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MANAGING EDITOR
Abbie R. Strunc

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Abbie R. Strunc TxEP Managing Editor, is associate professor and chair of the School of Teaching and Learning at Sam Houston State University. Abbie earned a Master of Education with an emphasis in Curriculum and Instruction from Texas A&M University and a Doctor of Philosophy in Curriculum and Instruction from the University of North Texas. She spent eleven years teaching high school social studies in Duncanville ISD before moving into higher education. Abbie's research interests include the impact of educational policies on the curriculum, students, and educators in Texas.

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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, Rebecca Fredrickson, reflects on the 2021 conference theme, “*#Teachers Can*” *Passion, Positivity, and Perseverance*. As Rebecca reflects, “Educators in school settings at all levels continued to do what they do best: teach. They forged ahead to campuses across the country and continued to be beacons of life in students’ constantly changing, non-stereotypical environments. In other words, teachers tried to recreate a sense of normalcy.” The 2021 CSOTTE theme encapsulated the dedication and commitment of teachers to th

The Texas Association of Colleges for Teacher Education (TACTE) is the invited organization representing CSOTTE in this year's journal. TACTE 2020- 2021 president, DeAnna Jenkins, writes that Gen Z, the current generation in many of our EPPs across the state, have life experiences which often bring anxiety with them to the university experience. Dr. Jenkins offers several suggestions to support and lessen the stressors which may impact pre-service teachers in EPPs across Texas.

In *The Icarus Effect: Evidence of Possible Over-Commitment and Burnout Among Special-Education Teacher Candidates*, Fanni Coward, Doug Hamman, Deborah Brown, and DeAnn Lechtenberger consider the possibility that beliefs held by special education teacher candidates may impact their potential to burnout in the future.

Damon Adams and Brenda Morton conducted a phenomenological study to learn about the lived experiences of nine Hispanic teachers in Texas in their article, *Diversifying the Teaching Profession: What Led Hispanic Teachers to Become Teachers?*

A Process to Design and Deliver a Science Content Course for Elementary and Secondary Pre-Service Teachers is a practice-based contribution in which Doug Monk discusses his methodology for developing a science methods course that equips and prepares pre-service teachers to teach science well.

Sharon Vasser Darling, Shelly Landreth, Lindsey Balderaz, and Lorraine Spickermann provide a practitioner discussion of the importance of co-teaching, social and emotional learning, as well as professional development models to support teacher candidates and offer a rich student teaching experience in *Teachers Who Can: An Approach to Student Teaching that Promotes Perseverance and Teacher Quality*.

Holly Moore and Julie Combs provide an analysis of special education coursework of Texas pre-service elementary teachers in *Elementary Teacher Preparedness in Special Education in Texas*. The authors used a content analysis of the largest 19 educator preparation programs to examine the coursework in special education.

Defining Instructional Coach Roles to Provide Equitable Experiences for New Teachers, a qualitative case study to consider the impact of an instructional coach in one school district. Janet Kimbriel, April Sanders, Kathryn Dixon, and Laura Isbell report on the themes based upon the use of situated learning theory.

Mary Petró, Burcu Ates, and Helen Berg further expand on the conference theme: *#Teachers Can: Passion, Positivity, and Perseverance* with their article, *Teachers Can Teach Refugees: Making the Classroom a Welcoming Place for Refugees through Children's Literature* through the use of culturally relevant literature in schools.

In *Ahead of the Game: Support that Creates Positivity, Passion, and Perseverance*, C. Kelly Cordray discusses the supports provided to improve literacy instruction and results on a primary school campus struggling with literacy gains.

The CSOTTE Board is pleased to present the 2022 publication of TxEP. We invite Texas teachers, EPP representatives, and researchers to continue sharing their work and contribute to TxEP 2023.

Abbie R. Strunc, Ph.D.
 Sam Houston State University
 TxEP Managing Editor 2022

2021-2022: THE YEAR OF THE PANDEMIC

Invited Editorial: 2021 CSOTTE Conference Chair

Rebecca Fredrickson, Ed.D.

CSOTTE Board Chair 2020-2021

At the close of the 2021 CSOTTE conference, I had the opportunity to reflect upon what the experience meant to me. The fact that we were once again permitted to gather together--in the same room with Covid 19 social distancing preference color coordinated lanyards--was something marvelous I never in my wildest academic dreams ever thought would be something so treasured. It never dawned on me that people (especially educators) would not always be able to easily gather together to grow and learn. This is something that I will not take for granted again.

I spent a lot of time at this conference listening to the voices around me. Yes, I heard several “normal” concerns (there will always be those), but what I predominately heard was the unabashed joy that participants felt just by being together. It was so much more engaging than simply viewing a person (or their name--or their avatar---) within the confines of a techy black box. There was something very special about physically being in a room of colleagues; especially those who had similar ideals, goals, values and beliefs about the requirements needed to create an effective path for students to follow who wanted to become awesome teachers.

If you have ever been in a room with me for over 15 minutes, you most likely know I believe teaching is a graceful and noble calling. It is such an honor to stand next to students as they don the cap and gown...being prepared to teach in such a way that they truly change the world...one child at a time. Colleagues may chuckle at times, but most of us (at least deep down) are true-blue and believe in the power and impact of teachers on the lives of the students they serve. We realize that what good teachers do helps make the world a better place. In short, we know that no matter the circumstances the world throws at us... #Teachers Can.

#TeachersCan was initiated by Dr. Glenda Ballard as the theme of the 2020 CSOTTE Conference. I did not want to lose the energy generated by this campaign as

throughout the Covid 19 journey, incredibly difficult situations once again validated the exceptional things teachers do. In my mind, the impact #TeachersCan was not over, thus the theme for this year’s conference added an additional dimension to celebrate not only the outstanding things teachers accomplished academically with their students; but, in addition, to highlight the role social/emotional factors played within the profession.

The theme of the 2021 CSOTTE Conference, #Teachers Can: Passion, Positivity, and Perseverance focused on teachers as stabilizing forces in an educational world that was often perceived as a bit chaotic. It seemed important to add those last three words. Educators in school settings at all levels continued to do what they do best: teach. They forged ahead to campuses across the country and continued to be beacons of life in students’ constantly changing, non-stereotypical environments. In other words, teachers tried to recreate a sense of normalcy. Throughout this past year, educators have demonstrated, in a myriad of ways, the continued commitment to the classroom, learning, and most importantly, students; often when struggling in their personal lives.

The phrase #TeachersCan is not just a hashtag. I hope it stands as a deep seeded belief that continues to empower, inspire, and motivate us to do our best each day. I take this editorial opportunity to say thank you to you all for helping to make our world a better place through your efforts to develop the best teachers entrusted to our care. I am so proud to stand shoulder to shoulder with you as we help them on their journey.

EDUCATOR PREPARATION PROGRAMS: FOSTERING MENTAL HEALTH AND WELLNESS FOR THE TEACHER CANDIDATE

*Invited CSOTTE Organization Editorial:
Texas Association of Colleges for Teacher Education*

DeAnna Jenkins, Ed.D.
TACTE President, 2020-2021

Mental health and wellness are at the forefront of discussions across our state, nation, and world. Almost daily, we hear of an athlete, artist, actor, influencer, friend, family member, etc. who is “taking” a break for their mental well-being. We hear of others disengaging from various information formats to take a break, rest, and rejuvenate their mind, body, or soul. We are inundated with commercials on how this product or that can help one increase their emotional well-being. We are also flooded with the reporting of mass-shootings, the high cost of inflation, discussions on the political climate, employment rates, and acts of violence against various groups. As we enter this “post-pandemic” period, teachers are leaving the education profession at higher numbers than ever before, while large numbers of students are choosing to not enter higher education for varying reasons. Many of these reasons are discussed as feelings of fear, tiredness, being overwhelmed, feeling alone, and so on. Therefore, it seems addressing the emotional wellness or welfare of the student is critical for the success of the education system, both the Prekindergarten through grade twelve (P-12), higher education, and alternative certification environments.

The candidates currently entering EPPs, labeled Generation Z (Gen Z), are on average between the ages of 18 – 26. Researchers have characterized the motivation of Gen Z as the desire to create relationships, advocate for something they care about, not let others down, and to make a difference. They are often described as loyal, compassionate, thoughtful, open-minded, responsible, motivated, and determined. However, many Gen Z’s have described themselves as lazy, curious, carefree, motivated, positive, and excited. Based on their experiences, these students are seen to be seeking opportunities, advancement, and financial stability. However, many students have seen their parents in great debt due to college loans, parents laid off from employment due to economic issues, and due to the pandemic have experienced a great amount of loss. These experiences often cause the student anxiety when entering the college setting.

According to research 65-70% of college dropouts left for reasons other than academics. Mental health was cited as one of those reasons. Students coming out of the pandemic have discussed the loss of experience, quality, and trust. Many have also discussed a fear of missing out (FOMO). During the COVID-19 Pandemic, across our nation, campuses (both in lower and higher education) closed, others went completely online, while still others worked through a flex model providing both in-person and virtual learning options. Though these models were put in place as a necessity to address an immediate need to further students’ development, students have still identified that this period brought about feelings of loss, including loss of relationships and experiences they would have had on campuses. Students have discussed feelings of isolation and not being connected. This loss of connection includes the relationship with their teachers, advisors, instructors, and even their peers. Many also identified this loss in relation to the quality of the experiences either in the classroom or on the campus, such as the normal activities in which a graduating senior or incoming college freshman would participate. Many students have discussed that adjusting to the demands of being on campus, in a classroom, in-person, after being alone or online for a time, has been physically demanding. Informally, as we have spoken with our current students, many have simply discussed the idea of being tired. Many have chosen this summer to go home, to camp, to do something non-academic for the purposes of relaxation and rejuvenation of their mind, body, and soul.

EPP Support for Mitigating Stress, Anxiety, and Burnout

Many EPPs, as well as other education and employment organizations, have begun researching, exploring, and implementing methods to assist in the development of the learner’s grit and self-actualization. Below is a list of some of these methods. These have been gathered from several different sources, EPPs, research articles, texts, journals, etc. Some or many of the methods listed below you may already be implementing, but hopefully, there is something

for everyone to consider. These suggestions are provided, hopefully, in an effort of collaboration and support for the candidates in your EPP.

- Establish expectations that are rigorous, realistic, and reachable for each student. Help the student to set goals by program, semester, and/or course.
- Facilitate candidates' responsibility and ownership for their learning. During the pandemic, too many candidates have alluded to the idea that, while in high school, they floated or were "given" a grade.
- Provide opportunity for self-reflection. However, self-reflection may not be a natural characteristic of all candidates. Therefore, the faculty, staff, or mentor, may need to help the student to develop this trait.
- Assist candidates in filtering data. Candidates are overloaded with information through many different formats. Help candidates identify the source of the information, determine if the source is credible, evaluate the information as necessary or extraneous, assess if the information is based on fact or opinion, etc.
- Ensure candidates have the tools necessary to successfully do their work.
- Create a physically and emotionally safe learning environment. Candidates need to be self-actualized learners (Maslow). Therefore, each candidate must know how to analyze, evaluate, and synthesize (Bloom's). However, to do this, the emotional and physical needs of the candidate must be met. How can an EPP help in meeting these needs?
- Provide support mechanisms to reduce feelings of fatigue and burnout. Who can a student turn to when these feelings surface? Is a counseling service provided by the university or alternative certification program? If so, how does the student connect to those services?
- Design a faster-paced learning environment. Break content into chunks, more hands-on activities, rigorous/meaningful questions, make connections, etc.
- Embrace the long-term impact that COVID-19 will have on our Colleges of Education and Educator Preparation Programs.
- Improve the personal/professional experience. Find out the strengths and areas of improvement for your program from past candidates.
- Create positive connections/relationships with candidates/peers, faculty, staff, and advisors.
- Connect the candidate with a mentor to avoid "Summer Melt". The "Summer Melt" phenomenon happens once a student is accepted to a university and the first day of fall classes. During the summer, accepted candidates often disconnect, and therefore do not show up for classes in the fall. This does not just happen at universities, it impacts alternative certification programs as well, when candidates are accepted, but classes, courses, internship, etc. may not start for a month or two. The mentor makes continual contact throughout this period to build a relationship that helps to keep the candidate engaged, answers questions that arise, and to help as needed.
- Provide a non-academic mentor throughout, or at for the least first year, of the program. The mentor should meet regularly with the candidate to discuss non-academic needs. Be strategic. For instance, if you are a university EPP, request freshman/sophomore candidates who's major is education. This goes beyond the student/advisor or student/faculty relationship. This person can help the student with non-academic issues, such as connecting candidate resources for housing concerns, counseling needs, financial issues, tutoring, etc.
- Model a growth mindset for all learners and help the student develop a growth mindset of their own.
- Construct opportunities for individualization and relevancy (Voice / Choice) through assignments, collaborative work, discussion boards, in-class discussions, small group activities, etc.
- Provide authentic and timely feedback, not just for assignments, but about professional or collaborative traits, such as designing a professionalism rubric. The professionalism rubric may address such things as collaboration or communication with peers, ethical conduct, professional attitude and dress,

- Create situations for the student to be responsible for their own decision-making.
- Develop real-world on-the-job field experiences, such as internships, residencies, and field experiences.
- Create inclusive learning environments that value diversity and enhance a sense of belonging within the EPP for all candidates.

The great news is that faculty and staff in Educator Preparation Programs (EPPs) know this information and are often the experts in developing these relationships, designing meaningful learning opportunities, and providing support structures. The faculty and staff of EPPs should be well suited to serve as models and resources for each other, for faculty and staff in other colleges within various university systems, as well as for the P-12 education systems for which each serve.

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Contribution of Research

THE ICARUS EFFECT: EVIDENCE OF POSSIBLE OVER-COMMITMENT AND BURNOUT AMONG SPECIAL-EDUCATION TEACHER CANDIDATES

Fanni L. Coward, Ph.D.

Texas Tech University

Doug Hamman, Ph.D.

Texas Tech University

Deborah Brown, Ph.D.

West Chester University of Pennsylvania

DeAnn Lechtenberger, Ph.D.

Texas Tech University

Abstract

Burnout among special education teachers continues to plague the profession creating gaps in services to students and wasted resources by schools and districts. Using quantitative methods, researchers consistently point to well-known factors (e.g., emotional exhaustion depersonalization, job dissatisfaction), but fewer have delved into understanding the early experiences of teacher candidates that may precipitate burnout. This study provides initial evidence about a taxonomy of beliefs that teacher candidates hold about special education teaching and describes the possible links those beliefs may have to future burnout. Implications are considered for those involved with the preparation of special education teachers.

Keywords: teacher burnout, special education, teacher preparation, compassion fatigue

Icarus, the son of Daedalus, escaped imprisonment and flew away by means of artificial wings made of wax. Icarus ignored his father's instructions not to fly too close to the sun. Failing to heed his father's warning, the exuberant young Icarus flew higher and higher getting closer to the sun. As his father feared, the wax in his wings melted, and Icarus tumbled out of the sky and fell into the sea where he drowned (Greek Mythology).

Teacher burnout has long plagued the teaching profession and continues to do so (Billingsley & Bettini, 2019; Skaalvik & Skaalvik, 2017).

Teacher burnout is the result of undergoing stress from teaching for a long period of time (Maslach, 2003). Special education teachers are at particularly high risk of burnout because they may experience on a daily basis many factors that are associated with the onset of burnout, including lack of administrative support, paperwork overload, challenging student behaviours, and role complexity (Brunsting,

Sreckovic, & Lane, 2014; Gidden, 2005; Koenen, et al., 2019; Wasburn-Moses, 2009).

Although it is clear that these immediate factors contribute to burnout, there may be others that are more remote in time and place. For example, teacher educators may prepare candidates in such a way that perpetuates burnout. Findings from several research studies seem to suggest that some aspects of teacher preparation programs out of sync with the K-12 practices and policies (e.g., Greenberg, Putman, & Walsh, 2014; Kugelmass &

Kupferberg, 2020; McLeskey & Brownell, 2015). For example, in her study on role expectations of teacher candidates, Wasburn-Moses (2009) found that even though special education teacher candidates' expectations are relatively accurate, there are significant mismatches in several areas, particularly in regard to co-teaching and administrative support. Fewer researchers, however, have investigated the implications of this mismatch or pursued interventions aimed at alleviating burnout (Brunsting, Sreckovic, & Lane, 2014; Wasburn-Moses, 2009).

In addition, there is evidence that burnout-inducing stress may accumulate vicariously. Recently, researchers have documented the phenomenon of burnout contagion. This phenomenon involves feelings of emotional exhaustion from exposure to other teachers' negativity and exhaustion in the same school (Kim, Youngs, & Frank, 2017; Zimmerman, 2019). Kim et al. (2017) stated that early-career teachers are particularly susceptible to this burnout contagion. Additionally, in their review of the research in special education teacher burnout, Brunsting, Sreckovic, and Lane (2014) found that there is a negative correlation between teacher age and burnout. This underscores the vulnerability of early-career teacher to burnout and the importance of helping prevent burnout during the earliest experiences during teacher preparation.

If teacher preparation programs do not prepare their graduates for these types of individual or group-based stresses, or teach them how to cope with these issues, new special education teachers will continue to be at greater risk of suffering from the effects of burnout. The focus of this study is on the experience of teacher candidates who were in their last semester of student teaching and were seeking special education teacher certification. Our research question was whether special education teacher candidates might already hold beliefs that might predispose them to experience work stress more acutely and therefore be inclined from the outset toward burnout? Identifying these beliefs may be one way teacher educators can help guide the newest special educators away from professional dangers that appear to lead to an inescapable fall.

Literature Review

Stress vs. Burnout

Stress is related to the immediate influence of stressors on a person, whereas burnout is related to the enduring

impact of stressors on a person (Brunsting, Sreckovic, & Lane, 2014; Wong, Ruble, Yu, & McGrew, 2017). Burnout appears to follow a predictable progression within the professional burnout experiences that first begins with stress, and the constant stress leads to strains, and finally ends with burnout (Gold & Roth, 1993; Maslach, 1982). Even though at some points we all become stressed with our job, these experiences often do not persist and therefore are less likely to lead to burnout. Since the difference between stress and burnout can be a matter of degree, the earlier one recognizes the signs of stress and strains, and does something to address the symptoms, the more likely one will be able to avoid burnout. Nevertheless, if an individual, such as a special education teacher encounters these experiences of stress more acutely and frequently (Maslach & Leiter, 2016; Maslach, Schaufeli, & Leiter, 2001), then he or she may become more vulnerable to burnout. Without addressing these negative experiences, burnout seems to be inevitable.

Similar to stress, burnout is highly associated with physical symptoms like a cold, musculoskeletal pain, or even depression. However, these physical symptoms do not represent fully the construct of burnout. In a well-accepted definition of burnout, Maslach (2003) defined psychological symptoms of job burnout as experiencing emotional exhaustion (i.e., feeling of being overextended), depersonalization (negative attitude and cynicism about the work), and lack of personal accomplishment (i.e., feeling of ineffectiveness or negative evaluation of self regarding the work performance).

Researchers have found that emotional exhaustion is one of the strongest predictors of intention to leave the teaching profession (Hong 2010). Special education teachers face the additional challenge of working with students who present not only educational challenges, but also physical and or emotional challenges, and their results link all special education teachers with high risk for burnout, especially those who worked with students with emotional disturbance who are experiencing burnout at near "crisis proportions" (Wisniewski & Gargiulo, 1997).

Caring, Emotional Exhaustion, and Attrition

Our capacity to observe other's suffering and empathize with their experience is usually considered a desirable quality for human beings. Rarely do we see empathy as a natural impulse of human beings that needs to

be controlled, and we certainly expect the qualities of caring, empathy and compassion from our teachers. The problem is that this desirable quality may contribute to emotional exhaustion and an intention to leave the teaching profession.

Special education teachers may also experience emotional fatigue. This fatigue bears a striking resemblance to what nurses' experience as "compassion fatigue." Compassion fatigue may result from the emotional cost of caring when nurses vicariously experience themselves what their patients experience (Figley, 1995; Yoder, 2010). Experiencing challenging life situation is obviously a great source of individual stress, but that stress can be compounded when one has these vicarious experiences repeatedly and over a prolonged period of time. Those who have enormous capacity for feeling and expressing empathy tend to be more at risk of compassion stress, which eventually leads to compassion fatigue. Left untreated, compassion fatigue may lead to burnout and depression.

Previously, investigations of attrition among special educators have focused on a variety of factors, including workplace context, as predictors of attrition (Gersten et al., 2001; Miller, Brownell, & Smith, 1998). However, two powerful reports from a decade ago again brought to our attention the important role of more individual factors related to personality and identity (Castro, Kelly & Shih, 2010; Naraian, 2010) in teacher attrition. Just like the nurses, special education teachers who usually work with students with learning difficulties, physical pain, or emotional challenges may experience vicariously what their students are experiencing and do so on a daily basis and over a prolonged period of time. Also, like nurses, those teachers who have an enormous capacity for empathy and compassion would be particularly vulnerable for compassion stress, which is a precursor to burnout. The special educators' desire to serve children and have empathy for children are primary motivators for people to choose the profession of special education (Fish & Stephens, 2010). Ironically, the very exuberance that buoys teacher candidates' commitment to this field might incline them to "fly too high" making them vulnerable to emotional exhaustion and the likelihood of leaving the teaching profession.

A Blind Spot Among Those Preparing Special Education Candidates

Researchers have underscored the importance of mentoring teacher candidates in regard to students with disabilities (Mullen, 2010) and pointed out the importance of addressing burnout during the teacher preparation process among general-education teacher candidates (Brunsting, Sreckovic, & Lane, 2014; Kim et al., 2017). This conversation has been largely missing; however, among those who prepare special-education teachers. For example, researchers have investigated the extent to which a tendency toward burn out might be detectable among general-education teacher candidates (Fives, Hamman & Olivarez, 2007), but this work has not been extended to preparation of special-education teachers, nor have there been reports of program actions that might perpetuate or ameliorate tendencies toward burning out.

Researchers and practitioners in other high-stress teaching fields, however, have been successful in addressing the potential threat of burnout. Findings from numerous studies suggest that teacher preparation may play an important role in reducing attrition among new urban educators (e.g., Frankenberg, Taylor & Merseth, 2010; Freedman & Appleman, 2009; Zimmerman, 2019). Specifically, these authors reported that teacher candidates' commitment to teaching in urban settings was predictive of initial and longer-term job-setting choices, and that teacher-preparation program can be influential in fostering attitudes and beliefs associated with retention. Similar investigations in the context of special education seem to be urgently needed.

Focus of the Current Study

Our review of the literature highlights three important points. First, stress is a common and expected reality of teaching, but prolonged exposure to stressful circumstances, whether created by immediate conditions or inadequate preparation, will likely lead to emotional exhaustion, burnout, and teacher attrition. Second, individuals who seem to have greater capacity for empathy may put themselves at risk of compassion fatigue in the expression of care that is extended over a long period of time and in highly stressful interpersonal situations. Finally, teacher educators surely hope to instill in their candidates the highest and most noble values of teaching but may fail to also equip candidates with strategies for

coping with the inevitable stressors associated with special-education teaching.

Our research question about beliefs held by special education teacher candidates is an attempt to show that non-productive beliefs may co-exist with those that are better suited to handling stressful working situations. We also hope to offer a glimpse into ways teacher educators might help those newest to the profession embrace more nuanced and sustaining beliefs about their chosen vocation so as to stem the loss of these critical educators.

Methods

In their reviews, Billingsley and colleagues (2019) found that most attrition studies used quantitative methodology to investigate the attrition issue, while only a few researchers used qualitative methods. Although these studies together provide important information about burnout, they do little to describe these factors or the critical moments that might lead to withdraw and attrition.

For the present study, we chose instead to use a multiple case study design (Merriam, 1998). This approach uses a qualitative design to produce rich descriptions of teacher candidates' experiences and permits the researcher to gain an in-depth understanding of the way participants interpret their experiences and examine the beliefs that may inform their perceptions (Patton, 2002). Specifically, our goal was to examine the beliefs of candidates who were preparing to be special education teachers, and to uncover, through discussions of experiences and reflection, those beliefs that might incline one to or be signs of burnout at the earliest stages of the profession.

Participants

Participants for this study were teacher candidates seeking state certification in Special Education. At the time of the study, all were completing their final, semester-long teaching practicum requirement at a large university in the southwestern United States. A total of 10 candidates were contacted, and 8 agreed to participate in our study (Female = 6; Male = 2).

Procedures

After the initial recruiting and information session, all participants were interviewed at three different times during their one semester of student teaching. The first

round of interviews was held near the beginning of the student teaching semester, approximately 3 weeks after they started their first day in the classroom. The second round was completed in the middle of the semester, which is about 5 weeks after the first interview. Finally, the third round of interviews was completed right after candidates finished the student teaching assignment at the end of the semester.

Each interview lasted approximately 30 minutes and was audiotaped and then transcribed verbatim. There were three researchers involved in the interview process. Each followed the same assigned participants throughout the whole semester. The transcriptions were prepared by a professional transcriber who was not one of the researchers. However, after each transcription was completed, the researcher who did the interview reviewed the transcriptions to check for content consistency and accuracy.

During data collection, the researchers utilized a semi-structured interview protocol. In the interviews, researchers followed the wording and order of the interview questions, while at the same time establishing a conversational style, and asking follow-up and probing questions. Through this approach, we gathered the same type of information from each respondent and minimized variation due solely to having multiple interviewers (Matteson & Lincoln, 2009; Patton, 2002).

