making that enhances their understanding. It is not just reading the books that will help benefit ESL/bilingual students "García explained that teachers should accompany oral explanations and teacher read-alouds with visuals, realia, gestures, and dramatization to illustrate key concepts and vocabulary" (Bauer & Manyak 2008, p. 176). ESL students require that teachers scaffold them and help them build background knowledge so that the students can be confident enough to generate conversation and take risks when working as a whole class, with a partner, or individually. With this strategy, teachers are also encouraging acculturation because they are teaching their students about the mainstream culture while simultaneously reinforcing or teaching aspects of the less dominant culture. They are also using the students' native language/culture as a tool to help them teach their students. To further encourage acculturation in a bilingual/ESL classroom with culturally relevant books, teachers can even have their students bring their own books or reading material to school. Students can then share and present it to the classroom. According to Lynch (2020), it "provides them [students] with an opportunity to both interact with and share stories, thoughts, and ideas that are important to their cultural and social perspective" (p. 3). This way, students feel comfortable embracing their culture at school and are more likely to hold on to their original traditions.

Conclusion

We have concluded that the best possible implication would be that of cultural acculturation through culturally relevant teaching practices. Gloria Ladson-Billings

mentions that "Culturally relevant pedagogy is an approach to teaching that can show up in any discipline- literacy, mathematics, science, etc" (Clark, 2021, p. 26). Educators can implement it through all aspects of the curriculum. However, Samuels (2018) notes that CRP "...encourage[s] students to feel connected, included, and valued, but lead[s] to empowerment on behalf of students, helping them better understand and positively view both themselves and others; thereby inspiring them to maintain cultural identity and integrity" (p. 25). In other words, it is in an educator's best interest to serve and support their ESL, bilingual, and all culturally diverse students with culturally relevant practices while promoting acculturation. All of our implications and strategies help support the positive development of SLA for ESL and bilingual students but most importantly, they engage students in meaning-centered interactions and help create language-rich classrooms. Teachers should avoid using assimilation techniques to help their students reach their highest potential and prevent them from encompassing a wide range of unfair and unequal learning experiences. Instead, teachers should celebrate cultural diversity by valuing each students' differences, incorporating culturally relevant strategies, and allowing students to share their cultural identities.

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