Data Sources and Analysis

Our data included twenty-four verbatim transcriptions of the interviews (i.e., 3 interviews of 8 candidates) and candidates' responses to the open-ended questionnaire about why the student chose to become a special education teacher. Using the constant comparative method of data analysis (Glasser & Strauss, 1967), this multiple case study (Merriam, 1998) involved two stages of analysis - the within-case analysis and the cross-case analysis. The members of the research team individually read, re-read, and coded each interview transcript using the constant comparative method to identify key points and categories from the data.

From the beginning of our analysis, two themes emerged as most promising. These themes are captured by belief statements reflecting a desire to (a) identifying with students receiving special education services (i.e., "I would

definitely want to accomplish what they want to accomplish”) and (b) wanting to “save” the students (i.e., “I would do anything for them”). These themes were prevalent not only within a single case, but also across the cases we analysed. Consequently, we directed our attention to this new belief that we at first called “the saviour syndrome”. As we continued to further analyse the theme, finer distinctions between categories began to emerge such as “Champion with a Heart” and “Marine with Special Skills”. It is these themes of “identifying” and “saving,” however, that became our focus.

Results

We identified three categories along a continuum ranging from what we imagined as the most likely to burnout to those we imaged would likely remain in teaching based on estimations of the extent to which the candidate might experience stress and emotional exhaustion (see Figure 1).

Champion with a Heart

This theme has to do with statements from the candidate that seemed to exhibit the desire to function as a “Champion” of the special education students, and a desire to see themselves differently from other teachers because

they are ones who care and the ones who can “save” them. They often described themselves as “the one” who can do it and emphasize the “love” for their students. Statements like “I want to be the one to defend or help” or “my heart goes out for them” were mentioned often in the interviews. Statements from the teacher candidates that we placed in this category often were broad statements encompassing all children receiving services, not just the specific students with whom they worked.

I Am the One

Gary and Rebecca expressed similar views when they indicated in their interviews that they were the only ones to extend themselves on behalf of special needs students. Gary, for example, commented in the second interview:

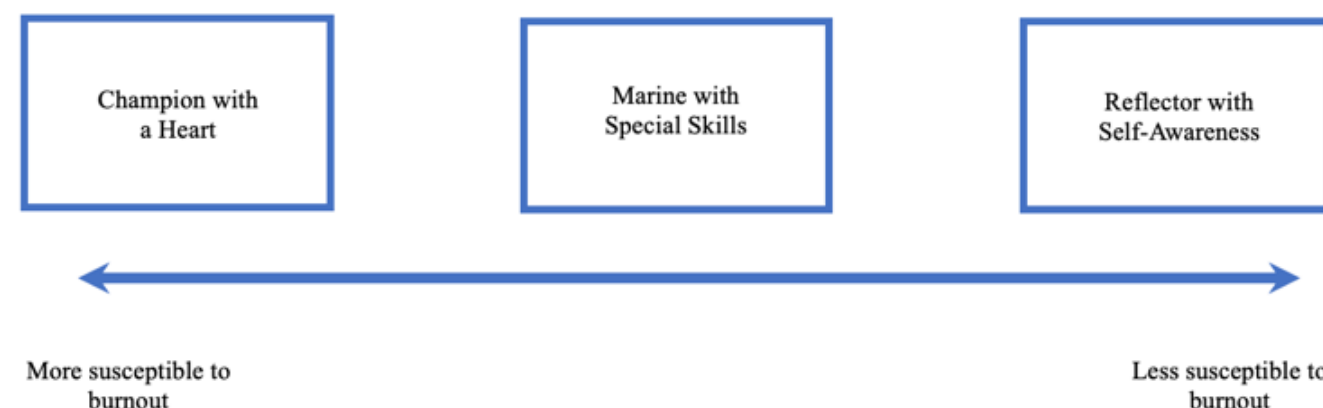
“I’m the only one who walks around the playground, cuz you get to know what they’re talking about and know what’s affecting them. And it really helps.”

Likewise, Rebecca said in her first interview:

“Growing up, I had a child on my block that had autism. I was always the one that wanted to play with him.”

Figure 1

Continuum of Beliefs about Special Education Teaching That May Incline Towards Burnout



“I’m a lot more of a champion for the kids, I think. Making sure they get what they need to learn, their accommodations and modifications and all.”

“My heart’s for those kids. I just know that I can help them, and I know that I have the ability to, and the patience to.”

Having the Heart

All participants spoke of “having the heart” for special education. In the case of Kathy, who was herself diagnosed with a learning disability, explained in the second interview:

Kathy continued to assert:

“I know how hard it is for them. And the general ed teachers, now with the value-added programs, their jobs are on the line to show growth. Right now, I’m more about the kids and helping them feel successful.”

In her third interview, Rebecca, who had a brother with speech issues and another family member with a cognitive disability, spoke of her champion-like role in the following terms:

“As long as I support them and defend them, I can make sure they get everything they need to be successful. It’s not about me, it’s about serving them and making sure their needs are being met legally, no matter what’s going on.”

Linda, who also had a member of her family diagnosed with an exceptionality, spoke in her first interview of her role as a Champion for early testing for special needs designation:

“In the first week I kind of noticed all the kids that needed to be tested ... and before my teacher even told me. I was saying from the beginning, ‘How could you not have tested then long ago? I mean they’re in third grade and they can’t even read, write, or spell.’ One of them was almost on a 0-reading level. That’s not right.”

For most of these teacher candidates there was also the tendency to feel they had a personal connection to the lives of the special needs students. Often, this was found in statements in the questionnaire when they referenced having a family member who was diagnosed with special needs. They also spoke as if they experienced, on a daily basis, the difficulties experienced by the student with special need, both personally and emotionally.

With regard to this category, although expressed in numerous ways, seven of the eight participants showed ample evidence of this belief in the interview transcripts. We do not, in any way, disparage these views, but rather,

we suspect that holding only these views could quickly lead to frustration, disillusionment, and possibly attrition from the field.

Marine with Special Skills

The reputation of the Marine branch of the United States Armed Services is one characterized by grit, determination, and courage. Marines are tough, with special skills and are disposed to getting the “job” done, even when others cannot. In the interviews with our participants, we heard statements reflective of a similar determination and a belief in the uniqueness of the skill resulting from their training that seemed to, in the mind of the participant, set them apart from general-education teachers.

Statements from participants reflecting this category of identity included an expression about their special abilities or a keener insight into recognizing problems compared to other teachers. Unlike the Champion view that was typically broadly stated, the Marine view was often evident in descriptions of very specific instances of success. Like the category described above, we do not disparage such a self-view, but wondered whether a time might come when this high standard might be unattainable in a specific circumstance. In such a situation, and with repeated exposure, we felt that such a view might also lead to frustration and possible attrition from the field.

A number of participants alluded to having a unique viewpoint and skill as a special educator. Linda spoke in the first interview in terms of a special education mindset:

“I think going into the classroom and having the mindset of knowing about these different kids and what they can have and just kinda, their background and what they don’t have, helps a lot. And not that these people aren’t great teachers, but I feel like they need more than one general class of just special ed.”

Ian expressed his desire to be a kind of special teacher in the following quote:

“I’d like to be that person that makes it, (so the student with disability would say) “I can do this””

Ian expressed his perceive importance as a male teacher in the second interview as follows:

“And to me as a guy, I feel like I can step in and be a father-figure or a male-figure or whatever. That’s a big

reason I went into it, because I know I had a lot of friends growing up that didn't have dads around. I really like seeing that."

As indicated by his quote, in addition to being a special education teacher, Ian also saw himself as a father-figure for these students and being the one who cares for students in ways that may compensate for a lack of care by other teachers or parents who may be unable to provide a necessary level of care.

In the first interview Amy shared:

"I think we are as special education teachers, better prepared to be teachers in general. They might have the knowledge of the subjects and love kids, but what they teach us to do is reach the ones who are 'unteachable' and 'unreachable'."

Later, Amy commented in the third interview:

"You can't turn off the special education goggles. It's like, see how you can differentiate instruction, see how you can reach these kids. And it is awesome."

Both Linda (in the first interview) and Rebecca (in the second interview) referred to special abilities when it came to diagnosing the needs of student. In reference to her pinpointing that a little girl needed to be assessed for a potential hearing problem, Linda recounts a statement by her mentor teachers:

"That is a really good quality for you to just be able to come in and notice that right off the bat."

Rebecca shared the following concern about the length of time needed to diagnose learning disabilities in reference to some of the third graders she worked with in her student teaching placement:

"How do they not get caught earlier cuz they write like a kindergartner, and they can't read that well. I was trained to recognize this and it's just frustrating."

In terms of having a distinctive special educator identity, six of the eight participants manifested this, though in a variety of ways. Some of the distinctiveness they identified stemmed from possessing an intuitive grasp for working with special needs students as well as a specific set of diagnostic skills.

Reflector with Self-Awareness

The final category in the continuum signals what we felt might be most likely to incline a new teacher toward retention. The statements we coded in this category occurred less frequently which may reflect a developmental trajectory associated with these views. Like the Champion view, statements we coded as Self-Awareness did not necessarily involve references to actions, but rather encompassed the whole field of special education or all students receiving services. These statements seemed to belie a reflective tone wherein the participant learned something about her or himself. Cast in terms of self-awareness and self-reflection, we felt these statements exhibited a perspective most likely to incline a new teacher to remain vital and active as a special educator. Four of the eight participants interviews provided evidence of this self-awareness.

Some realizations pertained to participants' perspectives about the extent to which they possessed certain characteristics of an effective teacher. As Linda shared in the third interview:

"I'm working on being firmer. I thought I was tough, but I'm actually a softy."

Linda confided during the second interview:

"I'm not nearly as organized as I thought I was."

During the third interview, Ian admitted:

"I only realized after student teaching how unprepared I was."

Another self-realization was related to aspects of self-care during student teaching. Katie mentioned in the third interview:

"I've had to get more sleep, eat better, and buy more comfortable shoes."

Likewise, Ian mentioned in third interview:

"I've found that taking a fifteen-minute walk at lunch can make a huge difference. It just gives me a second wind."

Interestingly, one realization candidates expressed took the form of a participant revising her assessment about the respective roles of general education and special education teachers. During the third interview, Rebecca shared:

“I think I was pretty judgmental before because I didn’t think general education teachers cared about special education kids’ needs. It’s just as stressful and draining to get them to that point to receive services. I didn’t realize that the process was so tedious and drawn out.”

Discussion

From our analyses, we identified three categories of statements that seemed to capture candidates’ beliefs about the unique perspective of special education teachers. Two of the categories seemed to conceal a potential pattern of framing experiences that, left unchecked, might incline new special educators toward attrition. Represented as a continuum, these three categories provided evidence that examining beliefs can be a useful way to consider attrition among special education teachers.

The category of “Champion with a Heart” contained statements that seemed to indicate a greater degree of personal and emotional connection between student and teacher as manifest in identification and empathy with the daily challenges of their students. We believe that this may be very similar to how nurses experience what their patients experience, which can lead to “compassion fatigue” (Figley, 1995). It can be a great stress for an individual to experience challenging life situations, but it is even more challenging when one has these vicarious experiences repeatedly over a prolonged period of time. This experience seems ripe for the emotional exhaustion (Maslach, 2003).

Likewise of great concern is the category of “Marine with Special Skills” due to the inevitability of frustration when faced with students the novice teacher is unable to help despite their specialized skill set. The work of a special education teacher is complex and challenging. When new teachers have such high (and sometimes unrealistic) standards for themselves and others, the likelihood that they will experience in the future feelings of ineffectiveness is greater. As Maslach (2003) pointed out, feelings of ineffectiveness may lead to burnout as manifest in feelings of limited personal accomplishment.

Together, these two categories seem to reflect beliefs of the individual that they possess some extra-ordinary skill or capability (e.g., being “the one,” having great heart and love, possessing special diagnostic skills), and that these out-of-the-ordinary characteristics will enable the teacher

candidate to become extra-ordinary teacher. As we have stated repeatedly, strong commitment and empathy to serve students who receive special education services is admirable, but we fear like the father who warned Icarus, these candidates might take on too much, fly too high, in their expectation of their work as special educators. Metaphorically, the very wings – in this case, deep empathy with high standards and special skill - that allowed Icarus to escape his imprisonment are also what disintegrated when he failed to heed his father’s warning. Less poetically, these beliefs, without proper framing, may leave the new special education teachers susceptible to professional burnout in ways that others with more realistic expectations might be immune.

In terms of future research, our findings from one of the categories seems to hold potential to provide the teacher candidates with the emotional and professional resiliency to thrive in a special education setting (i.e., self-awareness) and avoid Icarus’ fate. Perhaps the most interesting finding of all, however, was that the teacher candidates we interviewed seemed to hold a mix of all three belief-types. It might be instructive to better understand what events or experiences give rise to these beliefs, and how the balance of those beliefs might change over time.

We imagine that a better understanding of what prompts teacher candidates to have greater self-awareness could hold potential for improving the preparation of special education teachers. Specifically, teacher education programs would do well to help new teacher candidates better understand the emotional consequences of blurred personal boundaries especially given the findings from Soini et al. (2019) showing that early, inadequate experiences of new special education teachers were predictive of their dissatisfaction and burnout levels over five years later. Overall, though, our results suggest that whether explicit or not, the formation of beliefs about teaching is complex, ongoing, and may be consequential for the long-term success of the new teacher.

The implications for our findings are, of course, tentative given the small sample size and the limited time over which the study was conducted. We do feel that use of these belief categories might be helpful in aiding new candidates to catalogue and evaluate their own self-views. Cast in terms of future, self-relevant outcomes, current beliefs should provide an engaging way for new teachers to

think about their career trajectory. Of course, much more work is needed to confirm the extent to which these categories characterize larger samples of teacher candidates and novice teachers and to establish, through longitudinal studies, if indeed these categories are predictive of retention and attrition as hypothesized here.

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DIVERSIFYING THE TEACHING PROFESSION: WHAT LED HISPANIC TEACHERS TO BECOME TEACHERS?

Damon Adams, Ed.D.

University of Mary Hardin-Baylor

Brenda Morton, Ed.D.

University of Mary Hardin-Baylor

Abstract

More than 80% of teachers in the United States are White, while less than 50% of students are White (Rotherham & Gold, 2021). Hispanics are the most significantly underrepresented group in the teaching profession (Carver-Thomas & Darling-Hammond, 2019). This phenomenological study aimed to explore the lived experiences of Hispanic teachers in Texas that informed their decision to become an educator. Nine Hispanic teachers who teach in a rural Texas school district participated in this study. Three primary themes emerged: teacher as role model, teacher as encourager, and teacher as cultural representative of career success.

Keywords: Diversifying the teaching profession; Hispanic teachers; Teacher recruitment

Classrooms in the United States are experiencing a demographic shift. One major component is the number of Hispanic students in public schools, which has increased from six million in 1995 to more than 13 million in 2017 (Wang & Dinkes, 2020). The Texas Education Agency reports the demographic data of teachers who apply for their initial teaching certification (Smith, 2021). In 2018, White applicants comprised 54.9% of all the applications. African American applicants comprised 11.8%, and Hispanic applicants comprised 28.3%. The residual demographics included the remaining 5% (Ramsay, 2019). According to the Office of the State Demographer of Texas, there will be a sharp increase in the growth of the Hispanic population in the State (Potter & Hoque, 2014). The Hispanic population will likely grow to 21,516,362 by the year 2050. The Hispanic population will surpass the non-Hispanic White population by more than 10 million people. If the current trend holds, the gap between teachers' demographic makeup and their students' demographics will widen even further.

Understanding each of the various factors that influence an individual's desire to teach and to enter the profession is critical to counteract the teacher shortages that have plagued the educational system in the United States for years. Further, understanding the specific factors that

influence a Hispanic individual's decision to enter the teaching profession may be beneficial in helping to increase the overall percentage of Hispanic teachers in the Texas workforce. Currently, a gap exists in the research that identifies the experiences of Hispanic teachers that have influenced their decision to become professional educators. The purpose of this research was to fill this gap in the literature.

Literature Review

Teachers make up approximately 4% of the entire civilian workforce (Ingersoll, 2001). Becoming a teacher used to be one of the most sought-after career goals in the United States. In 1975, 22% of all college-going individuals entered teacher preparation paths, but by 2015, that percentage dropped to only 10% (Carothers et al., 2019). This trend of declining interest has continued to plague the industry, as has the retention of teachers in the profession.

The Effect of the Teacher Shortage on Students

The teacher shortage is a complex issue. It is not a matter of a certain number of vacancies being filled by candidates. The schools with the fewest resources and least desirable working conditions often experience the most

vacancies (Aragon, 2016; Carothers et al., 2019; Howard, 2003; Sutch et al., 2016). More often than not, the students who need help the most are the ones least likely to get it. Teachers who work at schools with disadvantaged students experience more turnover than those with more affluent students. Schools with high numbers of economically disadvantaged students experience teacher attrition nearly 50% more than schools with more students of wealth (Carothers et al., 2019).

Student demographics also play a significant role in teacher attrition. The single greatest source of educational inequality is the disproportionate exposure of poor and minority students to less trained and inexperienced teachers (Ronfeldt et al., 2013). High minority schools' turnover is 64% greater than schools with the fewest students of color (Sutch et al., 2016). This chronic instability places students who have been historically underserved at an even more significant disadvantage. Strong relationships between teachers and students can predict student achievement. Still, high teacher turnover makes it extremely difficult to establish the environments necessary for trust to build and positive academic achievement to be realized.

Demographic Considerations

The persistent lack of well-prepared teachers in schools and classrooms across the country remains despite a decades-long, concerted effort to address the need to recruit and retain high-quality certified teachers. This issue has been tackled at the federal, state, and local levels with varying degrees of success. The work that has been done to try to address the teacher shortage is admirable. Still, more work is needed to increase the diversity of the teacher workforce. Fewer than 50% of all public-school students in the nation are White, but more than 80% of all teachers are White (Rotherham & Gold, 2021). Evaluation of the current teacher pipelines indicated that this trend is not rapidly changing (Yuan, 2018). The lack of diversity among the teaching force is cause for concern for many political leaders. Since the 1990s, multiple states have adopted policies designed to help recruit more people of color to the teaching profession (Villegas & Irvine, 2010). There is some evidence that these initiatives are beneficial. Smith (2021) stated that in 1990, only about 10% of the teaching force was composed of minorities. By 2003, the percentage of teachers of color had increased to 16%.

Although there is an increase in the number of teachers of color entering the workforce, it is not enough to keep pace with the growth in the minority student population. In 2016, 34 states reported a demographic divide of at least 20 percentage points among the teaching staff, and this gap appears to be widening (Cherng & Halpin, 2016). This discrepancy between the proportion of teachers of color in the workplace compared to the proportion of students of color has been widely documented (Brady & Esmail, 2019; Ingersoll et al., 2019; Sutch et al., 2016). From 1987 to 2012, the number of teachers of color in the workplace increased by only 18%; however, in the same period, the number of students of color increased by 75% (Ingersoll et al., 2019; Sutch et al., 2016). Some researchers believe the underrepresentation of teachers of color will likely persist or even grow in the coming decades (Carver-Thomas & Darling-Hammond, 2019; Hansen & Quintero, 2019; Ingersoll et al., 2019). Hispanic teachers are expected to be the most significantly underrepresented demographic group in the teaching profession (Carver-Thomas & Darling-Hammond, 2019; Hansen & Quintero, 2019). This belief is strongly supported by current demographic trends, especially in the State of Texas. In 2020, 53.8% of the students enrolled in Texas public schools were Hispanic, while only 28.01% of the teaching force was Hispanic (Smith, 2021). The Office of the State Demographer of Texas projects that the Hispanic population will likely grow to 21,516,362 by the year 2050, which surpasses the White population by more than 10 million people (Potter & Hoque, 2014).

Why Diversity Matters

Ensuring every student has access to a great teacher must be done by design. Ensuring every student has equal access to exceptional resources and teachers is the responsibility of every school administrator and political leader. There is growing evidence that ensuring a demographically diverse teacher population is essential (Banerjee, 2018; Goe & Roth, 2019; Torres et al., 2004; U.S. Department of Education, 2016; Weisberg, 2018). Evidence suggests that increasing diversity within the teaching profession can substantially impact the educational experiences of both the students and the teachers and enhance educational outcomes. This evidence articulates the vital role teachers of color play in the U.S. education system. Teachers often serve as role models and mentors to students of color. Research indicates that

teachers of color hold students of color accountable for higher academic achievement levels than White teachers (Carver-Thomas, 2017). Students of color who have teachers of color demonstrate higher academic achievement and social-emotional development due to this teacher-student relationship (Carver-Thomas, 2017). Setting higher expectations and supporting students in achieving those expectations improves the students' self-perception and enhances student academic achievement, leading to higher grades, motivation, and interest (Cherng & Halpin, 2016).

Teachers of color play a vital role in the makeup of the teacher workforce. They are more likely to seek out difficult-to-staff teaching positions in low-income communities, high minority populations, and urban school districts (Ingersoll et al., 2019; Sutchter et al., 2016). Increasing the number of teachers of color who enter the workforce can help school districts staff the schools most often plagued by teacher turnover and lower academic performance.

The impact that teachers of color can have on developing the minds of the students they serve is far more than academic. By serving in these critical roles during the critical formative years of the student's development, they can help to break down the negative stereotypes and better prepare students to live in a multi-racial society (Carver-Thomas, 2017).

Additionally, there has been growing evidence that students of color benefit significantly from teachers who share their cultural identity. One review of the Tennessee Star data found that Black and White students placed in classes with same-race teachers scored better in math and reading than their peers who were not placed with a same-race teacher (Cherng & Halpin, 2016). There is mounting evidence suggesting all students accrue academic benefits when teachers of the same race teach them and when they are exposed to a teaching force that is racially and ethnically representative of the student population (Villegas & Irvine, 2010). In fact, Hispanic teachers in large urban high school systems with high enrollment of Hispanic students reduced dropout rates and increased the college-going rates of Hispanic students (Villegas & Irvine, 2010). The researchers suggest the positive perception of minority teachers may be due to the minority teacher translating

their experiences and identities to form a rapport with students who share the same race.

Methodology

This qualitative study aimed to explore the lived experiences of Hispanic teachers in the State of Texas to determine the factors that informed their decision to become a teacher. This researcher sought to identify critical needs and motivators that influence Hispanic individuals' decision to enter the teaching profession. The research question that guided this study was:

RQ1: What are the lived experiences of Hispanic teachers employed in Texas schools that informed their decision to become teachers?

Participants

Once Institutional Review Board approval was received, participants were recruited from a rural school district located in Texas Hill Country. Recruitment was conducted by emailing all teachers within the targeted district. The email contained information about the purpose of the study and the criteria required for participation. Interested participants were directed to a Qualtrics survey document where demographic data was collected, and an electronic signature for informed consent was provided. The researcher selected participants from all interested candidates who met the criteria, including identification as Hispanic and certified teachers in the rural school district chosen for this study.

Eleven Hispanic teachers were interested in participating in this study. One was excluded because she had transitioned from a teacher to a counselor. A second participant ultimately decided not to join the study because she did not want to be recorded. The recording was a necessary component of the research protocol. Ultimately, nine Hispanic teachers participated in the study.

Data Collection and Analysis

Nine Hispanic teachers employed in a rural Texas school district were interviewed for this study. Multiple sources of information were used in this study, including interviews and audiovisual information, to thoroughly understand the participant's perspectives related to the study. All interviews were conducted in person at a time and location selected by the interview participant. Each

participant was interviewed using a semi-structured protocol that allowed the questions to serve as a guide. The semi-structured interview allowed the researcher to remain flexible in exploring individual participants' interpretations of their life experiences (Merriam & Tisdell, 2015). The interviewer used follow-up and probing questions to seek clarity or extend participants' answers. Interviews lasted from 18 to 49 minutes and were conducted in a location selected by the participant. All of the interviews were recorded.

Upon completion of the interviews, recordings of the interviews were sent to a transcription service to be converted from audio files to text data (Creswell, 2019). In addition, each participant validated the transcripts to verify they were accurate and conveyed their intended meaning. Each interview transcription was uploaded to the qualitative analysis software NVivo for coding (QSR International, 2021). The NVivo software streamlined the coding process to allow the researcher to code individual words, sentences, and paragraphs. In some instances, statements fell under more than one code. The codes were examined for overlap and redundancy and collapsed into broad themes (Creswell, 2019). Finally, the researcher used member checking by having the study participants review the themes identified by the researcher to validate that they are accurate and represent the participant's intended perspective (Creswell, 2016).

Findings

Five female and four male teachers participated in this study and are representative samples from each of the three primary levels of education. Three currently teach at the elementary level, two teach at the middle school level, and four currently teach at the high school level. One of these participants had taught at the middle school level during the prior school year. Study participants represented various degrees of experience in the profession. Two participants reported having less than five years of experience. Three participants have between six and ten years of experience, and four participants reported having 11 or more years of teaching experience. See Table 1 for a demographic overview.

Profiles of Participants

Teacher 1 (T1)

T1 spent all her time in South Texas before moving to her current city. She reports that her community's demographics are predominantly Hispanic due to its proximity to Mexico. Neither of her parents obtained a college degree but supported her desire to receive an education. However, they were not as excited about her decision to leave South Texas. Along with her teachers, friends, and community, they painted non-Hispanic communities as inhospitable and unsupportive. She reports that she experienced fear and anxiety as she transitioned to her new city to begin a life with her new husband. Speaking about her transition to her current school, T1 stated, "I was afraid. I wasn't just intimidated; I was scared."

T1 did not want to be a teacher. She wanted to be a coach. Once she was deep into her degree, she discovered that you also had to teach to be a coach in a public school setting. She has taught at the middle school level and is currently teaching and coaching at the high school level.

Teacher 2 (T2)

T2 reports that he enjoyed school far more than anyone else in his peer group. He was a curious person and always wanted to know why things were the way they were. It was late in his senior year of high school when he began seriously considering a teaching degree. After meeting with his school counselor, though, he began to doubt his decision. He shared his desire to be a teacher and coach with his high school guidance counselor. However, he was encouraged that perhaps working in construction, as a police officer, or going into the military might be a better fit for him. However, with the support of his teachers, friends, and parents, he decided to ignore the advice and follow his path. Although neither of his parents went to college, T2 pursued his college degree following his older brother's footsteps. Currently, T2 teaches middle school English and coaches soccer.

Teacher 3 (T3)

T3, a first-generation college graduate, reports that he first became interested in the teaching profession when he was in elementary school. He shared a story of looking at all of the pictures that one of his elementary teachers would post of her vacations and travels during school breaks. This experience caused him to think that he would make enough money to do those things if he taught. Later in life,

as he discovered he excelled in sports, he deduced that teaching would provide him the means to be involved in sports and enjoy the lifestyle demonstrated by his elementary teacher.

T3 has taught and coached at the high school level for 26 years. He spent much of his career working in the same

large urban school district. This year he transitioned to a much smaller rural school district where he teaches special education and coaches football and basketball.

Table 1

Demographics of Participants

Participants	Years in Public Education	Current Grade Level	Certification Route	Gender
T1	6-10 years	9-12	Alternative Certificatic	Female
T2	Less than five years	6-8	Traditional College	Male
T3	11 years or more	9-12	Traditional College	Male
T4	6-10 years	9-12	Alternative Certification	Male
T5	6-10 years	6-8	TechTeach	Female
T6	Less than five years	PK-5	TechTeach	Female
T7	11 years or more	PK-5	Traditional College	Female
T8	11 years or more	PK-5	Traditional College	Female
T9	11 years or more	9-12	Traditional College	Male

Teacher 4 (T4)

Growing up in a small South Texas town provided few career options for T4, at least from his perspective. The only immediate options available were joining the Navy or working as a ranch hand. Neither of these options was appealing to this participant. He knew that obtaining a college degree was the key to avoiding either of these two options, so he settled his mind on pursuing a degree in engineering.

During his first year of high school, his mother married his stepfather, an educator. Later, his mother, who was already working as a nurse, obtained a degree in education. Observing his parents' work gave him a glimpse into another career option he had not previously considered. Then, through a series of interactions with influential

coaches, he began exploring teaching as a viable career option. T4 has taught middle school math and is currently teaching science and coaching at the high school level.

Teacher 5 (T5)

The desire to become a teacher began in first grade for T5. Already knowing how to read upon entering school may have been a contributing aspect. She found school to be fun and engaging. She developed a strong admiration for her teachers from early in elementary school.

Growing up in a migrant family presented some challenges. She traveled from crop to crop, ensuring the family was not in the same place for a long time. As one of the youngest of 10 children, T5 was fortunate enough not to have to work the crops. She described her father as an

abusive alcoholic and stated that school was a safe place for her. She is one of only three in her family to graduate from high school and the only one to obtain a college degree. However, she did not pursue this degree until she was in her 40s.

She began her career in education as a teaching assistant in a public education elementary school. Working through the TechTeach program of Texas Tech University and the partnership with her school district, she was finally able to obtain her teaching credentials. Today, T5 is a bilingual education teacher working with students in elementary school.

Teacher 6 (T6)

Teaching was not the first career pursuit for T6. Having been raised in a very strict household, T6 was determined to make her way in life and not follow the traditional route of her peers. She decided not to get married in her 20s and have children. She thought, "Why do you need to bring kids to the world to be miserable?" Upon graduating from high school, T6 went to college and landed a job with what she describes as "one of the best companies in the world." She worked for this company for 11 years.

She married when she was 30 years old and began having children of her own. Her third child demonstrated some difficulty in school, and she knew, as a mom, she needed to be able to dedicate the time necessary to help her son. She applied for multiple positions at the school her son attended. She could not ever seem to get a job. Then, she took her son to a pool party for the boy scouts one day. In attendance at this party was also the son of the assistant principal of her son's school. Not understanding why she could not get a job, she approached the assistant principal to inquire why she could not get a job. She said, "I told her, Why did I not get hired? I never have a problem getting hired...I apply immediately, and they hire me." The boldness of her inquisition led to her being offered a paraprofessional position the following week. Then, after learning of the partnership between the school district and Texas Tech University, she joined the TechTeach program and obtained her teaching certification. T6 is currently in her third year of teaching elementary bilingual education.

Teacher 7 (T7)

T7 seemed to have a natural inclination toward teaching. She began teaching English classes at a non-profit organization for non-English speakers when she was 16. After completing high school, she enrolled in college but found it challenging. She performed so poorly that she began doubting herself and did not think she was "college material," so she dropped out. She continued teaching various classes at the non-profit, including prenatal care, childcare, and computer classes. The non-profit organization needed a secretary, so she decided to attend the community college to earn certification as a secretary. Her success seemed to boost her confidence, so she decided to go back to college to earn her teaching degree after marrying and moving to Houston. T7 is an elementary teacher with more than 11 years of experience.

Teacher 8 (T8)

When T8 was six years old, her family moved her to the United States from Mexico. Her parents had difficulty finding a job because they were not in the United States legally. After a brief time in San Antonio, the family settled in a small German community located in Texas. Growing up in a community with very few Hispanic people created an environment ripe for discrimination. T8 recalls being called "cockroaches" by other students, teachers, and school personnel. She stated that connecting to teachers was difficult because they would often say, "you're just going to be another statistic." Some would even say, "you're just going to end up pregnant and drop out of school, or you are going to end up in jail."

As an English language learner, she struggled in school. She was placed in Special Education classes. She found herself in trouble often because of discipline. One such time landed her in a series of Saturday school detentions overseen by a teacher who would ultimately positively impact her life. The teacher would help her with her vocabulary and homework during each weekly encounter. He would encourage her and tell her that she could accomplish anything she set her mind to do. It was not long before she was dismissed from Special Education and enrolled in PreAdvanced Placement and Advanced Placement courses. With lots of hard work and encouragement from her new favorite teacher, she applied and was accepted to The University of Mary Hardin-

Baylor, where she obtained her teaching degree. Today, she is an elementary bilingual education teacher.

Teacher 9 (T9)

T9 never intended to be a teacher. He simply wanted to leave his small town. He is the first in his family to graduate from high school and the first to go to college. Although he was accepted to Harvard University, fear kept him from accepting the invitation and moving that far away. He chose to attend Stephen F. Austin University and majored in English and Spanish. While in college, he worked as a tutor and found he enjoyed working with other people, especially when they had "ah-ha moments." After teaching for 19 years, he completed his master's degree in educational leadership and served as a campus administrator. He missed his work as a teacher, so he returned to the classroom after serving as a campus administrator for eight years. T9 is currently a high school Spanish teacher and language other than English department chair.

Themes

Three themes emerged as factors that contributed to the individual's desire to become a teacher: (a) teacher influence, (b) altruistic nature of education, and (c) family support.

Teacher Influence

For the participants in this study, teachers influenced their decision to pursue careers in education in three primary ways: (a) role model, (b) encourager, and (c) cultural representative of career success. In some instances, the influence of teachers took on all three roles.

Teacher as Role Model

Participants often reflected on teachers' role in shaping and influencing their own lives. These teachers did not need to build a special bond with their students. They simply needed to execute their job responsibilities in ways that garnered admiration from their students. Participants discussed such encounters during their interviews.

T5 explicitly stated, "As a young person, you're looking at the teacher, they are your role model. They are leading the class. They must be somebody important, and they must know what they are talking about." T4 referred to his high school coach as his role model and a significant

contributor to his interest in becoming a teacher. He stated that when referring to his coach,

You constantly have a positive role model, and I had a high school coach who was extremely positive. I still talk to him, text, and keep in touch. It's people like that who left an impact and made me want to be what I am.

Some participants appreciate the sacrifice of hard-working educators. T2 stated, "I like that we had these educators who were sacrificing more time than students to really understand and to make sure that we are gaining something positive from a learning environment."

When asked when she decided she wanted to become a teacher, T7 stated,

I think it all started as like a little kid. My kindergarten teacher, Ms. Garza, and my first-grade teacher, Ms. Carranza. I wanted to be like them when I grew up. I liked their personality and the way they taught.

She also referenced a teacher she had in high school who was also from Mexico. He told her that if he could come from Mexico and become a teacher, she could as well.

T7 was not the only participant who remembers an elementary educator's impact on her life. When his mother passed, T3 specifically remembers the teacher who looked out for him during that difficult time. This encounter left a lasting impression that he remembers many years later. Additionally, T7 recalls two Hispanic teachers she had in the first and fourth grades. She said she knew she wanted to be a teacher when she became an adult, just like them. She loved their personalities and how they taught their students.

When a teacher enjoys their job, it can inspire the students. T8 told the story of his high school journalism teacher, "She herself showed such an enjoyment out of the topic that it was contagious." For T8, though, this impact remained true even if the personality of the teacher was not as pleasant:

I had another teacher who was my eighth-grade English teacher. She was not the most pleasant person, but you could tell that she really enjoyed the subject. It was like night and day when you got her on a topic that she enjoyed as compared to her as a regular person. That always amazed me, and it thrilled me in a way.

For T6, she did not have any teachers she admired when she was a child. She never had a single teacher make any profound impact on her life as a student. However, once she became a paraprofessional, that changed. "I just admire her. I [admire] the way she teaches and her dedication. Her classroom was just so perfect, and she was very into helping the students." T6 also credits a very influential college professor for helping her develop her passion for the classroom. She beamed with excitement when provided the opportunity to say, "Oh my gosh, she is the best in the world. She has so much energy, and from the moment she interviewed me for my master's program, we connected because she loves her job." What seemed to have the most significant impact on T6, though, was the fact that this professor remembered her after more than a year of no contact. "She remembered me," T6 reflected, "I mean, we only talked one time, and she still remembered me. She literally changed my life because of her motivation, her energy, and her love for what she is doing."

Teacher as Encourager

The teacher's impact in forming the attitudes, beliefs, and opinions was evident for the participants in this study. Even when faced with a discouraging counselor, T2 emphasized his teachers were very supportive and encouraged him that if teaching was what he wanted to do, then he could and should pursue it. T2 stated, "They made it seem that it wouldn't be a problem [to become a teacher], and it wasn't, my experience going to college was great."

T1 discussed a coach who had a tremendous influence on her life:

I was in eighth grade, seventh grade, and I had a female basketball coach, and she was somebody who believed in me so much that she would tell my dad, this girl can go play college ball. Anything she wants to do, she's capable of doing it. And I just grew fond of her, and I mimicked her, and I think she was one of the reasons why I became an educator because coaching goes back to the same thing to teaching kids and making them grow as an individual and as a person. She was the reason why [I became an educator].

For T8, an encounter with a teacher in Saturday school changed her life forever:

He was just awesome. He believed in me, and by the third Saturday, because I think I [was assigned 12] he would bring me an apple and our economics book. He would say, "Come over here and let's go over all of your homework. What is it that you didn't get? What is it that you need help with? He would chunk the text. He would help me with vocabulary. The following year I actually started putting an effort into school. Then I suddenly came out of Special Education, and they started pushing me into Pre-AP and AP classes. He just took the time. I wanted to be a teacher. I wanted to be a teacher to make a difference like him.

For T4, the role that his Hispanic coaches played still encourages him today:

There are things you don't talk about, but you show up to practice. You show up to school one day, and your coach says, "You don't need to tell me what happened. I don't need to know. But if there is something you need to tell me, tell me. I am here for you. Let's make it a good day." That meant a lot. I want to be like them because they had such an impact on my life.

Teachers not only encourage their students, but they also serve by encouraging their colleagues. Working as a paraprofessional, T6 demonstrated a passion for helping students. She did not, though, possess the credentials necessary for teaching a class of her own. The teachers on her campus recognized her passion and gift. They encouraged her to return to school to get certified. T6 recalled, "Teachers would say, why don't you get the certification. You are good at this." This call to become certified would occur repeatedly until she finally relented.

Teacher as Cultural Representative of Career Success

Participants in this study identified Hispanic teachers' role in forming their career desire. The presence, or in one case, absence, of Hispanic teacher role models played a significant role in the individual's desire to pursue teaching credentials.

T8 knew she wanted to teach at the elementary level simply because she wanted to have the opportunity to be a cultural role model for her students. Reflecting on her own experience as a student, T8 stated,

We definitely didn't have Hispanic role models. The only Hispanics I remember seeing at school were

custodians. I wish I would have seen someone that was Hispanic because then that would've made me think, "Oh, maybe I can do it, too."

T8 is so passionate about the role that she sees herself playing as a cultural representative of career success that she often reminds other Hispanic individuals of the need to serve this role:

I tell them, "our students need more [Hispanic] role models. They need to know that even though we have gone through the struggles, we have come from third-world countries, that even we might be first or second generation of students going to school, I always try to tell them, we need more educators. We need people who are bilingual.

Speaking of a Hispanic student teacher he had in high school, T2 stated,

The fact that there was somebody there while I was pondering this decision to become an educator that was Hispanic was comforting. It was comforting to know that there are Hispanic teachers out there and that they can make their way.

Having grown up with Hispanic teachers allowed T4 to believe that he could attain his goal. Remembering a specific teacher, T4 said, "He would tell me that there is nothing special about me. You can read. You can write. You can do the same thing I did. You just have to not be scared and do it."

From as early as elementary school, T8 knew there was something special about the two teachers who made the most significant impact on her life at the time. She stated, "They were Hispanic, and so I was looking forward to one day being in their shoes, being able to teach other children." She also recounts a teacher she had in high school who frequently reminded the Hispanic students in his class, "I am a teacher, and I come from Mexico. If I can do it, you can do it, just set your mind and set your goals, and you can also succeed in whatever you decide to do."

Altruistic Nature of Education

For each participant, the challenges they endured while earning their degree were fueled by the passion for improving the students' lives they serve. T1 does not focus on only impacting students in the present; she wants to

have a lasting impact on their future. She states, "I like the aspect of helping people more so on the mental aspect and helping guide them through different psychological paths as far as I can help them be better." T1 attempts to capitalize on her Hispanic heritage and use it to encourage her students to pursue greatness:

I can try to push some of these kids because we can connect better. I feel like I can connect better because we are of the same ethnicity. I am not afraid to do that and try to push them and say, hey, you can do better.

These individuals derive joy from observing students grow. T4 states, "I get to watch kids change. I get to watch them develop new controversial ideas. I'm not [just] educating. I am being educated as time goes on." This perspective also holds true for T8. She specifically wanted to teach elementary school because she wanted to be able to have an early impact on the students she serves:

I did not want to go back to teaching high school. I wanted to start in elementary school as a teacher because I wanted them to not hate school the way that or have such a bad experience in school the way that I did.

T6's passion for connection extends beyond the classroom, "I am a hardcore advocate for our community. I truly believe that the biggest impact is having a good relationship with our parents, with our community, and identifying culturally with them."

T5 works with students new to the United States as a bilingual education teacher. She beamed with excitement as she explained, "I just love helping people learn, and now it is even better because I basically teach people how to read and speak English. It is transformational in their lives."

Family Support

Most of the study participants credit their parents and family to some degree for helping them remain focused and committed to earning their teaching credentials. For T2, watching his mother and stepfather continue their education was enough to keep him motivated. "Just seeing my mom do it and stepdad do it," T2 explained, "was a positive influence."

For T1, her parents played the crucial role of not letting her succumb to her fears or exhaustion:

They told me, "You have to see this through." I did it more for them. At the time, I was wondering what am I doing here? They would give me a phone call. They knew the right things to say. I was like, okay, I'll stick it out and finish it.

For T8 and T9, the fact that their parents were unable to get an education themselves was a significant factor in their commitment and their parents' support. T8 said, "My dad always would tell me that I needed to go to college because he did not get to go to college." She added, "In Mexico, you don't have to finish school." She explained that when her parents moved their families to the United States, her dad pushed her mother to learn English and then supported her to earn a certification as a Licensed Vocational Nurse. She continued her education and is now a Registered Nurse. T8 explained that she often reminded herself, "If your mom learned English when she was older, and she had to work, and she had to go to college, and she did all of this, then there is no excuse for you."

T9 explained that his parents did not care what he chose to study; they just wanted him to get something they never could:

They simply wanted me to become educated. It didn't matter. Whatever I chose, they would support me 150%. They simply said, "You need an education. We didn't have a chance to get one, and you're going to have one, and whatever we need to do, then that's what we're going to do." If I needed something and they didn't have the money for it, they'd go out and find someone to borrow it from or whatever they needed to do to get what I needed.

While her parents had some impact, for T5, her husband and siblings had the most significant influence. However, her daughters were sometimes a little bit resentful because of the time her studies took from them. They wanted her to succeed but really missed their time with their mom. For T6, her experience with her children was the opposite. T6 explains, "I have the best kids ever. They support me. They say, 'Mom, whatever you need.'" She told stories of how her daughter would cook meals, her son would help with laundry and trash. Her children would

eat cereal on evenings when she was too busy or too exhausted to cook.

Sometimes support can feel like pressure. That was the case for T7. "Because I was the oldest of five," T7 recalls, "my dad would say, 'She's going to college. She will be the first person that goes beyond high school and being a role model for her siblings as well.'" She added, "It was a big pressure because at the same time, being the oldest, thinking about my parents not having a higher education was like, maybe she can help financially with the family."

Discussion

Recruiting high-quality, qualified teachers is a challenge faced by school administrators all across Texas. The challenge of ensuring that the demographics of the teachers in the classroom closely match the demographics of the students these teachers serve is nearly impossible to conquer. The need to recruit Hispanic individuals to the teaching profession has never been greater.

Teacher Influence

For the participants in this study, teachers played a significant role in their decision to become an educator in three distinct ways: (a) teacher as a role model, (b) teacher as an encourager, and (c) teacher as a cultural representative of career success.

Teacher as Role Model

Teachers can positively influence students by serving as role models (Carver-Thomas et al., 2017). Some in this study reflected on their experiences and often referred to early elementary teachers who served them as a child. They referenced the teacher's kindness, dedication, and persistence. They discussed how the teacher helped them overcome learning challenges or simply how they created a learning environment that made them feel safe and important.

Teachers are not always aware of their influence over their students in their capacity as role models. None of the participants ever told their teacher of their admiration. However, each of the individuals who participated in this study identified at least one who played a substantial role in helping them form their career interests.

Teacher as Encourager

Verbal persuasion involves the role that a person plays in influencing another person's belief about their ability to succeed at a task by simply telling the individual that they are capable of performing the action (Bandura, 1997). The degree of influence is determined by how the influencer is regarded by the person being influenced. Participants in this study regarded teachers who took the time to build positive relationships, set high expectations, and provided support and encouragement very highly. Cherng and Halpin (2016) stated setting high expectations and supporting students in achieving these expectations improves student self-perception. This concept proved true for these study participants. These teachers had a direct and substantial influence on the individual's self-efficacy. They served, in many cases, as a catalyst for overcoming challenges faced along the road to teacher certification.

Teachers can serve this vital role as a colleague as well. Two participants serving as teaching assistants spoke favorably of the role that teacher-colleagues played in helping them believe in themselves enough to pursue teaching credentials. Having the support and encouragement from someone serving in a capacity that these individuals aspired to obtain was very influential.

Teacher as Cultural Representative of Career Success

According to Carver-Thomas (2017), being exposed to teachers of color during the critical formative years of school can help break down the negative stereotypes. It also helps to formulate career roles that individuals play.

Each of the participants in this study shared multiple things in common. Aside from sharing a cultural identity, they each expressed varying degrees of challenges that arose from being Hispanic. For some, it was growing up in a migrant family. For others, it was having to acquire a new language in a foreign land. For six of the participants, having a Hispanic teacher or simply knowing of a Hispanic teacher gave them enough reason to believe that they, too, could become a teacher.

Altruistic Nature of Education

Teaching is a highly altruistic profession. Teachers are often motivated to make the students' lives that they serve better and contribute positively to their students' life outcomes. For the individuals in this study, this held. Each

participant spoke about their desire to build positive relationships with their students and promote a positive outcome for each student they encountered.

In some cases, the altruism was reinforced by their own experiences in school. For some, they had a very positive experience and wanted to duplicate that in the students' lives that they serve. In other cases, though, the opposite was true. For some, their school experience was fraught with difficulties and negative emotions. They were deeply motivated by the desire to ensure the students' experiences that they serve will be much better than their own. They communicated a willingness to care more, work harder, try better strategies, and ensure students felt safe and encouraged. The participants who experienced negative associations with their teachers in school demonstrated an awareness of how their interactions with their students affect the student's ability to learn and self-belief. They use their own experience as a child as a motivation to ensure they are a better teacher to their students than their teachers were to them.

Family Support

Participants in this study took various paths to pursue their teaching credentials. Five of the participants took the traditional route by attending a 4-year college. Two participants participated in an alternative certification program after earning a 4-year degree and working in a different career field. Two participants worked in a unique program provided by a Texas university that fast-tracked the teacher certification and degree earning program. Regardless of whether the individual entered the certification program immediately upon graduating from high school or their pursuit of the teaching credentials occurred later in life, all participants credit family support as a critical component in their successful completion of the certification program.

All experienced a high degree of encouragement from their family. A sense of pride and accomplishment often supported encouragement. In other cases, support was taking on additional responsibilities for the household. For example, children may take on additional household chores such as cleaning, laundry, and cooking. A spouse might work extra jobs or overtime to help offset the loss of income while the participant attended classes. The families committed to doing whatever it took to ensure the

participant could complete their teacher certification program.

Recommendations

The three themes that emerged from this study did not reveal the magic formula to solve the teacher shortage crisis or recruit more Hispanic teachers to the profession. However, the findings did reinforce what has been widely documented through decades of study. The single most important factor that influences the quality of a child's education in the classroom is the teacher (Hanushek, 2011; Holme et al., 2017; Ingersoll & Merrill, 2017; Rowe, 2003). What impacted the participants' lives in this study had little to do with what their teachers knew. How their teachers demonstrated that they care for their students made the difference. Taking the time to demonstrate care, support, and personal regard for their students profoundly impacted the study participants. For the participants in this study, the relational impact of one or more teachers was the more significant contributing factor in helping to define their career choice.

Students in Texas spend approximately 17,017 hours with teachers between kindergarten and graduation. Equipping teachers with the tools and resources necessary to strengthen the human component, ensure teachers can meet students' social and emotional needs will go a long way to fostering the type of learning environments that help students develop the self-efficacy necessary to pursue lofty goals. While there is certainly no guarantee that this will result in every student choosing a career in education, it can increase the likelihood that some students may generate an interest in teaching who might not have otherwise.

Recommendations for helping to reinforce the influential role that teachers play in the lives of their students based upon the findings of this study include

- developing and requiring courses during the teacher certification program that explore the role teachers play in influencing the lives of their students that reaches beyond their content and is deeply rooted in relationships,
- schools should provide ongoing professional development to all teachers that strengthen their ability to build relationships with students as both

skill-builders and reminders of the significant role they play in the lives of their students,

- foster more opportunities during grades kindergarten through graduation that allow students to explore a career in education and be mentored by a teacher, and

The single most effective recruiting tool that exists to fill the teacher pipeline may very well be the teachers currently working in the profession. Training and equipping them with the tools and resources to maximize their positive influence on the students' lives that they teach may be the answer to solving a decades-long problem.

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A PROCESS TO DESIGN AND DELIVER A SCIENCE CONTENT COURSE FOR ELEMENTARY AND SECONDARY PRE-SERVICE TEACHERS

Doug Monk, Ed.D..
Schreiner University

Abstract

This practitioner-based reflection will explore female pre-service teacher attitudes toward science, research on pre-service teacher (PST) science content knowledge, and a process to create a Science Content course. Many science content courses are discouraging to new teachers and part of the negative experience that detracts from their self-concept about teaching science. If not carefully designed, PSTs will go out into their teaching positions internalizing that they do not know science content and believing that they are not equipped to teach science. The following process is my methodology for creating, a Science Survey of Content and Test Preparation course (EDUC 3350) for Core Subjects 4-8, EC-6, and Science 4-8 pre-service teachers.

Keywords: Course design, course alignment, Science content course, female pre-service teacher, scope and sequence, assessments, efficacy, attributes, attitudes, confidence

The impetus for this narrative on how to design and deliver a Science Content course for Pre-service Teachers (PSTs) comes from a discussion that I had over two semesters with my students in a new Science Pedagogy class which was composed entirely of young women. During these semesters, I interviewed my PSTs seeking certification in core subjects of Early Childhood through 6th grade, 4th through 8th grade (EC-6, 4-8) levels about their beliefs, understandings, and confidence in teaching science to elementary and secondary children (Monk 2021). It was clear that they had a low self-expectancy for teaching science. “How many of you like Science?” I asked my Science Pedagogy students on the first day of class each semester. Every one of my elementary and secondary aspiring teachers answered in the negative as if drinking a bitter cocktail.

My passion and former teaching field, so it seemed, scared each of my students in different ways. “I don’t know anything about Science.” “I am afraid I will look dumb to my students.” “I was never good at Science.” “It is too complicated to understand.” “It never interested me.” “All my science teachers were boring.” And the coup de gras, “All we ever did was worksheets.” It became

apparent to me upon asking “how many of you like Science?”, that there was more to not liking the subject than an aversion to the topic. It was evident that all my students had experienced some type of negative environment in their past schooling that caused them to have an aversion toward science Author (date). Concurrently, our department began seeing a trend of disproportionate failure rates on teacher certification tests in science content knowledge. As a teaching departmental team, in the Spring of 2021, we determined that a course on science content specifically for teachers was necessary and needed to be provided in the Fall of 2021. This may seem counterintuitive, but, as an education department we do not teach subject content, we discover the art and science of the profession of teaching. I was, therefore, gifted with the creation of a new, appropriate, and effective Science Content course for teachers in 3 months. This instructional reflection will explore female PST attitudes toward science, research on PST science content knowledge, and the process to create a Science Content course.

Literature Review

Female and PST attitudes towards science

The research on girls' and PST female teacher attitudes from Kurtz-Costes, Rowley, Harris-Britt, & Woods, 2008 regarding science verifies my observations in class that female PSTs have an aversion towards science as we will see. My mission was clear though, these future teachers were going to like, hopefully, love, Science by the end of the Science Content course. Furthermore, they would pass their science content certification exam and have confidence in their ability to engage elementary and secondary students in science.

Influential adults often confirm what girls and PSTs believe about their competency in Science. "Many parents and teachers believe that boys are more capable in math and science than girls and some evidence indicates that adult stereotypes influence children's self-perception of ability and decision about math and science-related education and careers" (Kurtz-Costes, Rowley, Harris-Britt, & Woods 2008, p. 389). This self-perception begins very early. When asked to draw a picture of scientists in elementary school, girls drew men as the icon twice as often as they drew women. Early school perpetuates the subconscious images of men as scientists. Thus, females enter STEM (Science, Technology, Engineering, and Math) fields at a much lower rate than males. Through her research, Berwick (2019) found that girls take advanced science courses on par with boys as they move into high school but drop dramatically as they enter college. Berwick (2019) called this a *stereotype threat*. Girls continually get subtle social and cultural messages about male superiority in math and science. It is no secret that most elementary teachers are female. Bergman and Morpew's research indicates that many elementary teachers feel unprepared and uncomfortable teaching science. When surveyed, 72% of elementary teachers did not feel competent to teach science (Bergman & Morpew, 2015). The authors' research found insecurities, and these are reinforced by teachers who are anxious about teaching science. Teachers with this feeling of inadequacy may ultimately teach science poorly or avoid it altogether.

The researchers found that these insecurities can be created by the context of science teaching and assessment of girls. A study of admission tests to the most rigorous and elite schools in New York City found that girls guess

less frequently than boys on the predominant multiple-choice tests that are used in science (Ennever, 2006). Girls perform better on open-ended questions, written answers, and assessments that allow them to demonstrate writing proficiency. Girls also report greater self-competence in verbal activities. This response suggests that science assessments in the classroom, which are predominantly multiple-choice, should take the form of open-ended assessments in a more blended way. But this is not happening, and girls continue to be exposed to the environment where multiple-choice tests dominate high school chemistry classes (Ennever, 2006). When considering the context of the science experience for girls, informal assessments have an impact as well. Because teachers still have the perception that girls are less knowledgeable than boys in science, they call on boys more often to answer verbal questioning in the classroom. Kurtz-Costes et al., (2008) found that the type and extent of feedback that children receive about performance greatly impact attributional beliefs, especially in girls. This reduction in attention and experience causes low confidence in girls in the classroom environment. These self-concepts impact interests, behaviors, and values. This translates into girls believing they are not adequate to respond to questions and this is perpetuated as they less willingly respond (Javanovic & King, 1998).

Fostering positive attitudes towards science is important for girls. Compared to boys, Javanovic and King (1998) found that girls seem less interested in and attach less importance to science subjects. "These attitudes are a stronger predictor of science achievement in girls than in boys" (Javanovic & King, 1998, p. 478). The authors further found that girls do not take advantage of the learning opportunities available to them in science classrooms. Javanovic and King (1998) found that boys are more active, involved, and leading participants in experiments than girls. Girls more often take passive roles in experimentation such as organizing equipment or logging data. Boys had their hands on equipment more than girls. This reflects the traditional idea that boys tend to monopolize resources. The result is that girls sit back and observe, rather than take active roles. The good news is, that when girls took active, leading roles such as explaining a task, their science ability perception improved.

This classroom experience is exacerbated by the social and cultural experiences that girls have. Girls make

comparative judgments about their academic interests and performance. Consequently, boys do not make these kinds of comparative judgments. This success expectancy as defined by Watt (2004), is the perception of how well one perceives they will perform an impending task. During a school year, girls perceived themselves as better at non-science subjects and tasks. By the time they have reached middle school, a significant number of girls have formed identity beliefs that science and mathematics careers are not interesting or valuable. Adults other than teachers and parents can impact girls' science competence beliefs as well. For example, a neighboring parent expressing displeasure at their daughter's friend enrolling in advanced placement biology will have a social, cultural, and emotional impact. As if this were not enough, peers and social grouping also impact girls' perception of their interests, values, and worth. "As long as ability in mathematics and physical sciences is viewed as incongruous with a feminine identity, it is not surprising that girls are turning to other areas in which to excel as they reach adolescence" (Kurtz-Costes et al., 2008, p. 405).

Female PST Attitudes Toward Science

The PSTs in my class support the research that they have low self-confidence in their science teaching abilities. "Teacher efficacy is a self-judgment of his or her capabilities to bring about desired outcomes of student engagement and learning even among those students who are difficult or unmotivated" (Arigbabu & Oludipe, 2010, p.28). We see that as girls matriculate to college, many of them chose non-science courses, degrees, and professions. Much of this decision-making is influenced by life experiences, school experiences, and envisioning oneself as successful and effective. Personality characteristics predispose people to view their life experiences in certain ways (Arigbabu & Oludipe, 2010). Students entering professions in education further build their views of inquiry and self-image as future teachers during pedagogy and most importantly, science teaching methodology courses. Those female pre-service teachers who are better at envisioning themselves as science teachers gained more from their programs (Roberts-Harris, 2014). Those that are confident in their scientific competence and abilities have a high self-efficacy. Decker (2008) found that:

1. Outgoing pre-service teachers had a higher self-efficacy than those who were not outgoing.

2. Those with negative affect and anxiety were less confident in their teaching abilities.
3. Education courses that helped teachers explore and understand their own personality proved helpful in their efficacy.

Efficacious teachers persist longer with difficult children, plan more frequently, and are less critical of student errors (Arigbabu & Oludipe, 2010). As I observed in 30 years of teacher observations, students learn more from teachers with high self-efficacy.

The fact that I am a male professor teaching a class of all-female pre-service, elementary science teachers has an impact on this self-efficacy as well. Having same-gender instructors at the college level increases the performance of college students. Furthermore, a same-gender instructor can influence higher student outcomes by increasing expectations, motivation, and adjusting to learning styles that are aligned with gender (Artz & Welsch, 2014). The authors found that female college students learn better with female professors. The good news is that as the female proportion in a class increases, the negative impact of a male instructor decreases to the point of no effect at all. I can say that after having a class of only female PSTs this observation holds. With the research supporting what I initially observed when every one of my students stated they did not like science, and why science content knowledge is limited, I will describe the techniques I employed to create and deliver a Science Content course.

PST Science Content Knowledge

Long, (2019) found that a common refrain from PSTs, and that I have heard repeated from all my aspiring teachers is that science is difficult, intimidating, and/or uninteresting. Long further references several studies that confirm these beliefs and verify what I heard from my PSTs before teaching my content course (Appleton, 2006, Howes, 2002, Kazempour & Sadler, 2015, Kelly, 2000, Liang & Gabel, 2005). Furthermore, PSTs with positive dispositions toward science and the ability to envision themselves as effective science teachers allowed them to remedy these negative beliefs, gain more from their education programs, and become a professional educator (Roberts-Harris, 2014). These negative beliefs can best be mitigated with effective science content courses for aspiring teachers.

A source of this low self-efficacy for pre-service teachers comes from several indicators about their knowledge base in science domains. Davis et al (2006) found that new teachers hold a spectrum of inaccurate science concepts and inadequate conceptions about science. As we discovered in our department examination of PST science content test performance, Davis also found that in a study of 645 preservice elementary teachers, 64% had incorrect responses on astronomy topics. The subjects of this study had misconceptions about science that mirror school-aged students. Lederman et al. (1993) found that PSTs lacked an understanding of connections between concepts in science disciplines they were to teach. Rice and Roychoudhury (2003) found that 60% of 52 preservice elementary science teachers felt their subject matter knowledge was weak. “Pre-service teachers seem, for the most part, to lack adequate understandings of science content. This trend is especially pronounced at the elementary level” (Davis et al., 2006, p.615). Davis also found that negative experiences with science alienate new teachers from science. This could lead to unsophisticated knowledge of science topics, and this knowledge would be inadequate to prepare them for teaching and could cause difficulties in portraying science appropriately.

Science Content Courses

As I prepared a Science Content course for our PSTs, it was important to understand current PST perceptions about existing science content courses. Many science content courses are discouraging to new teachers and part of the negative experience that detracts from their self-concept about teaching science. PSTs describe science content courses as one-sided, intimidating, and impersonal, with an emphasis on memorization of facts (Smith et al., 2019). Avarad (2010) found that after completing college-level science courses, elementary majors could not organize an investigation to answer a scientific question. From this experience, students further report that in science content courses they felt like “second class citizens and frequently emerged with low grades and low self-esteem from what they often stated was going to be their sole exposure to science in college” (Reisert Kielbassa, 1999, p. 278). Although these indicators are discouraging, there seems to be a significant positive impact from science content courses. Smith et al. (2019) found that after a single semester of learning in a science content class focused on elementary PSTs, the students showed a statistically

significant increase in their self-efficacy and outcome expectancy for teaching science.

In sum, science content courses for preservice elementary teachers, especially, have a positive impact on their science knowledge and teaching confidence. But my students report another reason for their gap in science knowledge. At the end of my science pedagogy and subsequently, the beginning of a new science content course, I asked my students why these courses bolstered their confidence levels. Every one of them reported a similar reality. Their gap in science knowledge came from a large gap in time and exposure to science concepts. All my students were juniors at the time they took the science pedagogy and content courses. They all attest that the last time they had a science class in high school was 4 to 5 years previously when they were sophomores and rarely a junior. This time gap, in addition to their experiences in high school science classes, exacerbates their feeling unprepared and weak in their knowledge of science. Discovering their reality and that of students in the research of science content courses, I sought to design a more engaging, empowering, impactful, and wonder-filled science content course.

A Process to Create a Science Content course

Rationale

“We need a science content course for our preservice teachers!” The education department came to this conclusion in May 2021 as we graduated a new group of future teachers. It became apparent that, while most of them earned their certification, most of our EC-6 and 4-8 Core Subject students were failing the science section of the TExES certification test. The root implication of this problem is that school-aged students suffer in the long run. We have future teachers who are seeing their assumptions about science content and teaching science come true. In their perception, they will go out into their teaching positions internalizing that they do not know science content and believing that they are not equipped to teach science. As educational preparation program mentors, coaches, and professors, we know that this is not the case and that our students are much more than a score on a state assessment. So, to improve pre-service teachers’ efficacy and confidence we decided it was time to create a science survey of content and test preparation course in conjunction with a subsequent course on science pedagogy. In other

words, our PSTs would first learn what to teach in science, and then, how to teach it to children. The following process is my methodology for creating from scratch, a Science Survey of Content and Test Preparation course (EDUC 3350) for Core Subjects 4-8, EC-6, and Science 4-8 pre-service teachers.

Course Design Process

1. Course Description and Proposal

To start the process of designing a course to prepare PSTs to teach elementary and middle school science, I had to first, create a course description, and propose the course to our faculty affairs committee for approval in May 2021. The course had to fit into our 71/2-week semester framework. While this may be unusual for EPPs using a 15-week semester model, our university moved to this framework in December 2019 to better accommodate our students during COVID. This condensed timeframe was familiar to us and lent itself to having a survey of content rather than an immersion in it. As stated in the course proposal, this was also a certification test preparation course, aligned to the Texas Essential Knowledge and Skills (TEKS) for those grade levels. In creating the course proposal, I knew that we only had 6 weeks to cover the content. So, as seen in figure 4, I loaded each week with competencies from the testing parameters that aligned with the TEKS.

The course was approved in June 2021 and renamed EDUC 3350, Survey of Science Content and Test Preparation. It would be offered on October 2, 2021, to Juniors which aligned well with their content test dates in January 2022. Time was now of the essence because from the approval date in June to the implementation date on October 2, the course had to be created in four months.

2. State Science Competencies

The Texas Educator Certification Examination Program is an excellent resource for PSTs seeking certification. It has very clear preparation materials including Domains and Competencies. This type of certification test in Texas covers five content areas including English Language Arts and Reading, Mathematics, Social Studies, Science, and Fine Arts. Each

certification test is 5 hours long and composed of 200-210 response questions. Twenty percent of the test covers science competencies 1-18 or approximately 40 questions.

3. Course Content

With these very specific competencies, we determined that the best answer to the question: “What science content do we cover in a pre-service teacher preparation course?” was “the tested competencies.” In other words, the tested competencies became the course. Working from the test back to the curriculum is exactly what Fenwick English (2010) refers to as alignment of the curriculum through backloading. The test then becomes the curriculum which assures direct alignment between what is taught and tested. This is the proper positioning of parts in relation to each other. In modeling curriculum design for our PSTs, ideally, we match what is taught, the curriculum, to what is tested. The parts, the components of content, match up with the contents of the assessment being given. If we do not do this, then how can we properly determine the quality or fidelity of our teaching and that of the curriculum? As we compare EC-6, and 4-8 competencies from figure 1 below we see that there are 18 tested competencies in EC-6 and 23 in 4-8. This was a point of concern because I did not want to put EC-6 students at a disadvantage.

4. Content Alignment

To rectify this initial concern over missing content, I compared the 4-8 with the EC-6 competencies and found that they are the same, just numbered differently. The goal was to have 18 competencies for both tested areas so that they could fit logically into 6 weeks of instruction. As we look at the figure below, we can see where the differences lie. EC-6 competency 1 has two requirements in 4-8, competency 2 has two requirements in 4-8, competency 8 has two requirements in 4-8, competency 14 has two requirements in 4-8, and competency 16 has two requirements in 4-8. All other EC-6 competencies have a direct “partner” in 4-8. This solved the problem of missing content for EC-6 PSTs and allowed us to cover all competencies in the 6-week delivery of content.

Figure 1. 4-8 & EC-6 Core Science Competency Comparison and Alignment

Subject Exam IV—Science (809) 4-8 Core, Science 4-8	Subject Exam IV—Science (904) EC-6
Competency 001—The teacher understands how to manage learning activities to ensure the safety of all students. Competency 002—The teacher understands the correct use of tools, materials, equipment, and technologies.	Competency 001—(Lab Processes, Equipment, and Safety): The teacher understands how to manage learning activities, tools, materials, equipment, and technologies to ensure the safety of all students.
Competency 003—The teacher understands the process of scientific inquiry and the history and nature of science. Competency 022—The teacher understands the process of scientific inquiry and its role in science instruction.	Competency 002—(History and Nature of Science): The teacher understands the history and nature of science, the process, and role of scientific inquiry, and the role of inquiry in science instruction.
Competency 004—The teacher understands how science impacts the daily lives of students and interacts with and influences personal and societal decisions.	Competency 003—(Impact of Science): The teacher understands how science impacts the daily lives of students and interacts with and influences personal and societal decisions.
Competency 005—The teacher knows and understands the unifying concepts and processes that are common to all sciences.	Competency 004—(Concepts and Processes): The teacher knows and understands the unifying concepts and processes that are common to all sciences.
Competency 021—The teacher has theoretical and practical knowledge about teaching science and about how students learn science.	Competency 005—(Students as Learners and Science Instruction): The teacher has theoretical and practical knowledge about teaching science and about how students learn science.
Competency 023—The teacher knows the varied and appropriate assessments and assessment practices to monitor science learning in laboratory, field, and classroom settings.	Competency 006—(Science Assessment): The teacher knows the varied and appropriate assessments and assessment practices for monitoring science learning in laboratory, field, and classroom settings.
Competency 006—The teacher understands forces and motion and their relationships.	Competency 007—(Forces and Motion): The teacher understands forces and motion and their relationships.
Competency 007—The teacher understands physical properties of and changes in matter. Competency 008—The teacher understands chemical properties of and changes in matter.	Competency 008—(Physical and Chemical Properties): The teacher understands the physical and chemical properties of and changes in matter
Competency 009—The teacher understands energy and interactions between matter and energy.	Competency 009—(Energy and Interactions): The teacher understands energy and interactions between matter and energy.
Competency 010—The teacher understands energy transformations and the conservation of matter and energy.	Competency 010—(Energy Transformations and Conservation): The teacher understands energy transformations and the conservation of matter and energy.
Competency 011—The teacher understands the structure and function of living things.	Competency 011—(Structure and Function of Living Things): The teacher understands the structure and function of living things.
Competency 012—The teacher understands reproduction and the mechanisms of heredity.	Competency 012—(Reproduction and the Mechanisms of Heredity): The teacher understands reproduction and the mechanisms of heredity.
Competency 013—The teacher understands adaptations of organisms and the theory of evolution.	Competency 013—(Adaptations and Evolution): The teacher understands adaptations of organisms and the theory of evolution.
Competency 014—The teacher understands regulatory mechanisms and behavior. Competency 015—The teacher understands the relationships between organisms and the environment.	Competency 014—(Organisms and the Environment): The teacher understands the relationships between organisms and the environment.
Competency 016—The teacher understands the structure and function of Earth systems.	Competency 015—(Structure and Function of Earth Systems): The teacher understands the structure and function of Earth systems.
Competency 017—The teacher understands cycles in Earth systems. Competency 020—The teacher understands the history of the Earth system.	Competency 016—(Cycles in Earth Systems): The teacher understands cycles in Earth systems.
Competency 018—The teacher understands the role of energy in weather and climate.	Competency 017—(Energy in Weather and Climate): The teacher understands the role of energy in weather and climate.
Competency 019—The teacher understands the characteristics of the solar system and the universe.	Competency 018—(Solar System and the Universe): The teacher understands the characteristics of the solar system and the universe.

Pearson Education, Inc.: Texas educator certification examination program, core subjects EC–6 (291), Subject Exam IV—Science (804). Retrieved January 19, 2021, from http://www.tx.nesinc.com/Content/StudyGuide/TX_SG_obj_291.htm#IV

5. Content Vocabulary

The natural tendency at this point in course development was to immediately create a scope and sequence for the course. But I still had content determination work to complete. There were 18 broad topics to cover in 6 weeks of delivery. For our students to be successful as future science teachers and succeed on the certification test, I determined they had to have foundational vocabulary. From interviewing our students, I found that all of them had a large gap in time from their last science course in high school. Again, Fenwick English (2010) asserts that if an externally generated testing program causes negative consequences and if a certain outcome is not attained, backloading should be used in curriculum design. Two levels of alignment, Content, and Format exist in backloading. Content alignment matches the content of the test to the curriculum being delivered. Format alignment in the curriculum of a course requires that the test design also be taught. I wanted to do both for our students. They had to be exposed to content that was tested at a knowledge and comprehension level in this specific course. They had to know the vocabulary of the content to build teaching confidence and to be able to deliver it to EC-8 students. But they also had to be exposed to testing format to be successful on the state certification test, which was heavy on vocabulary recognition and recall. I determined, as demonstrated in figure 2 below, crucial vocabulary for each competency. These vocabulary words were extracted from the outcomes in each competency. Each competency had about twenty common words that were necessary to be conversant in the topic and effective as a teacher of the topic.

Figure 2. *Vocabulary for Science Competency 001: Lab Processes, Equipment, and Safety*

Vocabulary by Competency	
Subject Exam IV—Science	
Competency 001—(Lab Processes, Equipment, and Safety): The teacher understands how to manage learning activities, tools, materials, equipment, and technologies to ensure the safety of all students.	
1	Classroom Safety Rules
2	Scientific sample
3	Sampling methods
4	Ethical care of organisms
5	Chemical disposal
6	Chemical inventories
7	Types of lab equipment
8	Scientific Precision
9	Scientific Accuracy
10	Collection of data
11	Communication of data
12	Display of data
13	Line plot
14	bar graph
15	Circle graph (Pie chart)
16	Histogram
17	Metric system, length, volume, weight
18	Meter
19	Liter
20	Tuskegee Experiments

6. Formative Content Assessments

To prepare students for their certification tests over science content, it was critical to create appropriate assessments about the content that closely mirrored state test question design. This also aided in the backward design of the course or aligning content to assessment. The state content tests are classic criterion-referenced tests meant to evaluate understanding and retention. These tests determine if a student-teacher is qualified to receive a license or a certification. As noted above, the TExES certification tests cover five content areas including English Language Arts and Reading, Mathematics, Social Studies, Science, and Fine Arts. Each certification test is 5 hours

long and composed of 200-210 multiple-choice questions. Twenty percent of the test covers science competencies or approximately 40 questions. I also took into consideration that this was a survey of content course for elementary teachers. We studied and sampled many test versions and found that there were no comprehensive practice tests aligned to a specific content area. As in figure 3, I created six, twenty-question tests at knowledge, comprehension, and application levels. I arrived at six practice tests because we had six weeks to deliver the content with a practice test at the end of each week. To simulate state testing conditions, these formative evaluations were timed, taken on a computer, and aligned directly to the content from the previous week.

Figure 3. *Excerpt from Created Practice Test: Competency 007*

Practice Test 4: Forces and Motion, Physical and Chemical Properties, Energy Interactions and Transformations	
Question 1	
5 pts	
An object is being acted upon by a force of 20N directed to the left and a force of 30N directed towards the right. What is the net force on the object?	
Correct Answer	
10 N to the right	
50 N to the left	
10 N to the left	
50 N to the right	
Question 2	
5 pts	
A rocket burns fuel in bursts out of a nozzle, allowing it to maneuver and turn in the vacuum of space. Which of Newton's Laws of Motion explains how this maneuvering is possible?	
Correct Answer	
For every action, there is an equal and opposite reaction.	
An object in motion stays in motion unless an outside force acts upon it.	
Fast-moving air has low pressure	
An object at rest stays at rest until an outside force acts upon it.	
Question 3	
5 pts	
Students in your class are rolling a toy convertible car down an inclined plane with a brick at the end of it. They place a small stuffed animal in the convertible unrestrained and then let the car roll down the ramp. The car hits the brick and stops but what happens to the stuffed animal and why?	
Correct Answer	
The stuffed animal flies forward because an object in motion remains in motion unless acted upon by a force.	

7. Summative Content Assessments

These six formative assessments created a bank of 120 questions from which to create a final, summative assessment at the end of the course. This culminating evaluation was again meant to simulate state testing rigor and environment. The final was a timed, 50 question assessment with each question being taken from the bank of 120 questions created by 6 formative practice tests.

8. Scope and Sequence

After identifying the required science competencies, content to be covered, foundational vocabulary, engagement techniques, and assessments, the scope and sequence of the course were created. Our university has embraced the model of two 7½-week semesters for each fall and spring semester. As stated above, we chose 18 competencies that cover both EC-6 and 4-8 science content. These 18 competencies cover every teacher's outcome on the certification examination and align with the essential knowledge and skills of the state. With these parameters, the course sequence became a math problem.

7½ weeks at 4 meetings per week equates to 27 face-to-face class meetings. Therefore, I needed to create 27 individual and replicable classes. These 18 competencies would be aggregated into 6 modules. I identified natural breaks in the competencies which formed the core of each module so that the content was not overwhelming for the students. In the scope and sequence, you can see the general theme for each module: 1: Science overview, 2: Science Structure, 3: Physical Science, 4: Life Science, 5: Earth Science, 6: Astronomy. At the end of each module, students took the formative assessment described above.

9. Lesson Plans

Preliminary, background, research, and planning were completed in two months. The remaining two months before launch date was dedicated to individual class planning, delivery timing, technique, and resources. All the research indicated that PSTs report content courses to be intimidating, uninteresting, confusing, one-sided, impersonal, and rote (Appleton, 2006, Avard, 2010, Davis et al., 2006, Howes, 2002, Kazempour & Sadler, 2015, Kelly, 2000, Liang & Gabel, 2005, Smith et al. 2019). To best serve our students I had to create a course that was

none of, or as little as possible, like the courses described by PSTs in the research. Each class had to balance demonstration of good teaching techniques and lesson cycles and the direct presentation of science content.

10. Lesson Cycle

Each 80-minute class consistently had an anticipatory set, direct instruction, guided practice, independent practice, and closure. As seen in the example lesson plan, I allotted approximately 45 minutes of each class to content delivery and demonstration of content. Introductory and hooking activities typically received 10 minutes, and student interaction and closure 25 minutes. To alleviate students' pre-conceived attitudes toward science content courses we mandated student involvement, presentations, interaction, and reflection in each class for 35 minutes. These engaging components were strategically placed at the beginning and end of every class. The "Who am I" presentations and team reviews at the end of each module served to involve students, empower them, and tap into their creativity.

At the beginning of each module with a theme, students were issued vocabulary lists (figure 2) corresponding to competencies covered and directly aligned to content. The content focal point of each class was one of 18 power points aligned to and dependent upon content vocabulary and formative assessment. There was a very tightly aligned and interdependent system of assessment, vocabulary, and visual delivery.

Figure 4. *Scope and Sequence for EDUC 3350 Science for Teachers, Survey of Content*

Mod,Class# Date	Scope and Sequence
MOD 1 1 T O 5	Intro
2 Th O 7	Competency 1. (Lab Processes, Equipment, and Safety): The teacher understands how to manage learning activities, tools, materials, equipment, and technologies to ensure the safety of all students. Who am I? Professor
3 F O 8	Practice Test 1 Comp. 1 in canvas. No class meeting
4 M O 11	Competency 2. (History and Nature of Science): The teacher understands the history and nature of science, the process, and role of scientific inquiry, and the role of inquiry in science instruction. Who am I? Student Quizlet 1: Group 1
5 T O 12	Practice Test 2 Comp. 2 in canvas. No class meeting
MOD 2 6 Th O 14	Competency 3. (Impact of Science): The teacher understands how science impacts the daily lives of students and interacts with and influences personal and societal decisions. Who am I? Student
7 F O 15	Competency 4. (Concepts and Processes): The teacher knows and understands the unifying concepts and processes that are common to all sciences. Who am I? Student
8 M O 18	Competency 5. (Students as Learners and Science Instruction): The teacher has theoretical and practical knowledge about teaching science and about how students learn science. Who am I? Prez Student Competency 6. (Science Assessment): The teacher knows the varied and appropriate assessments and assessment practices for monitoring science learning in laboratory, field, and classroom settings. Who am I? Student Quizlet 2: Group 2
9 T O 19	Practice Test 3 Comp. 3-6 in canvas. No class meeting
MOD 3 10 Th O 21	Competency 7. (Forces and Motion): The teacher understands forces and motion and their relationships. Who am I? Student
11 F O 22	Competency 8. (Physical and Chemical Properties): The teacher understands the physical and chemical properties of and changes in matter. Who am I? Student
12 M O 25	Competency 9. (Energy and Interactions): The teacher understands energy and interactions between matter and energy. Who am I? Student
13 T O 26	Competency 10. (Energy Transformations and Conservation): The teacher understands energy transformations and the conservation of matter and energy. Who am I? Student Quizlet 3: Group 3
14 Th O 28	Practice Test 4 Comp. 7-10 in canvas. No class meeting
MOD 4 15 F O 29	Competency 11. (Structure and Function of Living Things): The teacher understands the structure and function of living things. Who am I? Student
MOD 5 16 M N 1	Competency 12. (Reproduction and the Mechanisms of Heredity): The teacher understands reproduction and the mechanisms of heredity. Who am I? Student
17 T N 2	Competency 13. (Adaptations and Evolution): The teacher understands adaptations of organisms and the theory of evolution. Who am I? Student
18 Th N 4	Competency 14. (Organisms and the Environment): The teacher understands the relationships between organisms and the environment. Who am I? Student Quizlet 4: Group 4

19 F N 5	Practice test 5 Comp. 11-14 in canvas. No class meeting
MOD 5 20 M N 8	Competency 15. (Structure and Function of Earth Systems): The teacher understands the structure and function of Earth systems. Who am I? Student
21 T N 9	Competency 16. (Cycles in Earth Systems): The teacher understands cycles in Earth systems. Who am I? Student
22 Th N 11	Competency 17. (Energy in Weather and Climate): The teacher understands the role of energy in weather and climate. Who am I? Student
23 F N 12	Competency 17. (Energy in Weather and Climate): The teacher understands the role of energy in weather and climate.
MOD 6 24 M N 15	Competency 18. (Solar System and the Universe): The teacher understands the characteristics of the solar system and the universe. Who am I? Professor Quizlet 5: Group 5
25 T N 16	Competency 18. (Solar System and the Universe): The teacher understands the characteristics of the solar system and the universe.
26 Th N 18	Practice Test 6 Comp. 15-18 in canvas. No class meeting
27 F N 19	Review
28 T N 23	Science Final: Taken in Canvas

Figure 5. Example lesson plan for Forces and Motion

CLASS 10 Forces and motion	
100 Science Fun Fact: There are more trees on Earth than stars in our galaxy NASA experts believe there could be anywhere from 100 billion to 400 billion stars in the Milky Way galaxy. However, a 2015 paper published in the journal <i>Nature</i> estimated that the number of trees around the world is much higher: 3.04 trillion.	
SLO: The teacher understands forces and motion and their relationships.	
100-110 10 Who Am I: Liz F: Sir Isaac Newton: force and motion	
Key Concepts and Vocab 110-215 65 Competency 7. (Forces and Motion): The teacher understands forces and motion and their relationships. 110- 130 20 PWP 130- 155 25 Demonstrations <ol style="list-style-type: none"> 1. Demonstrates an understanding of the properties of universal forces (e.g., gravitational, electrical, magnetic). 2. Understands how to measure, graph, and describe changes in motion by using concepts of position, the direction of motion, and speed. 3. Analyzes the ways unbalanced forces acting on an object cause changes in the position or motion of the object. 4. Analyzes the relationship between force and motion in a variety of situations (e.g., simple machines, geologic processes). 155-215 20 Turn and talk vocabulary from this competency. Complete vocab chart.	
215-220 5 Closure discussion How do forces and motion impact the geography of the earth? 4m Summary video: https://www.youtube.com/watch?v=hjIptNnEgU	
Force and motion resources	
https://www.daviesskyschools.org/userfiles/1822/Classes/27665/13-14%20Forces%20%20Motion%20Vocab.pdf	
https://sciencetrek.org/sciencetrek/topics/force_and_motion/facts.cfm	
https://p19cdn4static.sharpschool.com/UserFiles/Servers/Server_130900/File/What's%20new/Digital%20Learning%20Days/4th%20Grade%20Additional/Unit%206%20-%20FM%20and%20Simple%20Machines%20Reference%20Sheet.pdf	

11. Content Engagement

PSTs describe science content courses as one-sided, intimidating, and impersonal, with an emphasis on memorization of facts (Smith et al., 2019). Lederman et al. (1993) found that PSTs lacked an understanding of connections between concepts in science disciplines they were to teach. Rice and Roychoudhury (2003) found that 60% of 52 preservice elementary science teachers felt their subject matter knowledge was weak. “Pre-service teachers seem, for the most part, to lack adequate understandings of science content. As I designed this course, I determined that my students not only needed to have foundational content knowledge in the form of vocabulary but that an understanding of the source of this vocabulary was important to inspire interest.

In each of the content areas from Lab Processes to Astronomy, founding scientists abound. I decided that an exploration of the scientists that created or discovered key elements of each competency would be important and engaging. Roach (1995) found that students do not embrace understanding of the nature of science. Using her story form model, historical vignettes focus on the lives of important scientists. This engagement model takes about ten minutes at the beginning of each class, provides an anticipatory set for the forthcoming content, and connects the present content with the past formation. I entitled the hooking activity as “Who am I?”. Students selected a leading scientist from the list of founders of the content field. They presented a ten-minute discussion about the founding scientist and portrayed the character as if the person were present in the room. To make it even more captivating, students were required to have a “head on a stick” during their presentation. Therefore, while learning about the human connection to the nature of science, PSTs were also exposed to the content in the form of an anticipatory set.

To further engage students, the class was divided into 6 teams of 3 to create an engaging method of review before each formative practice test. The guidance for this activity was that it must include every student in the class while focusing on the vocabulary and content of the module. This was also intended to tap into creativity and fun in the classroom. The result was everything from baseball review to scavenger hunts.

Figure 6. Excerpt from “Who am I” Founding Scientists resource for students

WHO AM I? Scientists by Competencies
Competency 001—(Lab Processes, Equipment, and Safety): The teacher understands how to manage learning activities, tools, materials, equipment, and technologies to ensure the safety of all students.
Dr. Thomas Parran: Tuskegee Syphilis experiment https://en.wikipedia.org/wiki/Thomas_Parran_(surgeon_general) Specimen Handling: https://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers18-05/010071550.pdf Scientific collecting https://en.wikipedia.org/wiki/Scientific_collection
Competency 002—(History and Nature of Science): The teacher understands the history and nature of science, the process, and role of scientific inquiry, and the role of inquiry in science instruction.
Sir Francis Bacon: Scientific Method https://en.wikipedia.org/wiki/Francis_Bacon
Competency 003—(Impact of Science): The teacher understands how science impacts the daily lives of students and interacts with and influences personal and societal decisions.
Dr. Thomas Malthus: Population growth https://en.wikipedia.org/wiki/Thomas_Robert_Malthus

12. Demonstrations/Materials

As discussed in the rationale above, the course was intended to be a survey of content and test preparation. Demonstrations were, therefore, very simple, using household materials, yet directly aligned to the vocabulary and content presentations. Demonstrations were designed to reinforce and operationalize content, vocabulary, and science concepts. In almost every case, these demonstrations were no more complex or rigorous than a typical high school Physical Science class. Classroom arrangement was the primary limiting factor in creating demonstrations. This course did not take place in a science lab because none were available. Furthermore, the classroom was separated from the education department

building so that all equipment and materials had to be transported in an equipment cart. This necessitated light, durable, mobile, re-useable, simple, and familiar items. Especially in the case of Physical, Chemical, Living, Earth, and Space sciences, simple kitchen supplies, toys, balls, pipe cleaners, cups, water, food coloring, play doh, wheels, and Styrofoam were primary resources. Elaborate demonstrations need not be the norm in this type of class or setting. Simple demonstrations further empowered PSTs to see that household items could be as engaging as elaborate or complex lab material. The classroom setting also empowered PSTs to see that a typical elementary classroom can function as an engaging science lab and place of discovery. As often as was possible, with space permitting, student involvement and interaction were used to heighten efficacy levels for students.

13. Classroom Layout

The Survey of Science Content course was delivered in a non-science classroom setting. The course was viewed by the registrar to be a survey course, one which did not need to be in a laboratory setting. This proved to be a logical and effective determination because the focus of the course is exposure to 18 science competencies. In a seven-week format, with four classes per week, there simply was no time to conduct full labs and the depth of the material did not necessitate this type of classroom. Had this course been assigned to a science lab, elementary PST anxiety levels would have increased and been a detractor from the goal of making this a non-threatening introduction to basic science content. When asked where I wanted to conduct the class, my choice was a non-science classroom to create a conducive environment for female students who entered with negative, pre-conceived notions of science, content courses, and labs.

The classroom layout, therefore, consisted of 10, two-person, black-top tables, a computer station, wall-mounted TV monitors, whiteboards, and a demonstration table in the front of the classroom. As discussed earlier, all demonstration material was transported to class in a wheeled cart and set up for each class meeting in the front of the classroom. When content such as forces and motion, living things, or Astronomy necessitated it, we used hallways, foyers, and external micro-environments. This type of classroom facilitated the simplicity of the

demonstrations, lack of hazardous materials, and focus on content.

Results

Certification Test scores

This course was offered in Fall 2, October to November 2021. Fifteen students took the course and 7 had a science content test in December 2021 while 4 had one scheduled in Spring 1 of 2022. Every student who took their elementary content test passed the science portion of their content test. I followed up with each of the students who took their content test and asked them how the course helped them. To a person, each PST stated that they went into the test much more confident in their science knowledge. Most stated that it had been five years since they had seen any of this content and that this short survey of content filled in their knowledge gaps. While the content of these content tests is not known directly, every student conferred that many of the questions closely mirrored the content covered. Additionally, almost every student reported that, in their recollection, every course competency was covered on their test. Finally, while the exact wording of each question is never known, students also reported that the rigor and wording of the course practice test questions closely aligned with those on the test.

Efficacy

When we review what PSTs report about their perceptions, confidence in, and efficacy for science content, aspiring female teachers report low measures in each of these areas. I found that my aspiring teachers believe that science is difficult, intimidating, and uninteresting. Long, (2019) found that a common refrain from PSTs and repeated by all of my aspiring teachers is that science is difficult, intimidating, and/or uninteresting. Long further references several studies that confirm these beliefs and verify what I heard from my PSTs before teaching my content course (Appleton, 2006, Howes, 2002, Kazempour & Sadler, 2015, Kelly, 2000, Liang & Gabel, 2005). This low self-efficacy for pre-service teachers comes from several indicators about their knowledge base in science domains. Davis et al (2006) found that new teachers hold a spectrum of inaccurate science concepts and inadequate conceptions about science. PSTs also lack an understanding of connections between concepts in science

and the discipline they are to teach Lederman et al. (1993). 60% of 52 pre-service elementary teachers feel their subject matter knowledge is weak Rice and Roychoudhury (2003). Finally, these negative perceptions are increased as the negative experiences with science in matriculation increase (Davis et al. 2006).

More important than any score on a standardized test is the building of confidence and efficacy in aspiring teachers. This survey of science content sought to build resilience and interest in science content for pre-service teachers. Robert-Harris (2014) found that female PSTs that are better at envisioning themselves as science teachers gained the most from their programs. Those that are confident in their science competence and abilities have a higher self-efficacy. Efficacious teachers persist longer with difficult children, plan more frequently, and are less critical of student errors (Arigbabu & Oludipe, 2010).

As I observed my PSTs in the final weeks of this course, I saw young women speaking with authority, presenting science topics with confidence, testing with reduced anxiety, and thinking like scientists.

Conclusion

Students entering professions in education build their views of ability and self-image as future teachers during pedagogy and most importantly, science teaching methodology courses. Those female pre-service teachers who are better at envisioning themselves as science teachers gained more from their programs (Roberts-Harris, 2014). But we see that as girls matriculate to college, many of them chose non-science courses, degrees, and professions. Much of this decision-making is influenced by life experiences, school experiences, and envisioning oneself as successful and effective. The female PSTs in my class verified the research that they have low self-confidence and efficacy in their science teaching abilities where teacher efficacy is a self-judgment of his or her capabilities to bring about desired outcomes of student engagement and learning. (Arigbabu & Oludipe, 2010, p.28).

PSTs in science content courses report that these preparation classes can be discouraging and part of the negative experience that detracts from their self-concept about teaching science. If not carefully designed, PSTs will go out into their teaching positions internalizing that

they do not know science content and believing that they are not equipped to teach science.

Considering women's voices and perspectives, I sought to design a more engaging, empowering, impactful, and wonder-filled science content course. The process described in this practitioner-based perspective is but one possible solution to the challenge of engaging, affirming and preparing elementary female pre-service teachers for the rigors of teaching. By the end of this course however, the young women were standing taller, teaching with confidence, and speaking with conviction. Quantitatively, each one passed their content test and are now certified teachers. These results suggest that hearing women's voice and designing a course in response to those voices can, and do have a positive effect on the confidence, self-efficacy, and teaching abilities of our future teachers

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Contribution of Research

TEACHERS WHO CAN: AN APPROACH TO STUDENT TEACHING THAT PROMOTES PERSEVERANCE AND TEACHER QUALITY

Sharon Vasser Darling, Ph.D.

University of Texas Permian Basin

Shelly J. Landreth, Ed.D.

University of Texas Permian Basin

Lindsey Balderaz, Ph.D.

University of Texas Permian Basin

Lorraine Spickermann, M.A.

University of Texas Permian Basin

Abstract

A year-long teacher residency program is cultivating excellence in pedagogy by giving students in a teacher preparatory program an extended, authentic experience in the classroom. Teacher residents grow alongside their students during a full academic year as they practice exemplary research-driven pedagogical strategies modeled by mentor teachers. By developing an advanced preparation program with our strategic partners, including multiple co-teaching methods, high-impact AVID® (Advancement Via Individual Determination) learning strategies, social-emotional learning, culturally relevant/responsive teaching, and Sanford Inspire/Sanford Harmony professional development modules, we offer a diverse and well-balanced approach to teaching that maximizes teacher quality.

Keywords: co-teaching, AVID®, social-emotional learning, culturally relevant/responsive teaching, Sanford Inspire/Sanford Harmony

During the spring of 2020, the College of Education faculty at the University of Texas Permian Basin (UTPB) embraced a new vision for our student teachers: a year-long residency program that would afford students a full year's experience in the classroom along with the compensation of a salary and benefits that matched those of the clinical teachers. In cooperation with strategic national and local partnerships, we brought this vision to fruition in the fall of 2020. At the time, UTPB was the 23rd university in a growing cohort of institutions transitioning to year-long teacher residencies. We were pioneers, however, in securing paid residencies for our teacher residents—a model quickly embraced by other universities across Texas and the United States.

The pilot year vision was expanded through the structuring of a program in which teacher residents would learn through a progressive model of co-teaching, the implementation of high-impact learning strategies (AVID®), evidence-based social and emotional learning programs, culturally relevant/responsive teaching, and the completion of professional development modules (Sanford Inspire/Sanford Harmony). The purpose of this manuscript is to demonstrate how our collective approach to an innovative student teaching program—i.e., the year-long paid teacher residency—enhanced student learning and prepared teacher residents to be classroom leaders.

Strategic Partnerships

Key partnerships serve as the backbone of our successful year-long teacher residency program. National partnerships include the University-School Partnerships for the Renewal of Educator Preparation (US PREP) and Opportunity Culture® (an initiative of Public Impact®). US PREP generates on-the-ground support and services designed for training and retaining high-quality teachers for historically underserved communities (www.usprepinternational.org). A Regional Transformation Specialist (RTS) is assigned to the university for the ongoing support that includes a series of professional development opportunities for all stakeholders, targeted training, and monthly leadership meetings. Additionally, US PREP assigns an academic coach to work with site coordinators who are university faculty members selected to instruct, mentor, and evaluate teacher residents. Both the RTS and coach provide support virtually and in person, frequently traveling to our campus and respective districts. This support focuses on a collective vision of pedagogy that provides mentoring and coaching along with an integration of campus coursework and clinical experiences.

The Opportunity Culture® partnership is also vital to the success of the teacher residency. Each school district partner assigns an Opportunity Culture director to lead this work. The directors, school administrators, and university partners work in tandem for the selection of student and clinical teacher pairings, a vetting process by which candidates are carefully chosen and matched for exemplary results (www.opportunityculture.org). The partners further collaborate in the selection of clinical teachers, titled multi-classroom leaders (MCLs), and help to secure generous stipends for MCLs as compensation for their year-long mentoring. MCLs subsequently provide mentoring for teacher residents following a gradual release approach. They implement a suggested co-teach model, explained in greater detail later, that allows teacher residents to first observe, then assist, and eventually to take leadership of the classroom with solo teaching lessons. Teacher residents meanwhile receive a year-long paid teaching contract complete with benefits and a year in their selected retirement system.

Local partnerships include the progressive involvement of the MCLs and school administrators with university site coordinators, who coordinate data meetings designed to

provide ongoing, real-time support for programmatic improvement. MCLs meet with site coordinators every other month to review collected data from teacher resident observations, celebrate achievements, and discuss needed refinements within the classroom. Feedback from these partners is critical to the success of the program. Likewise, school administrators meet every other month with site coordinators to review the data and discuss needed refinements within the building. During these governance meetings, principals share successes and challenges of the residency program in their respective schools so that their feedback can be used for programmatic changes. Finally, site coordinators also meet monthly with Opportunity Culture directors from each district to invite their feedback and questions regarding the status of the residency program in their districts and suggestions for continuous improvement and growth.

Our combined national and local partnerships serve to provide the foundation for our year-long teacher residency program. This requires the collaborative cooperation of our College of Education dean, department chairs, and assigned faculty, along with the district site coordinators who have the most critical role. Currently, we have four full-time faculty members assigned the roles of site coordinators to oversee the program and provide on-site clinical support. They provide evaluative feedback to teacher residents, to MCLs, school administrators, Opportunity Culture directors, US PREP partners, and our College of Education administrators.

Piloting a year-long teacher residency program for the first time during the 2020-2021 academic year highlighted unanticipated logistical and pedagogical issues, from which we learned, allowing for real-time adjustments to support continuous programmatic improvement. Most improvements were the direct result of feedback received from our strategic partners. Thus, our year one teacher residency that included 15 teacher residents and MCL pairs, across two districts, grew to 24 teacher residents and MCL pairs in year two. Currently, the UTPB teacher residency program focuses on the two largest local school districts with plans to include many rural districts. This would include offering rural students distance learning opportunities.

Recruitment for year three of the local residency program is meanwhile underway. Reflecting upon the

extraordinary benefits of assigning an education student to a year-long pedagogical experience, administrative conversations are now focused on scaling the program so that all education students, most of whom currently complete a non-compensatory single-semester student teaching program, will eventually participate in the year-long, paid teacher residency. Thus, what began as a pilot with limited participants will become the inclusive standard for all UTPB student teachers.

Co-Teaching

Implementing a model in which co-teaching is fundamental has improved the teacher residents' experiences and learning outcomes. Bauwens, Hourcade, and Friend (1989) developed co-teaching as a pragmatic merger of expertise between the general and special education teachers to support diverse learners in the general education setting. Cook and Friend (1991) later shortened the term from cooperative teaching to co-teaching and further clarified the characteristics of a genuine co-teaching relationship as "two professionals delivering substantive instruction to a diverse or blended group of students in a single physical space" (p. 2). This clarification of the definition meaningfully extended the use of co-teaching beyond the general education and special education boundaries to any teaching environment which supports diverse learners.

A meta-analysis of research on co-teaching by Murawski and Swanson (2001) revealed that co-teaching positively impacted student outcomes. Similarly, a meta-analysis by King-Sears (2021) confirmed that students with disabilities made significantly better progress in a co-teaching environment than in a self-contained or special education environment and experienced a quicker rate of progress. Co-teaching has been critical to our year-long teacher residency program, as well, and something site coordinators model during the teaching of the weekly seminars.

A variety of co-teaching strategies have been developed to meet the needs of the individual teachers, the subject matter being taught, and the students within the classroom. These models include One Teach, One Observe; One Teach, One Assist; Team Teaching; Station Teaching; Parallel Teaching; and Alternative Teaching. A key aspect of co-teaching success is the use of co-planning meetings. Murawski (2005) detailed a plan for co-teaching in which

the co-teachers met frequently to communicate plans regarding specific lessons, discuss personal teaching styles and preferences for classroom management, and ensure each teacher understands his or her role in the upcoming co-taught lesson. Co-planning is also noted as one of the biggest barriers to co-teaching due to lack of time for meetings and communication barriers (Gurgur & Uzuner, 2011).

Cook and Friend (1995) identified two key tenets for effective co-teaching: 1) Teachers must demonstrate parity by switching roles often so that no one teacher is always with a small group or providing support by circulating while the other does all the large group instruction; 2) Heterogeneous groups must be maintained by switching students often within large and small groups so that no one student is stigmatized as being in the lower group. Another key element for successful co-teaching is the use of reflection meetings to identify which parts of the lesson went well, how the roles worked, and what areas need improvement in the implementation of the co-teaching strategy.

Scholar Michele Kamens (2007) evaluated the use of co-teaching in the pre-service teachers training model and revealed that introducing pre-service teachers to this collaborative teaching experience enhanced their ability to work as a team, communicate more effectively about the classroom and students, and helped them structure teaching to better meet the needs of diverse learners in the classroom. In a co-teaching model, pre-service teachers could assume the role of a lead teacher more quickly than in a traditional student teaching model—something we saw mirrored in our year-long residency program. Pre-service teachers' self-esteem was enhanced by the affordance of sharing their ideas for lessons, and exploring their teaching styles, while being in a supportive co-teaching relationship with a mentor teacher.

In alignment with best practices, our year-long teacher residency model places teacher residents in a co-teaching position with a master teacher for the full academic year. Co-teaching strategies are observed and evaluated by site coordinators during informal observations with the results reported during stakeholder meetings. Teacher residents and MCLs are provided with a partner-developed progression timeline that outlines the various co-teaching methods and suggests when, week by week, each of the

Progression of TR Development and Release Time

ELEMENTARY				
Week	Suggested Residency Co-Teaching Strategies	Minimum Teacher Resident Responsibilities	Minimum Multi-Classroom Leader Responsibilities	Release Time Recommendations
1	<p>One teach one observe</p> <p>One teach one assist</p> <p>Alternative teaching</p>	<p>Assume partial responsibility for leading classroom routines (e.g., attendance, bell work, dismissal)</p> <p>lead small group activities planned by the MCL (recommended that MCL establishes groupings and provides small group plans).</p>	<p>Modeling for TR</p> <p>Include TR in team planning time (suggested min. 2 hours per week). Reserve additional 1:1 planning time with TR (suggested 30 minutes per day, alone and/or w/new teachers on team).</p> <p>Provide TR all whole group and small group lesson materials in advance and give access to curriculum</p>	<p>TR provides 0 minutes of release time</p> <p>Suggested Activities Planned and Guided by MCL: Calendar activities, planner set up and checking, Go noodle/Brain break activities, small group support (e.g. math facts, sight word review, vocabulary, etc...)</p>
2-4	<p>One teach one observe</p> <p>One teach one assist</p> <p>Alternative teaching</p>	<p>Assume partial responsibility for leading classroom routines (e.g., attendance, bell work, student engagement direction/ redirection, dismissal)</p> <p>Lead small group activities planned or heavily guided by the MCL</p> <p>Co-teach whole group activities</p> <p>Begin to prepare to take on the planning for one content area</p>	<p>Modeling and co-teaching with TR.</p> <p>Include TR in team planning time (suggested 2 hours per week). Meet and plan with TR at a consistent time (suggested 30 minutes, 2-3 times per week, alone and/or w/new teachers on team).</p> <p>Provide TR all lesson materials in advance and review (and potentially rehearse) TR planned lessons in advance</p>	<p>TR provides 30 minutes to an hour per team member (3-4 team members) per week*</p> <p>Suggested Activities: Read Aloud and "SSR" time, supervise student independent work-time, small group instruction/ support, supervise lunch/recess</p> <p>Teach lessons that have been co-planned and practiced in detail with MCL and ideally modeled by MCL in an earlier period (these "highly guided" lessons can be</p>

progression timeline is to both guide MCLs with release time and transition teacher residents from One Teach, One Observe to initiating greater leadership in the classroom with progressive co-teaching strategies of assisting, station teaching, team teaching, alternate teaching, and parallel teaching.

High-Impact Learning Strategies: AVID®

Including high-impact strategies is essential to an effective teacher education program. At UTPB, we implement AVID® (Advancement Via Individual Determination) across disciplines to deepen engagement and increase academic rigor. The AVID strategies are strategically modeled in multiple courses within the college (faculty create crosswalks of AVID strategies used cross-comprehensive list of AVID strategies to include in their lesson plans. Over the past two years, the use of AVID strategies has increased in our year-long teacher residency program. Faculty, teacher residents, and MCLs attend one or more AVID professional development training each year. Teacher residents experience and use AVID strategies in their coursework as well as in their seminars. AVID strategies are taught during the seminar with the expectation that teacher residents will implement these strategies in their classrooms. Teacher residents help MCLs debrief the strategy as well as the social-emotional and culturally relevant/responsive teaching used. Teacher residents also reflect on the parts of WICOR® (writing, inquiry, collaboration, organization, and reading) and how they impact the lesson content being taught (Shapiro & Cuseo, 2017).

The AVID strategies are a key piece of our standard UTPB lesson plan format. These strategies are both taught and modeled by site coordinators during seminars. Teacher residents are expected to select an appropriate strategy for their students based on the content and student needs. Each teacher resident must state why she or he selected the strategy for their students. Teacher residents must also articulate how social-emotional learning and culturally relevant/responsive teaching are supported by the strategy. The teacher residents' students frequently receive differentiation, accommodations, enrichment, and English language support through the strategies. These strategies and best practices help to foster collaboration, and peer-to-peer learning, and further promote an equitable, student-

centered approach to learning that helps to close the achievement gap for all learners.

One of the required course texts for the seminar is Drumright et al (2016) *AVID Elementary Foundations*, and teacher residents use it regularly when completing assignments for the weekly seminar as well as when they are designing lesson plans. This text is also utilized in other education courses in our program. In the seminar, we focus heavily on strategies that develop collaboration, a key component of AVID's instructional methodology (the C in WICOR). According to Drumright et al. (2016):

A collaborative classroom is an intentional environment in which collaboration and social development are infused into academic content. In collaborative-rich classrooms, student collaboration goes beyond conventional cooperation and compliance, as students become invested, caring members of a learning community (p. 146).

Collaboration does not come easily. As such, we know that skills must be explicitly taught so that students are successful when working with others. As they collaborate with their peers while engaging in these strategies, our teacher residents gain an understanding of both the challenges and the benefits of working with others with different perspectives and learning styles. Through AVID strategies with a focus on collaboration, "Students learn to value and appreciate the diversity that other students bring to the classroom, which is a critical component in creating a safe classroom with mutual trust and respect" (Drumright et al., 2016, p. 146). Collaboration is essential for student success. We want our teacher residents to experience these collaboration strategies in the weekly seminar so that they might better understand the value of using them and how best to implement them in their classrooms.

Social-Emotional Learning

Social and emotional learning (SEL) is another central focus within our year-long teacher residency model. Defined as acquiring and effectively applying the knowledge, attitudes, and skills to understand and manage emotions, set and achieve positive goals...establish and maintain positive relationships, and make responsible decisions (CASEL, 2013a, 2013b), SEL is based on the understanding that the best learning emerges in the context

of supportive relationships that make learning challenging, engaging, and meaningful (Jones et al., 2013).

Based on extensive research by the Collaborative for Academic, Social, and Emotional Learning (CASEL) the following five sets of competencies have been identified as the key to SEL:

- **Self-awareness.** The ability to accurately recognize one's emotions and thoughts and their influence on behavior.
- **Self-management.** The ability to regulate one's emotions, thoughts, and behaviors effectively in different situations, and to set and work toward personal and academic goals.
- **Social awareness.** The ability to take the perspective of and empathize with others from diverse backgrounds and cultures and to recognize family, school, and community resources and support.
- **Relationship skills.** The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups through communicating, listening actively, cooperating, negotiating conflict constructively, and seeking and offering help when needed.
- **Responsible decision-making.** The ability to make constructive and respectful choices about personal behavior and social interactions based on consideration of ethical standards, safety concerns, the realistic evaluation of the consequences that stem from actions, and the well-being of self and others.

Teacher residents in the year-long residency model are coached by site coordinators on the significance of embedded SEL during seminars and in pre-observation conferences. This includes instructing teacher residents how to integrate SEL into their classrooms through weekly self-reflection, the completion of Sanford Inspire and Sanford Harmony modules, the development of their weekly lesson plans, and the inclusion of high-impact AVID strategies, and modeling from site coordinators.

Culturally Relevant/Responsive Teaching

Culturally relevant/responsive teaching is a term that was coined by Ladson-Billings in 1995. She defined it as a “pedagogy that empowers students intellectually, socially, emotionally, and politically using cultural references to impart knowledge, skills, and attitudes” (Drumright et al., 2016, p. 147). Culturally relevant/responsive teaching involves knowing the whole child—their culture, ethnicity, language, race, social class, background, and gender—and using all of these as strengths to build upon. Teachers who embrace this pedagogy find ways to connect students’ home lives to their school lives. Culturally relevant/responsive teaching is therefore another critical component of our year-long teacher residency program.

According to Berg and Brooks (2020), “CRT isn’t a singular strategy that one applies in classroom teaching. CRT practices are a vehicle to embrace equity by design and help students to feel part of the community of learners and valued as an individual.” Such practices are multifaceted with multiple dimensions: diversity, equity, and inclusion (DEI). *Diversity*, having a wide range of attributes, qualities, or beliefs, can be applied to an individual, group, or community. *Equity* is achieved when one seeks to understand an individual’s needs and then provides support to help meet those needs. It ensures everyone can experience an equitable outcome. When a group or organization encourages individuals from all backgrounds to fully participate, *inclusion* is the result.

Table 1*Demographics of our university, teacher residents, and students in the districts we serve*

	University	Teacher Residents	District 1	District 2
Hispanic	49%	55%	63.6%	77.2%
White	35%	42%	23.8%	16.4%
African American	7%	0%	7.7%	3.9%
Asian	3%	0%	2.6%	.9%
Other or Two or More	6%	3%	2.6%	1.6%

The UTPB year-long teacher residency program currently serves the two largest school districts in our geographic area. The diversity of the two districts (Texas Public Schools, 2022) mirrors the diversity of our university student body (Univstats, n.d.) as well as the diversity of our teacher residents (see Table 1). Many of our residents will transition into jobs in these districts. Thus, it becomes vital that they develop an awareness of, and an ability to implement, culturally relevant/responsive pedagogy.

Self-paced Sanford professional development modules (outlined in the next section) not only help teacher residents in understanding and fostering SEL, but the modules also promote culturally relevant/responsive teaching, such as *Using Critical Consciousness to Challenge Inequity* and *Affirming Difference and Valuing Background Knowledge* (Sanford Inspire and Sanford Harmony, n.d.). The use of AVID-inspired graphic organizers (Drumright et al., 2016, p. 288-299) for debriefing the strategy yields another strong connection for increased learning. One example is teacher residents creating a Mind Map (p. 288-291) in which they connect the concepts and then explain why they made the connections.

Teacher residents further participate in professional learning opportunities related to culturally relevant/responsive teaching. They attend a six-hour AVID training titled *Culturally Relevant Teaching Practices* in which they gain an understanding of how culturally relevant/responsive teaching is defined and the impact that equitable instruction, teacher expectations, and relational

capacity can have on student success. This instructs teacher residents on how to create a safe and inclusive classroom environment for all students. They engage in critical conversations about assumptions, perceptions, and stereotypes that impact the classroom environment. They discuss the values inherent in culturally relevant/responsive educators and how those values translate into their instruction. Finally, teacher residents learn about their role in closing opportunity gaps. They learn how to implement instructional practices that can potentially close achievement gaps and increase academic success for all students. We offer this training because “woven throughout AVID’s curriculum and philosophy are the culturally relevant/responsive practices that help educators build authentic relationships, hold high expectations, empower student voices, engender self-advocacy, respect experiences, and build on assets” (Drumright, et al, 2016, p. viii).

In a culturally relevant/responsive classroom, building relational capacity is key. The teacher focuses heavily on the quality of interactions between students and building a community of learners—a community that is safe for all students and draws on their background knowledge and experiences. To do this, teachers must explicitly teach and model communication skills, then allow plenty of opportunities for students to practice these skills. Icebreakers, community builders, and energizers (Drumright et al., 2016, p. 147) are AVID strategies we use in the seminar to build relational capacity. To connect theory to practice, we also have our teacher residents consider culturally relevant/responsive teaching when

writing their weekly lesson plans. For each plan, they are asked to include an AVID strategy and to explain how the strategy supports culturally relevant/responsive pedagogy.

Sanford Inspire/Sanford Harmony

The goal for teacher residents in our year-long residency program is to advocate for learning blocks fundamental to an equitable and successful teacher preparation program. Sanford Inspire and Sanford Harmony offer free online modules and downloadable materials that assist this objective (Sanford Inspire and Sanford Harmony, n.d.). Teacher residents can work through the modules at their own pace. The modules also have transcripts and resources to support users. This flexibility supports our teacher residents' schedules and personal lives.

Teacher residents are assigned Sanford Inspire modules to complete before coming to the seminar which supports a flipped model. They earn 30- or 60- minute certificates for thirteen modules. The teacher residents debrief the modules using AVID strategies before sharing their thoughts during the seminar. The variety of topics addressed through a wraparound approach supports teacher residents at various stages of their professional development.

During seminars, the Sanford Inspire modules are discussed, and any points of confusion (POC) are addressed. By collaborating, the teacher residents support each other's growth. They can therefore experience student agency in action. The Sanford Harmony activities are used during seminars to deepen understanding of SEL, specifically focusing on the CASEL 5 framework. Several seminars focus on Diversity, Equity, and Inclusion (DEI) to model and support teacher residents in their understanding of how to approach the topic with their students. They complete Sanford Inspire and Sanford Harmony modules which yield a diverse and well-balanced approach to teaching that maximizes teacher quality.

Next Steps

As we recruit education students for year three of our teacher residency program, we reflect upon the two previous academic years. When teacher residents were anonymously surveyed during the final seminar of the 2021-2022 year, their overwhelming consensus was expressed gratitude for the year-long experience. As one

resident shared, "Residency was one of the hardest things I've done, but it was so worth it" (Anonymous, 2022). Another resident added, "I would choose the teacher residency program a million times simply because I had so much support" (Anonymous, 2022). Although our teacher residents will benefit from the \$24,000 salary during their year of residency, along with receiving health and retirement benefits, the nine months spent in their respective classrooms Monday through Friday, from August till May, far outweigh the monetary benefits. This consensus was further supported by aggregate impact survey results compiled by our UTPB data lead, Dr. Kevin Badgett (2021). Teacher residents, university personnel, and district partners were united in saying they shared strong confidence, a shared vision, and preparedness resulting from participation in the UTPB year-long teacher residency program.

Two years of collected data reflect that our year-long teacher residents experienced significant gains that have prepared them to be excellent 21st-century educators. Darling-Hammond (2006) affirmed the need to create more effective teacher preparation programs through integration of coursework and clinical work, extensive supervision of clinical practice, and proactive relationships with key stakeholders. We accomplished these goals by structuring a year-long program that yields an authentic and synergetic classroom experience for teacher residents, ongoing and systematic clinical observations that helped to advance teacher resident competency, and data-driven meetings with our national and district partners. Indeed, we would not have achieved this success without the ongoing support of our essential partners who helped to define and redefine the vision. Fostering strategic national and local partnerships to facilitate and fund this vision was key. Neither would we have been successful without the inclusion of research-driven best practices that include the practice of co-teaching models, the implementation of high-impact AVID® strategies, fostering social-emotional learning, and promoting culturally relevant/responsive teaching, in part, through the completion of Sanford professional development modules.

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ELEMENTARY TEACHER PREPAREDNESS IN SPECIAL EDUCATION IN TEXAS

Holly T. Moore

Sam Houston State University

Julie P. Combs, Ed.D.

Sam Houston State University

Abstract

Researchers have reported preservice teachers are not as prepared for inclusive classrooms as they desire to be. The purpose of this exploratory study was to analyze the special education coursework of Texas preservice elementary teachers completing EC-6 core subjects certificates at university preparation programs. Using a classical content analysis with the largest 19 teacher preparation programs, most preservice teachers completed one special education course, which was focused on the content theme of instruction. Future studies are needed to understand the course objectives and field-based experiences offered to preservice teachers at universities and alternative preparation programs, which will help teacher educators prepare teacher candidates who are competent with students with special needs, addressing the theme of this journal, Teacher Educators Can!

Keywords: teacher preparation, special education, university preparation

According to a Texas Education Agency survey of novice teachers collected during the 2018-2019 school year, only 12% of teachers responded as being *well prepared* to work with special education students in the general education setting (Texas Education Agency, 2019a). Teacher educators play a critical role in preparing elementary general educators to instruct all students. Students with disabilities should spend their day in the least restrictive environment, being a part of the general education class to the greatest extent possible (Individuals with Disabilities Education Act [IDEA], 2004). With more students receiving special education services in the general education classroom, general education teachers play a critical role in providing services (Barton-Arwood & Da Fonte, 2017; Gilmour & Wehby, 2020). Texas Educator Preparation Programs (EPPs), including universities follow Teacher Certification Standards (2018), detailed through the Texas Administrative Code §235.13. These standards do not require special education coursework for preservice

teachers seeking to obtain an elementary core content certification (i.e., EC-6 core subjects). However, teachers with preservice instruction and experience working with students with special needs hold more positive views of inclusion and are more likely to adjust their instruction to adequately provide services for students with special needs (Sokal et al., 2013; Swain et al., 2012). Related to this journal's theme of "Teacher Educators Can," the purpose of this exploratory study was to analyze the special education coursework preservice teachers are required to complete at Texas university EPPs.

Review of the Literature

In a 2021 annual report from the National Center for Education Statistics, 7.3 million students were receiving services through the IDEA, representing about 14% of all students enrolled in school during the 2019-2020 school year. In Texas that same year, only 10.7% of students enrolled in school received special education services through the IDEA (Texas Education Agency, 2020). Of

students receiving special education services, a larger number were receiving those services in the general education setting. By 2009, nearly 57% of all students receiving special education services were spending 80% or more of their time in the general education setting (Data Accountability Center, 2009). IDEA (2004) increased access to the general education curriculum for all students. This movement has correlated with an increase in the number of students receiving services in general education and an increase in the amount of time they spend in the general education setting (Sokal et al., 2013; Swain et al., 2012).

Texas EPPs prepare candidates to become teachers in the early childhood (EC) through Grade 12 setting (Texas Education Agency, 2021). The state of Texas has multiple avenues for teaching preparation: traditional universities, alternative certification programs, out-of-state certifications, and post-baccalaureate certifications (Texas Education Agency, 2021). For the elementary candidate earning the EC-6 core subjects certificate, Texas EPPs are not required to have a course specific to the education of students receiving special education services but are required to include special education content in their coursework (Texas Administrative Code, 2021).

Teacher perceptions of inclusion vary, often based on their prior experiences. A common belief regarding inclusion is that simply placing students with disabilities in a general education setting would suffice as inclusion, disregarding the needs and services that should accompany a placement (Hornby & Kauffman, 2020). Inclusion, however, is a broader term for equity in education, an effort to provide tiered interventions and supports that allow all students an opportunity to be successful in the general education classroom (Sailor et al., 2018). In recent studies, teachers have reported students with disabilities benefit from time in the general education setting but those teachers do not feel sufficiently prepared to provide those services adequately (Park & Yu, 2020; Swain et al., 2012; Texas Education Agency, 2020). General education teachers in the elementary setting provide students instruction in the core content areas. If students with disabilities are receiving much of their time in the general education setting from their general education teacher, how do instructors, school leaders, and staff developers prepare general education teachers to better understand special

education, the process for identification, implementation of services, and the legalities regarding special education?

In a national review of university programs, researchers reported that preservice teachers were not prepared for inclusive classrooms, lacking knowledge in evidence-based practices, response to intervention (Sailor et al., 2018), and co-teaching systems (Harvey et al., 2010). Researchers concluded that there was a need for continued research on preservice programs. Because preservice teachers in Texas are not required to take a course dedicated to special education and because novice teachers in Texas have reported being inadequately prepared to educate students with disabilities in the general education classroom, we sought to understand how EPPs in Texas prepare preservice general education teachers for working in inclusive classrooms. The purpose of this study was to analyze the coursework that preservice teachers in the state of Texas complete at universities before receiving their teaching certification in EC-6 core subjects.

Conceptual Framework of the Study

The framework for this study was not a theory but rather the state guidelines for Texas from the Texas Education Agency and the State Board for Educator Certification. The Texas Administrative Code outlines the required coursework for elementary preservice teachers. Universities must provide a minimum of 200 hours of coursework (Southern Association of Colleges and Schools Commission on Colleges, 2018). Within those 200 hours, a minimum of 30 hours must be field-based at an elementary school. The Texas Administrative Code, as described in Rule §228.35, outlines areas preservice teachers must demonstrate proficiency. Specific language in these areas that relate to special education include diverse learners and differentiated instruction (Texas Administrative Code, TX. Stat. §228.35, 2021). After the current study was conducted, the State Board for Educator Certification added language to Texas Education Code addressing educator preparation regarding special education. Specifically, the proposed amendments address the need for teacher candidates to understand disability categories, plan for instructions for students with disabilities, and use evidence-based practices that include co-teaching models, accommodations, modifications, behavior intervention, progress monitoring, and response to intervention (State Board for Educator Certification, 2022).

To become certified as an early childhood to sixth (EC-6) grade core subjects teacher in the state of Texas, preservice teachers need to have (a) earned a bachelor's degree from an accredited institution, (b) completed an EPP, (c) passed certification exams, (d) submitted a state application, and (e) completed fingerprinting (Texas Education Agency, 2021). Using these requirements from the State Board of Educator Certification, we sought to analyze the coursework required by Texas EPPs at traditional universities with a focus on preparation to serve students with disabilities in general education to the greatest extent possible per IDEA (2004).

Method

To analyze the coursework of preservice teachers at universities, we utilized a classical content analysis (Krippendorff, 2004) with 19 university-EPPs in Texas. Previous researchers have used similar techniques to examine the quality of educational programs in higher education (e.g., Bustamante & Combs, 2011; Hess & Kelly, 2007). In this section, we describe the sample selection, data collection, and analysis used in this qualitative analysis.

Sample

Using publicly available data from the Texas Education Agency, we examined the number of EC-6 core subjects certifications earned in a six-year period. We created a spreadsheet to analyze the data from universities or traditional settings ($n = 66$). We chose to focus on universities instead of alternative programs because almost 51% of all EC-6 core subjects certifications (the largest group) were awarded from universities and this group had the most consistent course information in the form of course catalogs and semester credit hours. From there, we chose to focus on the largest programs, which represented nearly 75% of earned certificates from university EPPs or about 38% of the total certificates in one academic year. These 19 university-based programs represented 3,227 EC-6 core subjects certifications as shown in Table 1. The remaining 47 university programs issued 25% of EC-6 core subjects certifications. We reviewed coursework delivered at the universities before admission to the EPP and after. Although there was a change in the EC3 and Grades 4-8 certificate to the EC6, there was no change in content requirements related to special education (Teacher Certification Standards, 2018). In a recent survey

conducted by the Texas Education Agency (2019a), only 12% of new teachers reported feeling *well prepared*. These 2019 survey results were the most recent results available at the time of this study. Participants for this TEA study were novice teachers at the end of their first year of teaching. All participants held an EC-6 core subjects certification and represented a diverse group of Texas EPPs including universities and alternative certification programs. For that reason, we selected the 2017-2018 certificate information because this was the academic year when the teachers included in the survey results completed their certification programs.

Table 1

Teaching Certificates Issued in 2018 from Texas EPPs

Texas EPPs	Certificates awarded	% of total
Largest 19 university programs in this study	3,227	38.00%
Other 47 university programs	1,101	12.96%
Alternative certification programs	4,047	47.65%
Other (out of state, PB)	118	1.39%
Total	8,493	100.00%

Data Collection

After reviewing the course catalogs of universities and their teacher certification degree plans, we decided to concentrate on EC-6 core subjects degree programs only. This analysis included bachelor's degrees in elementary education, interdisciplinary studies, and early childhood through sixth-grade core subjects. These degree programs prepare preservice teachers for taking the EC-6 core subjects certification exam and completion of these courses does not guarantee the certification.

Using a standard data collection form, we collected degree plan information from university course catalogs including course titles, course descriptions, and credit hours offered before and after admission into an EPP at the

respective university. We recorded the university course titles, the course descriptions, and credit hours. We were able to locate most programs for the 2017-2018 school year. For the five universities that did not have the 2017-2018 course catalogs available through their archives, current course catalogs were used.

Data Analysis

We analyzed data using Krippendorff's (2004) classical content analysis to distinguish common themes or patterns in the course titles and descriptions. We also utilized Onwuegbuzie and Combs' (2010) concept of cross-over mixed analysis (e.g., mixing qualitative and quantitative data). These concepts and techniques provided a method for analyzing patterns in the text and making inferences from those patterns in a systematic way (Krippendorff, 2004).

In the first phase of data analysis, we looked at major course requirements for students seeking an EC-6 core subjects certification. Next, we analyzed the required coursework by looking at the titles of courses and descriptions in the course catalogs. Using the course catalogs, we determined the number of required courses that involve special education, exceptional learners, or language consistent with special education. In the next phase, we analyzed the language used to describe the courses to determine the purposes of the courses. Noticing that some programs offered two courses and some offered only one, we compared these courses and programs using a cross-over mixed analysis. In addition, we used constant comparison (Glaser & Strauss, 1967) and horizontalization (Moustakas, 1994) to address trustworthiness and inter-coder agreement.

Findings

Required Credit Hours of EPPs

A minimum of 120 credit hours, the equivalent of a bachelor's degree, were required for Texas universities (Southern Association of Colleges and Schools Commission on Colleges, 2018). The number of credit hours for the 19 largest universities ranged from 120 to 126 with a mean of 123.10 credit hours and a mode of 123 credit hours, as shown in Table 2. These total hours reflected the completion of an undergraduate or bachelor's

degree in education that prepares students for the EC-6 core subjects certification examination.

Table 2

Special Education (SPED) Course Requirements from the Largest Texas EPPs in 2018

University	Total graduates	Required credit hours	SPED courses	SPED credit hours
University 1	349	125	1	3
University 2	317	123	2	6
University 3	253	123	2	6
University 4	231	126	2	6
University 5	200	126	2	6
University 6	193	125	2	6
University 7	181	123	2	6
University 8	155	124	0-1*	0-3
University 9	149	123	1	3
University 10	148	124	1	3
University 11	144	120	1	3
University 12	142	121	1	3
University 13	135	125	1	3
University 14	126	120	1	3
University 15	108	123	2	6
University 16	107	124	2	6
University 17	98	122	1	3
University 18	97	120	2	6
University 19	94	122	2	6
Total	3,227		28	

*course was optional and not counted in total

Required Special Education Credit Hours

Of the 19 universities reviewed, 10 universities required two courses regarding special education, as shown in Table 2. Of the remaining nine universities, eight required one course, and one university allowed for one optional special education course. The universities requiring two courses did not have more overall required hours than universities with one special education course. There was no observable relationship between the number of required special education courses and total hours for degree completion.

Special Education Course Titles in Texas EPPs

For the 19 largest universities, 28 courses were identified as relating to special education. In course titles, the most frequently occurring word was *exceptionality* ($n = 11$) with 41% of all course titles using the term, as shown in Table 3. Other common words were *special education* ($n = 5$), *disability(disabilities)* ($n = 3$), *special populations* ($n = 3$), and *inclusion* ($n = 2$). Of the 28 courses analyzed, 89% of course titles contained *special education* or a closely related term (i.e., exceptionality, disability, special population, inclusion). For the universities requiring one course, most included the terms *introduction* or *survey* in their title. Of the 28 courses reviewed, only six specifically addressed *inclusion* in their title and/or description. Four courses addressing inclusion were from universities requiring two courses.

Content Analysis of Course Descriptions

Next, we analyzed course descriptions for keywords and content themes. As shown in Table 3, the term *special education* was used the most or 18 times in 11 course descriptions. Closely related was the term *exceptionality* (*exceptionalities*) appearing 15 times in 12 course descriptions. Other terms frequently used in course descriptions were *disability* (*disabilities*) (13 times), and *law, legal, or legislation* (12 times).

To understand the content strands presented in each course, we coded the course descriptions for content and reduced the codes to three themes based on the purpose of the course: instruction, identification, and law, as shown in Table 4. Course descriptions could have more than one theme. For this study, the theme of *instruction* related to descriptions of teaching and strategies when working with students with special needs. *Identification* was coded to course descriptions referring to the process of identifying students for special education eligibility and the creation of a student's Individualized Education Plan (IEP) including

services, schedules, and accommodations. *Law* was defined as referring to the history of special education, laws regarding special education, and legislation that drives special education policy (IDEA, 2004; Texas Administrative Code). Of the 28 courses, 17 courses or 61% of course descriptions had an instructional focus. There were 13 course descriptions or 46% that highlighted the identification process and 12 course descriptions or 43% that contained information about special education law and legislation. Eleven of the 28 courses had two or three themes present.

Table 3
Content Analysis of Key Words in Course Titles and Course Descriptions

Key Words	Course Titles	Course Descriptions
Exceptional/ities	11	15
Special education	5	18
Disability/ies	3	13
Law, legal, or legislation	0	12
Special populations	3	2
Literacy	3	8
Inclusion or inclusive	2	6
Field experience or field-based or fieldwork	0	7
Curriculum	0	4
Collaboration	0	3
Diverse/ity	1	2
Dyslexia	0	2
Differentiation	0	2

Table 4*Content Analysis of 28 Special Education Courses in Texas EPPs*

Course Content Theme	Description of Theme	Frequency
Instruction	Description mentions teaching methods, differentiation, behavior management, assessments, and instructional strategies for students receiving special education services	17
Identification	Description mentions characteristics of students with special needs and the identification of these students	13
Law	Description mentions special education law, history, rights of students, and legislation	12

Of the 28 course descriptions, 17 of these courses had one theme and 11 of these single-themed courses were focused on instruction, as shown in Tables 5 and 6. Eight of 28 courses covered two themes and three courses covered the three themes of instruction, identification, and law. An example course description that contained all three themes was titled “Special Education Services for Students in General and Special Education Settings.” The significant statements related to the themes of identification, instruction, and law are underlined in the course description:

This course covers the definitions and characteristics of the various exceptionalities; accommodations made for students within the general education setting; and federal mandates regarding services, instruction, curriculum, and inclusion within the least restrictive environment. (University 14 Academic Catalog, Special Education Courses)

Comparison of Preparation Programs with One Course versus Two Courses

Of the 19 largest universities identified for this study, 10 universities required two courses relating to special education as shown in Table 5. For these two-course programs, the mean total program credit hours was 123.5. For the 20 courses offered at the 10 universities with two-course requirements, seven courses were dually classified in themes of instruction, identification, or law. Of the 10 universities requiring two courses, five universities covered the three themes between their two courses, meaning graduates from these programs could have received information about instruction, identification, and laws for special education. Five programs offered one of the two courses as an introduction to special populations and/or exceptional learners. Three of the 10 programs had a special population and/or exceptional learners’ course and a course on behavior management. Two of these 10 programs offered two courses regarding exceptional learners, inclusion, diverse learners, and disabilities.

Table 5*Course Content Themes for Programs with Two Courses in Special Education (SPED)*

University Program	<u>SPED Course 1</u>			<u>SPED Course 2</u>		
	Instr.	Ident.	Law	Instr.	Ident.	Law
University 2	S			S		
University 3		T	T	S		
University 4	X	X	X	S		
University 5	S			S		
University 6		T	T	T	T	
University 7		T	T	S		
University 15		S		S		
University 16		S		S		
University 18			S	S		
University 19	T		T	T	T	

Note: S = single theme, T = two themes, X = three themes

As shown in Table 6, eight university programs required one course focused on special education. One program had an optional course for special education and was not shown in Table 6. For these programs requiring only one course, the mean of required credit hours was 123 (compared to 123.5 for two-course programs). Of these eight courses, two covered three themes in the one course offered. On the other hand, four courses were single-themed. Teachers in these programs might be receiving instruction related to only one theme about special education (i.e., instruction, identification, or law).

Table 6*Content Themes for Programs with One Course in Special Education*

University Program	Instruction	Identification	Law
University 1	S		
University 9		T	T
University 10			S
University 11		S	
University 12		T	T
University 13	X	X	X
University 14	X	X	X
University 17			S

Note: S = single theme, T = two themes, X = three themes

Discussion

The purpose of this study was to analyze the coursework preservice teachers in the state of Texas completed at university EPPs before receiving their EC-6 core subjects teaching certifications. We wanted to understand the preparation program's focus on special education because researchers have documented concerns with teacher preparedness in special education (Harvey et al., 2010; Park & Yu, 2020; Sailor et al., 2018; Texas Education Agency, 2020). Building on the literature about concerns with teacher preparation, we asked what the largest EPP programs in Texas were offering preservice teachers about special education.

In a previous report (Government Accountability Office, 2009), deans and chairs of 303 colleges of education across the United States documented their concerns about how teachers were being prepared to teach students identified as needing special education and English language services. The Government Accountability Office study was conducted in four states including Texas. More than 10 years ago, deans and chairs acknowledged that although they were offering at least one course in

special education, there was a need to better prepare preservice teachers. These college educational leaders identified the two most common barriers as not having enough credit hours to offer additional courses and a lack of faculty with experience in inclusive education (Government Accountability Office, 2009). As we noted in the present study, there was little variation in the number of total credit hours required by Texas programs, ranging from 120 to 126 credit hours. Perhaps college leaders understand that they cannot add additional hours to degree plans and remain competitive. Like the Government Accountability Office's (2009) report, most programs in our study offered one or two courses related to special education. Ten programs in our study offered two courses in special education and we believe this was a promising trend in better preparing preservice teachers.

With a desire to understand the content of these 28 courses offered by 19 university EPPs, we used content analysis of titles and descriptions. Course titles often capture the essence of a course and descriptions can provide clues about the content. In the title analysis, the term *exceptional* was used most often (11 times) in describing special education coursework for teacher candidates. *Exceptional* was first used by the Council for Exceptional Children (2022) in its creation in 1922 and appears to have replaced other terms in these titles such as disability. Other common terms used to title courses included *special education* ($n = 5$) and *disability* (*disabilities*, $n = 3$). A common theme we discovered in reviewing course titles and course descriptions is that terms relating to special education were more likely to be present in the description of the course rather than in the title. For example, the term *special education* was present 18 times in course descriptions but was only present in five course titles. All the 28 courses reviewed were specific to special education or exceptional learners. We recommend programs continue to use special education terms to title courses, as shown in Table 3.

In this analysis, we wanted to know what most candidates prepared by Texas universities were learning about special education. We reviewed the coursework of 19 universities representing 75% of university-based EPPs. From this sample, we can conclude that most Texas university EPP candidates had a course related to the instruction of students with special needs in the general education classroom. It appears that preparation programs

understand the focus on inclusion and are trying to equip future teachers with the knowledge and skills to meet these needs. From a review of the course titles and descriptions, it appears universities are offering coursework about special education, but course descriptions vary in terms of content themes. In this study, most of the courses were single-focused, meaning they described content related only to instruction, identification, or legal issues for special education. Assuming that all three themes are necessary for general education teachers, we believe universities should review their courses, content, and descriptions. We believe the literature supports the addition of more special education coursework, but we understand that universities cannot increase total degree hours and remain competitive and affordable. For this reason, we recommend EPP faculty examine their curricula to determine (a) if they can offer at least two courses in special education and (b) how instruction related to special education could be increased in other courses.

With the prevalence of inclusive education and increasing students' access to the general education curriculum, there were limited courses focused on inclusion and/or collaboration between general education and special education teachers, as described in the course descriptions. We believe more attention is needed to this theme of inclusion in course descriptions.

Promising were the 10 universities requiring at least two courses in special education and the handful of universities offering courses covering three content strands of instruction, identification, and law. Given the declining retention rate of first-year teachers (Texas Education Agency, 2019b) and the recommendations of previous researchers, more preparation in special education is needed for preservice teachers. As mentioned in the conceptual framework, the State Board for Educator Certification (2022) recently amended language addressing educator preparation and special education. Specifically, the proposed amendments address the need for teacher candidates to receive "instruction regarding students with disabilities, the use of proactive instructional planning techniques, and evidence-based inclusive instructional practices" (State Board for Educator Certification, 2022, p. 27). These revisions mirror the themes in our study of identification and instruction. A future study like the current study could be conducted to examine these proposed changes in preparation standards.

As with any study, there are limitations. We assumed university websites were up to date and course descriptions contained key concepts, with instructors teaching content planned from these course descriptions. We realize there are limitations in these assumptions. Researchers in future studies could collect course syllabi, compare course objectives, and analyze field-based activities designed to prepare candidates in areas of special education. Using a different approach, researchers could collect data from graduates of EPPs to determine if there is a relationship between the number of special education courses taken and evidence of preparation for serving students with special needs in the general education setting.

In addition, we only looked at a portion of EPPs in Texas in one academic year (representing 3,200 certificates out of 8,000). In 2018, over 4,000 certificates were earned by candidates attending alternative providers. In future studies, researchers could explore the content and amount of special education offered in alternative programs, although we recognize challenges with data collection. With universities, we were able to compare semester credit hours and publicly accessible course catalogs to examine special education topics. With less standardization and transparency among alternative programs, data collection could be problematic. However, given the lower retention rates of Texas teachers certified by alternative programs compared to those from university EPPs (Texas Education Agency, 2019b), these studies are warranted.

Conclusions

Calling for more research of U.S. university-based teacher preparation programs, researchers have reported

that preservice teachers were not prepared for inclusive classrooms (Sailor et al., 2018; Texas Education Agency, 2019a). Further, elementary preservice teachers in Texas are not required to complete a special education course or courses, rather EPPs are required to include special education content in their coursework (Teacher Certification Standards, 2018). The amount and content can vary at the discretion of each program.

Teachers who have completed courses and worked with students with special needs in field-based experiences hold more positive views of inclusion and are more likely to adjust their instruction to provide services for students with special needs (Sokal et al., 2013). With more students receiving special education services in the general education classroom, general education teachers play a critical role in providing these services (Gilmour & Wehby, 2020). With the recent amendments in code related to educating students with special needs, Texas' State Board for Educator Certification (2022) appears to be in the process of addressing some of these concerns. We predict EPPs will act in the coming academic year by revising courses or content to address these changes. As such, Teacher Educators Can prepare candidates who are effective in working with students with disabilities.

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Contribution of Research

DEFINING INSTRUCTIONAL COACH ROLES TO PROVIDE EQUITABLE EXPERIENCES FOR NEW TEACHERS

Janet Kimbriel, M.Ed.

Texas A&M University - Commerce

April Sanders, Ph.D.

Texas A&M University - Commerce

Kathryn Dixon, Ph.D.

Texas A&M University - Commerce

Laura Isbell, Ph.D.

Texas A&M University - Commerce

Abstract

This study examined the unique role of instructional coaches and how they can play a critical role in school-wide systematic change. A qualitative case study approach was utilized to examine how the role of an instructional coach in one school district was defined within the context of situated learning theory. Results were grouped based on three tenets of situated learning theory: situated in context, social (MKO), and inclusive tools of practice. Findings indicated the need for consistent and equitable mentor/coach models as a means for cultivating transformative change.

Keywords: Instructional coaching, mentoring, situated learning theory, transformative change

The role of instructional coaching has not always been clearly defined as a person of support in the K-12 schools, but school districts are attempting to curate this role through their instructional coaching positions and better prepare and retain novice teachers entering the profession. The expansion of intentionally trained instructional coaches in school districts could be one way to create a systemic change impacting how educators who are new to the field can be supported during the critical first few years of teaching when teacher attrition is most common. Teachers leaving the profession not only has a negative impact on student performance and success (Schleicher, 2018; Carver-Thomas & Darling-Hammond, 2019) but also on our economy (Sorensen & Ladd, 2020). As a result of this level of impact to students, the school district creates and provides a strong support structure that helps novice teachers establish themselves in the profession as they begin their career.

To accomplish the feat of meeting the unique and varied needs of new teachers through equitable experiences, the role of *instructional coach* should not only be defined but aligned with research-based models, and to do this, the preparation of instructional coaches can be crucial to developing strong supportive structures for new teachers. Aguilar (2013) utilizes a transformative approach to coaching which incorporates strategies from directive and facilitative coaching, as well as cognitive and ontological coaching. Transformational coaching can lead to changes in systems, affecting behaviors, beliefs, and institutional and educational social systems (Aguilar, 2013). Fullan and Knight (2011) support the idea of coaches as system leaders and that the role should be developed with the purpose of systemic change. Not all instructional coaches will be exact replicas of one another but rooting the role in research will provide a much better avenue for designing this role in a district.

The intent of this study was to identify the core practices and conditions that contribute to a high-quality mentor/coaching program for first year teachers. To examine and identify these practices in one North Texas school district, situated learning theory (Lave and Wenger, 1991) informed interview sessions that focused on effective coaching and opportunities for new teacher growth under skilled teacher mentorship within the classroom and school context.

Literature Review

Teacher coaching has a deep history in educational practice. Pioneering work by Joyce and Showers in the 1980's helped to build the theory and practice of teacher coaching as well as some of the first empirical evidence of its promise (Joyce & Showers, 1982). With the addition of coaching, teachers apply their learning more frequently and consistently as they improve their reflective practice and engage in collaborative planning (Neufeld & Roper, 2003). According to Joyce and Showers (1981), "coaching is characterized by an observation and feedback cycle in an ongoing instructional or clinical situation" (p.170). Instructional coaching can be effective for both classroom level change (Darling-Hammond et al., 2009; Sailors & Price, 2015) and system level change (Aguilar, 2013; Fullan & Knight, 2011). Sailors and Price (2015) outline four exchanges teachers can participate in: (1) guided participation where the coach demonstrates a lesson and the teacher purposefully observes through guided questions; (2) co-teaching where the coach and teacher participate in planning and teaching a lesson together including a pre-conference and post-conference; (3) guided reflection where the coach documents a lesson by the teacher while collecting data discussed at the pre-conference; or (4) guided conversations between the teacher and coach discussing the teacher's areas of need and the coach supporting by with providing resources, sharing ideas, and brainstorming. All four exchanges are examples of situated learning in a coaching model that resulted in student gains and improved instructional practice. Sailors & Price (2015) found that interactions between coaches and teachers resulted in the coaches' behaviors influencing teachers' instructional practice, with coaching continuing to be a best practice to improving instructional practices of reading teachers. Research shows an increase in teacher performance and student outcomes when coaching practices are implemented with highly effective and trained coaches who implement coaching models, reflective practice, accountability and consistent interaction and feedback (Darling-Hammond et.al., 2009).

Although there are a variety of models and approaches to instructional coaching, researchers agree that there are certain tenets included in an effective coaching model

beginning with the selection criteria of the instructional coach. Coaches must be knowledgeable about their content area, district reform goals, achievement standards and adult learning with strong communication and interpersonal skills (Neufeld and Roper, 2003; Aguilar, 2013, Knight 2016). The Annenberg Institute for School Reform (AISR) at Brown University identifies three components to include in a well-defined coaching system: (1) Creating structural conditions that support effective coaching (2) A guided, content-based focus on adult learning, and (3) Instructional leadership by coaches.

Researchers agree that coaching effectiveness begins by clearly defining the role of the instructional coach and developing a framework that articulates the roles within the coaching model (Aguilar, 2013; Miller & Stewart, 2013). In addition, a strong understanding of adult learning, relationship building and utilizing data to support coaching strategies and professional development contribute to the effectiveness of the coaching program (Knight, 2016; Aguilar, 2013; Miller & Stewart, 2013). There is little agreement as to what an exceptional, or even adequate, instructional coaching preparation program should look like (Lucas, 2017). Although many exceptional teachers are promoted to the role of instructional coach, it is important to note that coaching requires a different skill set than effective teaching. Adult learners have different needs than students. Andragogy theory explains this difference in the way adults come to learning environments with background knowledge and experience that can reinforce or take away from new learning (Cox, 2015). Instructional coaches who are well versed in adult learning theory will be better prepared to address those different learning needs which will help support an equitable coaching program. Characteristics of an effective coaching program include, building strong relationships (Fullan & Knight, 2011), providing opportunities for teachers to observe one another, provide feedback and create structured times to meet and plan.

Researchers have found that while many approaches to instructional coaching exist, there is little agreement on the exact role of an instructional coach and the best approaches to coaching (Darling-Hammond et al., 2009; Fullan & Knight, 2011). Additionally, recent studies have revealed an imbalance of equity in instructional coaching practices where discussions of bias and inequities are missing from coaching training (Orange et. al., 2019). As a result, coaching frameworks with an explicit focus on equity are being developed and provided at professional institutions (e.g., Learning Forward, 2021).

Theoretical Framework

Situated learning theory was developed by Lave and Wenger (1991) to preserve the learning style of a traditional apprenticeship and engage in learning as legitimate peripheral participation within communities of practice. These changes of relations happen through the dynamic process in which the newcomers gradually become old timers through peripheral participation to full participation in the communities of practice (Lave & Wenger, 1991). As part of an educative experience, practice-based learning in a professional community is found in both university and school based settings (Hodge et al., 2011; Reddan, 2015). These situations of applied practice are seen during field based or internship experiences at the university level and as PLCs and mentorship programs at the district level. In this study, the community of practice is the situated classroom in which mentors create strategic learning experiences (Welch & Carter, 2018) that expand the skill set and current understanding of the first year teacher. Situated learning theory (Lave & Wenger, 1991) is one lens for viewing research related to the role of instructional coaches; this theory encourages learning that is in context, utilizes feedback, and incorporates the right tools. Expanding on this theory, Putnam and Borko (2000) suggest that in order to become fully participatory in their community of practice, learners must have access to learning experiences that are social, situated, inclusive of tools of their practice, and built around discussions with knowledgeable others. In the context of this study, the more knowledgeable other (Vygotsky, 1978) is the instructional coach providing opportunities for novice teachers to participate in a community of practice as they engage in a variety of coaching models, reflective practice, co-teaching, and reflective discussions that lead to actionable next steps.

Methodology

Using a qualitative case study approach, we examined how the role of an instructional coach can be defined within the context of situated learning theory. The case study is most closely related methodologically to Merriam's (1988) definition of a qualitative study in that assessing the role of the instructional coach cannot be measured fully in the format of the positivist quantitative inquiry. This study was guided by the following research questions:

- What are the key elements included in the training and coaching new teachers receive from the educator preparation program's (EPP) partner school district?
 - What coaching models are utilized by an instructional coach in the mentorship program?

- In what ways does an instructional coach's approaches align with situated learning theory?
 - In what ways does the implementation of an instructional coaching program align with the initial intent and design?

The participant included in this case study is the Director of Recruitment and Retention in a school district located in the southwest region of the United States. In her role, she created and now manages the district's mentor program, which provides mentorship to new teachers across 20 schools over a three-year period. Each school has a designated lead mentor who works directly with the participant. In addition to the development of the program, the participant collaborates with school principals to hire both lead mentors and campus mentors. The participant develops and presents curriculum and training to the lead mentor teachers to disseminate to campus mentor teachers.

Data collection included two semi-structured interviews that focused on the participant's role in implementing the mentor program in her district. Participation was strictly voluntary. Interviews were conducted and recorded over Zoom and then uploaded into Sonix for transcription. Key documents referenced in the interview were provided by the participant and included: (a) selection criteria used in selecting mentors for the program, (b) training topics for the program, and (c) roles and responsibilities associated with the position including procedures at milestone points and data collection. These documents were used to clarify explanations given during the interview and to provide additional insights into the participant's description of certain aspects of her role.

Using the descriptive coding method (Miles & Huberman, 1994; Wolcott, 1994), Author 1 assigned descriptive codes summarizing the responses to each of the interview questions. After determining descriptive codes, the researchers worked collectively with axial coding to find themes that emerged. According to research by Saldana (1994) descriptive coding "summarizes in a word or short phrases – most often as a noun – the basic topic of a passage of qualitative data" (p. 70). The emerging themes were connected to the main tenets of situated learning: situated in context, social interaction with a more knowledgeable other (MKO), and inclusive of the tools of practice (See Table 1). Key documents referenced during the interviews were used to add clarification when reviewing the themes.

Results

Table 1

Emerging Themes and Tenets of Situated Learning

Situated Learning	Emerging Themes
1 Situated in Context	<ul style="list-style-type: none"> • Mentor Selection • Basis of Coaching Style (participant's own experience) • Role as Coach
2 Social (MKO)	<ul style="list-style-type: none"> • Mentor Selection • Meetings with Mentors/Mentees • Role as Coach
3 Inclusive of Tools of practice	<ul style="list-style-type: none"> • Mentor Selection • Self-Care • Procedures/Routines

Situated in Context

The participant and campus principals are the key people identifying and selecting mentors to serve as coaches for new teachers; the application process was created using open-ended questions that connected with the participant's own first year teaching experience. Those questions serve as a guide that the participant believes will help her find the best mentors. Some mentors do apply hoping participation will lead to movement into leadership positions in the district, but the program director prefers to select mentors that "just love working with new teachers."

The development of the mentor program occurred through the program director's situated perspective. Instead of basing the coach's role on data or literature, the participant discussed how she developed the role based on her own needs from her first year of teaching: "I did start the mentor program just because I can remember my first year." She goes on to explain how in her first year she herself moved through the Moir's (1999) chart of how new teachers experience emotions throughout the first year of teaching. That cycle of emotions was similar to her own experience, and she "feel[s] like all teachers go through this whole process, even though the months may vary. [She] feel[s] like they all go through the process," thus she believed it should be a marker for understanding and developing this program. Therefore, the program director facilitates coaching development monthly with lead mentors, through a book study and journal reflection specifically aligned to Moir's (1999) chart which identifies six phases every new teacher goes through in their first year (anticipation, survival, disillusionment, rejuvenation, reflection and anticipation). As new teachers move through

the phases, mentors are trained on specific coaching techniques that are needed at each phase.

The participant serves as the program director, but she sees herself as the lead coach for the mentors in the program who are coaching new teachers during their first year. Further, the program director created the roles and responsibilities for the mentors based on her own experience and observations as a teacher and coach: "And so we have kind of evolved that position. So, they are the liaison between me and the campus." Throughout the interviews, she emphasizes how situated context (related to her own experience) has shaped and continues to guide the development and implementation of the training for coaches. Classrooms for observations are selected by the participant based on the needs of the new teacher cohort each year. For example, if support is needed for classroom management, mentees will observe and reflect on classrooms that support best practices in management. Even though the participant did say observations are selected based on the specific cohort needs, she provided a list of top priorities that are typical of each year and heavily influenced by her own experience as a first-year teacher.

The top priorities in my mind would be they've got to get their classroom set up, obviously, and they really need to have an idea of what their classroom procedures and expectations and consequences are going to be, because if they can't get that established and running smoothly from the beginning, then really, it's going to be a terribly chaotic year for them.

Social (MKO)

The second structure identified was situated learning in the natural social environment in tandem with a more knowledgeable other (MKO). The participant believed that having a MKO is important to this process, but her view of how the MKO operates is not in line with a coaching model using a MKO. Although the participant outlined that campus mentor selection was a collaborative effort between the program director and campus administrators, the participant detailed several instances when she sees herself as the MKO by overriding the administrator's choice of mentor. She stated, "I would have never picked a counselor as a mentor. Her role as a counselor was not really helpful for modeling a lesson or giving constructive feedback." The participant then provided more context about the mentor selection: "Ultimately, the decision to find and pair campus mentors with new teachers in the program is based on the participant's experience of knowing what new teachers need and because campus mentors are "in the trenches as well."

The program is intended for mentors and new teachers to do classroom observations, group training, modeling, and twice-weekly mentor/mentee check-in meetings. The participant explains the progression of the program throughout the school year which consists of encouraging the pairs to meet and answer open-ended questions to better understand the new teacher's stress level and form a relationship. In late October, the pairs are asked to observe each other and provide feedback regarding pedagogy, but this has not been fully implemented as she further explains:

My ultimate wish is that the lead mentor could be the instructional coach on the campus and could work solely just doing that. That's not an option, so my goal is to be on campuses and in classrooms and watching the instruction and making sure that they are using the framework that [school district] has established for what good teaching looks like...So that's my undertaking at the moment. And it's huge. And I don't speak very cohesively about it because it's still in my brain and hasn't been mapped out on paper.

Throughout the meetings between mentor and new teacher, the mentor has been instructed to take the lead in helping the new teacher work through various logistics at the beginning of the school year regarding grades, classroom rules and procedures, and communication with parents. By taking the role of MKO who is conveying knowledge, the campus mentor can show the new teacher how to handle daily tasks that fall outside of the instructional role of a classroom teacher. In addition, lead mentor teachers and the program director participate in monthly meetings where data are shared and professional

development is created based on the data. At every layer of the program, there is a top-down approach for conveying knowledge. The program director creates the training presentation given to the lead mentors, who then provide training to the campus mentors, and from there, campus mentors use the content of the presentation to inform new teachers.

Inclusive of Tools of Practice

The final structure involves using inclusive tools of practice aligned with the ISD's framework that communicates good teaching practices of the district including what the mentor's role looks like monthly and how to report data collection and documentation. The tools primarily consisted of handouts, strategies, and other resources that help novice teachers navigate management systems in their classroom or the school. One example involves mentors referencing a list of questions to guide their observation of classroom management such as, "Did the teacher greet students at the door? Did the students know what to do when the class began? Did the teacher have the objectives displayed and go over them?" Other tools included a list of topics to discuss with mentees at weekly check-ins such as classroom management, implementing rules and procedures, how to address the needs of diverse students, and self-care. In fact, self-care was a major element that occurred throughout the data signaling that it was a prominent feature of the coaching practice. To begin the process of relationship building, the program director created a "one pager" document with the purpose of identifying who her First year teachers are and how she can best support them individually. The document contained the teachers' top 5 Gallup strengths, how they like to be recognized, a "favorites" section, and personality-based questions geared toward identifying their emotional intelligence. Mentor selection was based on the ability to provide tools or support to new teachers, as well as an emphasis on implementing self-care as a tool of practice for navigating the profession during the first year was an important part of the program's focus. Since those two aspects were the primary aspects used to help make the selection of mentors, it was not surprising that both aspects were evident in the data.

Discussion

This study provides us with insight into one way a mentor program is developed and implemented as a support structure for new teachers and demonstrates a need for consistency in mentor/coach selection and implementation of effective coaching practices. Although duties were defined in this study, there was not a coaching training requirement or specific coaching model to implement while working with novice teachers. The pairings are heavily

focused on sharing resources and creating relationships between the mentor and mentee. Additionally, the program creation is rooted in the specific experience of the program director. The intention of creating a mentor program is commendable, but in order for the program to be effective, specific coaching practices need to be implemented.

Further Implications

Research also identifies inconsistencies in coaching practice, instructional coaching requirements, and a weak understanding of the job duties which are often layered with other duties unrelated to coaching (Fullan, 2011). The experience of the program director is helpful and should be used as one source for the program, but a wider set of sources as well as theoretical models should be used to formulate a coaching program that helps support novice teachers dealing with a range of needs. In order for a successful coaching program to be implemented and lead to systems change, criteria for this position should be similar to that of a reading specialist, where extensive knowledge of methods is learned through a master's program and the position in the district is clearly defined. Not all instructional coaches are defined by the same criteria, but a level of consistency of what is needed across all coaching environments would be helpful to districts seeking to add this role. A coaching master's degree or certificate could ensure highly effective coaches who are trained in various coaching methods and adult learning theory. The position would be clearly defined by the district with the purpose of improving new teacher instructional practice and student learning outcomes.

Conclusion

The consistent use of a model for instructional coaching can be powerful and transformative, especially when using situated learning as a foundation. However, the coaching model should align with the specific needs of new teachers on the campus instead of simply employing a top-down, one-size-fits-all approach. Situated learning is one way to meet those specific needs by looking at context, tools of the practice, and social interactions. These tenets of situated learning can be a strong way to look at the specific needs of teachers and connect novice teachers with mentors who can coach them through those first years. Using limited experiences instead of researching key needs can be avoided through preparation of instructional coaches that includes theory, strategies, coaching techniques, and valuable pathways for building a coaching program. With more focus on supporting novice teachers, additional focus should be on those providing and building that supportive structure.

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TEACHERS CAN TEACH REFUGEES: MAKING THE CLASSROOM A WELCOMING PLACE FOR REFUGEES THROUGH CHILDREN'S LITERATURE

Mary Petrón, Ph.D.

Sam Houston State University

Burcu Ates, Ph.D.

Sam Houston State University

Helen Berg, Ph.D.

Sam Houston State University

Abstract

The number of refugees worldwide has reached a record high. From 2010-2020, Texas was the number one state of initial residence for refugee families. Schooling provides stability for refugee children. This article addresses the need for culturally relevant literature and culturally responsive teaching in order that refugee children see themselves reflected in the curriculum. In addition, their classmates will have the opportunity to develop empathy. A sampling of books for children and adults, online resources, and recommendations for teachers and teacher educators are included.

Keywords: refugees, resettlement, PK-12 education, culturally responsive teaching, culturally relevant literature

Refugee children have lost their homes, but we cannot allow them to lose their future. #EducationForRefugees—One

The United Nations High Commissioner for Refugees (UNHCR) estimates that by mid-2021 more than 84 million people world-wide have been forcibly displaced from their homes due to violence, persecution, and human rights violations (UNHCR, 2021). This represents an increase of 1.6 million over the previous year. Not all displaced persons are considered refugees. The UNHCR defines refugees as “people who have fled war, violence, conflict or persecution and have crossed an international border to find safety in another country.” A total of 26.6 million people have been officially classified as refugees, a record high (UNHCR, 2021).

Under the Trump administration the cap on the number of refugees allowed into the country per year was 18,000. Under the Biden administration, the cap has grown to

125,000 (Russell et al., 2021, p.11). This cap is expected to increase even more as a result of the Russian invasion of Ukraine. Despite efforts to restrict the number of refugees allowed into the state, particularly those from Syria, Texas ranked number one as the initial state of residence for refugee resettlement from 2010-2020 (Monin et al., 2021). Texas is expected to resettle the second highest number of Afghan refugees. Almost 10,000 Afghanis have already come to Texas (Rhone, 2022) with about 4,700 Afghanis to the Houston area alone (Hennes, 2022). Russell A. Smith, the CEO of Texas Refugee Services, estimated that about 12,000 Ukrainian refugees will be resettled in Texas (De Alba, 2022).

Refugees include children. Education is an essential element in creating stability for refugee children.

Worldwide only 50 % of refugee children attend elementary school, as compared to 91% of all children (UNHCR, 2016). In the United States under federal law, all states are required to provide equal access to public elementary and secondary education to refugee students. Resources available to assist with their education include Title I: Services for Educationally Disadvantaged Children, Individuals with Disabilities Education Act, the McKinney-Vento Homeless Assistance Act, and Migrant Education Programs. In addition, states must allocate at least 15% of their Title III funds in the form of subgrants to local educational agencies in areas that have experienced a significant increase in immigrant children for English language acquisition programs. Unfortunately, there is no mandate that this education be culturally responsive. In this article, we advocate for the use of culturally relevant literature as a way of both validating the experiences of refugee children and developing empathy in the classroom.

Culturally Responsive Teaching

Culturally responsive teaching is especially critical today. As the demographics of students continue to become more diverse, the teaching workforce remains overwhelmingly White, female, middle-class, monolingual and monocultural. Teachers will have students who are of different races, ethnicities, socio-economic statuses, religions, cultures and languages in their classrooms. Culturally responsive teaching has shown to be an effective approach of addressing the achievement gap by integrating the students' cultural elements and perspectives in all aspects of teaching and learning (Gay, 2002, 2018; Ladson-Billings, 1995). As more refugee children enter Texas classrooms, teachers need resources to attend to their unique circumstances. Their emotional, social and academic needs are distinct and responding to their diverse lived experiences is of great importance.

Ladson-Billings first made popular the notion of culturally relevant teaching in the early 1990s as an approach that “empowers students to maintain cultural integrity, while succeeding academically” (Gay, 2010). This approach was expanded upon by Gay into culturally responsive teaching. Gay defined culturally responsive teaching as an approach that advocates “using the cultural knowledge, prior experiences, frames of references and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for

them” (p. 31). In this way, a teacher views students' culture and identity as assets and creates learning opportunities and environments that value, support and empower them.

There are five essential components of culturally responsive teaching. First, teachers must develop a knowledge base of diversity and accept the legitimacy of the cultural and ethnic backgrounds of their students. Second, they must use this knowledge to design culturally responsive curriculum by including representation and multiple perspectives as a part of classroom instruction. Third, a caring learning community that bridges home and school and validates diverse cultural identities must be co-constructed. Fourth, there is an emphasis on cross-cultural communication in which teachers understand and embrace diverse communication styles and modify instruction accordingly. Finally, teachers establish congruity in classroom instruction by connecting prior knowledge and cultural experiences to new knowledge.

As Taylor and Sobel (2011) emphasized:

When teachers understand that learning and teaching are culturally and linguistically impacted, they recognize that instruction is more effective when the learner's broad cultural backgrounds, racial/ethnic identity, and life experiences are integrated within the curriculum. Teachers who make themselves aware of the learners' backgrounds and life experiences are better prepared to adapt instruction in responsive ways and demonstrate that they can teach like their students' lives really do matter (p. 3).

Professionals in the field of teaching agree that effective teachers must master the content knowledge and pedagogical skills to teach. However, Gay (2010) called on teachers to become culturally responsive practitioners by making changes in several ways including instructional techniques, didactic materials, building positive relationships, classroom environment, and most importantly, self-awareness to improve the learning outcomes for students.

Culturally responsive teachers use the cultural experiences and perspectives of their students to help them learn more effectively. This means teaching in ways that consider the students' culture and prior experiences as frames of reference. This is especially critical for our refugee students. While teachers may be aware of diversity

in the U.S., they could lack any knowledge of the cultures and experiences of refugee families. Yet, refugee students should be empowered to feel proud of their culture and resiliency in the face of traumatic events. When they see themselves and their communities as belonging in schools, this will positively affect classroom engagement and academic success. Teachers are responsible for making this an integral part of their classrooms. Building healthy rapport with their refugee students, teachers can help them have meaningful and successful school experiences (Taylor & Sobel, 2011).

The Need for Inclusion

That's me!

There is an urgent need in U.S. schools to include literature about refugees in classrooms (Lamme et al., 2004). The literature most U.S. students encounter consists of White American and middle-class representations (Tschida et al., 2014). Yet, children from marginalized and underrepresented cultural groups, like refugees, should also see themselves reflected in the literature (Tschida et al., 2014). Congolese students are not African American students, nor are Iraqi students Arab Americans. Refugee students should be able to reflect and say, “that’s me” or “that’s like me.” This type of inclusion goes beyond warm feelings and into the realm of academics. For example, Ebe (2010) found that the reading comprehension of English learners increased when texts were culturally relevant. Thus, educators need to be more knowledgeable and intentional in selecting books about refugees for their classroom library.

Why Representation Matters

Representation is a critical element of culturally responsive teaching. Many educators and scholars highlight the importance of providing students with literature in which they see themselves and their lived experiences (Bishop, 1990; Fleming et al., 2016; Sims, 1983). Bishop (1990), a children’s literature scholar, used the metaphor of viewing books as, “windows, mirrors, and sliding glass doors” in her discussion of why representation matters. She argued that books can be *windows* into the realities of others and not only into imaginary worlds. Through *windows* refugee children can be exposed to new stories and experiences of their peers and others in the United States and thus, bridge the path from the unfamiliar to the

familiar. Books can be *mirrors* that reflect the lives of readers. Through *mirrors* refugee children can read stories about children who are like them or have similar experiences. Books can become a catalyst for providing refugee children with a voice when they are silent, in a literal and/or figurative sense. Books can also be *sliding doors* where readers can walk and more deeply experience the world and experiences of others. Through sliding doors, refugee children can have the opportunity to immerse themselves in their new environment. This may provide a pathway to new beginnings.

All Students Need to Know about Refugees

While it is essential for refugee students to encounter their own stories in their classrooms, it is equally important for other children to learn about refugees and their lived experiences (Berg et al., 2017). Thus, books on refugee children are not only for refugee students, but for all students. Cummins (2016) argued, “Students [from the cultural majority] need access to culturally specific narratives appropriate for their age level that humanize children and teens with immigrant backgrounds and open up conversations.” (p. 25). Reading and discussing books where the characters and homelands are different than their own will serve to assist all children in understanding their peers’ background, culture, and language. For example, Lamme et al.’s (2004) argued that:

We believe that if children read books about children’s life experiences that may differ from their own, they may develop an understanding of children from other cultures. Further, through their enjoyment of the stories, children learn about diverse cultures and the history of those cultures (p. 124).

This could result in all children developing positive attitudes and compassion towards their refugee classes and diminish societal stereotypical views of refugees in general. Being treated humanely with kindness and respect is crucial for refugee children to feel accepted and be part of the new learning community. Unfortunately, restrictive immigration policies implemented by nation states have contributed towards a climate of hostility and xenophobia towards all “foreigners,” including refugees in schools and classrooms. Therefore, teachers must work to ensure that refugee children are welcomed and have positive social relationships inside schools.

Importance of Accurate Representations

Refugee stories in children's and young adolescents' books need to be accurate and not stereotypical. When refugee children find themselves in books, they will feel validated. However, if underrepresented children, like refugees, see themselves through a lens that is "distorted, negative, or laughable, they learn a powerful lesson about how they are devalued in the society of which they are a part" (Bishop, 1990). A stereotypical image of a refugee is often one of poverty, illiteracy and "broken" English (Petrón & Ates, 2016). Yet, as we know, refugees from countries as diverse as Syria, the Ukraine, and the Democratic Republic of the Congo can be highly educated, from the middle and upper classes, and English-speaking. Kwon and Sun (2021), caution educators to be aware of stereotypical images of immigrants that may occur in books and implement ways to demonstrate accuracy. One way is, "to center children and/or their families' voices in interpreting these [immigrants] stories and invite them [children and/or their families] to author their own transnational experiences that may resonate with or differ from portrayals in the available picture books" (p. 29). Thus, teachers must strive to present accurate and diverse stories of refugee experiences.

Getting Started

Children's Books

While somewhat limited, children's books about the refugee experience both enable refugee children to see themselves and help other children develop understanding and compassion for the refugee experience. Cummins (2016) discussed the importance of a diverse array of books and that, "Reading and discussing multiple books portraying immigrants and refugees can convey heterogeneity and diversity rather than expecting one text to be representative" (p. 24). This could also mean even though a teacher has one student from Ukraine and/or Afghanistan, they should have multiple books that represent their students in order to have a wider lens on their cultures and backgrounds.

For young children, *Together We Grow* (Vaught, 2020) reminds us that offering comfort to others is an essential element of community. A fox family tries to seek shelter in a barn during a storm and is turned away by farm animals who view them as enemies. The most vulnerable of

animals, a little duckling, acknowledges the needs of the fox family. The message is one of empathy and inclusion for refugees. *The Paper Boat: A Refugee Story* (Lam, 2020) is a wordless picture book about the flight of refugees from Vietnam. It is a semi-autobiographical tale that recounts the author's departure from post-war Vietnam. *Mustafa* (Gay, 2018) tells the story of a young boy and family who come from Canada as refugees. He spends time in the park observing, too timid to engage with others. Slowly, he begins to open up and interact with a girl and her cat that he often sees in the park. This moving tale focuses on the life of a refugee child after coming to a new home. *The Journey* (Sanna, 2016) tells the story of a family fleeing their home after it was destroyed, and their father went missing. While there is no definitive happy ending, it serves to build compassion for refugees and hope for the future.

For older children, *Dia's Story Cloth: The Hmong People's Journey of Freedom* (Cha, 2002) recounts the author's story of how the family survived the war in Laos and four years in a refugee camp in Thailand to ultimately settle in the U.S. *When Stars are Scattered* (Jamieson, 2020) is a graphic novel memoir that tells the tale of Mohamed's life in a refugee camp in Kenya. It details the difficult choices he has to make that could influence the future of the family. *Out of Iraq: Refugees' Stories in Words, Paintings and Music* (Wilkes, 2010) provides a refugee's view of Iraq before they left, why they had to leave and how they view life as a refugee. It is a tale of resilience and the dreams of a stable life. *Shooting Kabul* (Senzai, 2011) is based in part on the escape from Soviet-controlled Afghanistan of the author's husband. The main character, Fade, is a middle school boy trying to adjust to life in the U.S., wracked with guilt about his sister and fear regarding his mother's health.

While stories of today's refugee children from places like Ukraine, have yet to be written, familiar folktales and stories set in their homelands can be a comfort. *The Mitten: An Old Ukrainian Folktale* (Tresselt, 1989) retells the tradition tale of how a boy's lost mitten became a refuge from the cold for multiple animals. *Waiting for the Owl's Call* (Whelan, 2009) centers on a young Afghani girl who weaves rugs as have generations of women in her family have done before her. *The Storyteller of Damascus* (Schami, 2018) highlights the Syrian tradition of storytelling through a tale of love.

Books for Teachers

There are also books available for educators to gain valuable background information on the lived experiences of refugees in their home country, refugee camps, as well as their new life in the United States. These books introduce educators to key conflicts that brought refugees to the United States and provide strategies to assist them as many have experienced limited or interrupted formal education. Pipher's (2002) *The Middle of Everywhere: Helping Refugees Enter the American Community* is one of those books. It shares the experiences of refugees from a variety of countries who resettled in Lincoln, Nebraska. It also portrays the personal story of Pipher as a cultural broker who had first-hand interactions with refugee students and their families. Even though the book was written 20 years ago, similar struggles of refugees are ongoing and still relevant in today's context.

Another great resource is the book, *The Newcomers: Finding Refuge, Friendship, and Hope in an American Classroom*. Thorpe (2018) documents the experiences of newly resettled refugee students from war-torn places such as Iraq, Burma, El Salvador and the Democratic Republic of the Congo, who attend high school in Denver, Colorado. Thorpe mainly focuses on one teacher, Mr. Williams, who teaches the English as a second language course. The students learn English, intercultural skills and much more as they adjust to their new life in the United States. As we read the stories of students, we also learn about their families' backstories. It is a compelling book which is a must read for K-12 teachers and teacher educators.

In a more recent book, *The School I Deserve: Six Young Refugees and Their Fight for Equality in America*, the journalist Napolitano (2021) brings to light the fight for access to education of older (ages 17-21) refugee students. The book is about six refugee students who fought alongside American Civil Liberties Union and the Education Law Center in *Issa v. School District of Lancaster* to demand equal access to education. It discusses how the school district of Lancaster, Pennsylvania was sued for refusing to admit older refugees who are English learners and instead, sending them to a disciplinary alternative education program. The book also illuminates the overall lack of support refugee students may face in the U.S. public school system.

Teacher Resources

Websites are an important resource when looking for suggestions and books about teaching refugees. The sites described below have a wealth of information for teachers and teacher educators.

The Diverse Book Finder (<https://diversebookfinder.org/>) is a searchable database, recognized by the American Association of School Librarians as the 2021 Best Digital Tools. Use a country name or refugee as a search term.

What We Do All Day?

(<https://www.whatdowedoallday.com/childrens-books-about-refugees/>) has a great list of children's books dealing with refugees separated by age level. It also has a tab with a selection of traditional games played in other countries.

Colours of Us (<https://coloursofus.com/>) has a searchable database of multicultural children's books. There are children's books about countries in Africa, Asia and the Middle East.

Book Trust (<https://www.booktrust.org.uk/>) is dedicated to getting children and families reading. It has an extensive list of books about immigrants, refugees and asylum seekers.

Colorín Colorado (<https://www.colorincolorado.org/>) is a resource dedicated to bilingual education and English as a second language. It also features a booklist about the refugee experience. Use refugee as a search term.

Edutopia (<https://www.edutopia.org/>) is designed for teachers in general. It also has book lists and short articles that deal with refugee children. Use refugee as a search term.

Although the children's books, educators' books and websites listed above are certainly not exhaustive, they represent a good place to start for teachers and teacher educators.

Recommendations

1. Help refugees feel safe in your classrooms by understanding and acknowledging their experiences. Their world has been a very frightening place; the classroom should not be.
2. Be intentional in building relationships with your students. Refugee students need to feel they are

valued, respected and that their teacher cares about them. Remember they have lost many of their relationships, from former teachers to family members to friends.

3. Begin with folktales from the home country. This can provide refugee children with a sense of familiarity and pride in their homeland. It also provides a bridge to their culture which may be comforting to refugee students and enlightening for other children.
4. Read children's books about the refugee experience. They are relevant to the refugee children themselves and can enhance the knowledge base of other children about refugees. Children who know little about refugees can be unkind when someone arrives in the class who speaks, eats or dresses differently.
5. Do not single out a refugee child or ask them to tell their own story. It is always the child's choice.
6. Include literature that highlights the strengths of the refugee characters rather than their weaknesses. Choose books that portray what they are good at.

7. Avoid books that include stereotypical and inaccurate depictions of refugees, for example as objects of pity and despair. Instead focus on humanizing representations of refugee children.
8. Avoid books that display Americans as saviors. The emphasis should be on refugees' struggles, resilience and perseverance in new life for themselves.
9. Include books that show variety and diversity in terms of race, ethnicity, language, culture, religion, gender and socio-economic status of refugees.
10. Remember that teachers can teach refugee children!

It may take effort, but meeting the needs of refugee children is part and parcel of good teaching. Searching for books and resources that reflect refugees and their homelands takes time. However, by doing so, teachers and teacher educators can set the stage for creating a welcoming classroom for children who have lost much of the world they knew.

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AHEAD OF THE GAME: SUPPORT THAT CREATES POSITIVITY, PASSION AND PERSEVERANCE

C. Kelly Cordray, Ed.D.

Texas A&M University-Texarkana

Abstract

The author implemented a Structured Literacy approach on a campus that had been replete of phonics implementation for at least five years. Teachers received training in the Science of Teaching Reading (STR) and job embedded support from the author as they worked to improve student literacy results. Additionally, systems on the campus such as the Master Schedule, RtI Implementation and data analysis changed to reflect literacy as the priority. Through passion, positivity, and perseverance, all stakeholders worked together to create change.

Keywords: STR, phonics, growth mindset, RtI, Instructional Leadership

Over forty years ago, Ron Edmonds, father of the Effective Schools Movement, pointed to the need for equity in education for all students (1979). Boykin and Noguera (2011), more than 30 years later, begged for the same recognition of the achievement gap. So, for many years, researchers have debated the effects of poverty, the government has tried to mandate a fix for the effects of poverty and other factors on school performance, and schools have worked to share the responsibility of breaking the harsh cycle set in motion by poverty through providing students the needed emotional, behavioral, and academic skills to help them move onward and upward in life.

Hart and Risley's 1995 study documented a more than 30-million-word gap as measured in prekindergarten children from poverty compared with those from professional families. However, although environmental factors like economic disadvantage can greatly impact many aspects of schooling, including reading, this is not always the case. Even more importantly, this is an area over which educators have no control and the focus on it detracts from an issue that research shows makes an important impact, namely, teacher effectiveness in reading instruction. Kilpatrick (2018) states that the lack of research-based instruction in foundational reading skills is

one of the major causes of reading difficulties in children. Yet, Seidenberg (2017) points to a lack of teacher effectiveness, which is the result of a lack of preparation in structured literacy during pre-service or in-service training. Seidenberg goes on to point out that the extent to whether a child experiences reading success or failure ties directly to how quickly the child receives needed interventions for deficits and whether the one providing the assistance was knowledgeable about research-based reading. Therefore, the problem points both to lack of appropriate teacher preparation to teach reading which then affects the quality of instruction students receive in foundational reading,

Moats and Tolman (2009) point to a strong relationship between initial reading achievement and later reading achievement as very high. Furthermore, the International Dyslexia Association's Knowledge and Practice Standards (2018) state that "classroom instruction that is informed by research and effectively addresses the strengths and deficits of students can prevent most reading difficulties, especially when children are provided with skilled instruction in the early grades." This study aimed to do two things: (1) train kindergarten through second grade teachers in Structured Literacy and (2) put effective structures in place within the school environment to support early and intense intervention.

Fletcher and Nicholas (2017) state that “principals need to be cognizant of the importance of reading as a success factor for...students” (p. 644). They go on to state that principals need to lead the way with their knowledge of literacy and provide needed support to staff as they grow in knowledge of effective reading instruction if they are going to provide a strong lever for creating positive change. In today’s era of accountability, there is a lot of pressure to close the gap for at-risk students. Dempster (2012) states that the “role of the principal in improving student outcomes is second only to teachers” (p. 50). Therefore, my aim in the study was to model engagement in the learning process and then, through observation and feedback, provide support for teachers’ new learning in order to create a positive trajectory for student achievement on the campus.

Context and History

North Primary School (pseudonym) serves grades PK through second grades and is situated in a small East Texas town with a population of approximately 4,500. The total district student population is just over 1,200, with 379 enrolled at North. The enrollment fluctuated slightly over the past few years according to the Texas Academic Performance Reports (2019). In the 2017-18 school year, the following student demographic data were reported: White - 54.2%, African American - 23%, Hispanic - 11.9%, and other - 10.9%; 205 males (54.09%) and 174 females (45.91%). Special education students represented 13.23% of the student population. The percentage of economically-disadvantaged students was 83.6% and at-risk students made up 55.6%. The campus mobility rate was 21.9%. Additionally, there were 14 English language learners and 6 students in the gifted and talented program. The professional staff was 89.7% White and 96.6% female with 48.3% having 0-5 years of experience and 10.3% having 6-10 years of experience. On average, the teacher/student ratio was 1:16 (Texas Academic Performance Reports, 2019). Furthermore, in 2018, the federal government required a new report to be filed by districts called the Equity Report. This report showed that NPS was staffed by teachers with the least experience and served the most at-risk students in the district.

Additionally, the campus had had no research-based phonics program for the previous five years and reading scores had waned. In 2018, the teachers selected a new

reading curriculum based on Balanced Literacy principles and devoid of research-based phonics instruction. Furthermore, since the previous administrator did not guide teachers to look at student data in reading, the staff did not realize anything was amiss on the campus academically.

Journey to the Problem

In the 2017-18 school year, I served the district as the director of state and federal programs and, although I was not responsible for curriculum choices on the NPS campus, I reviewed the Campus Improvement Plan for each campus in the district. I noted data included from the Texas Primary Reading Inventory (TPRI) showed 67% of students scored Still Developing on the end of first grade state assessment, which was a much lower percentage than I had seen in my previous experience working on a campus that served 99% at-risk students. After discussing the data with my superintendent, she asked me to set a meeting with the campus principal to further probe the issue. After the initial meeting in which we discussed the data and curriculum used on the campus, my superintendent encouraged me to further investigate the literacy block, curricular options, and systems in place in regard to reading at NPS.

In response, the elementary instructional specialist and I studied NPS’s master schedule and observed teachers in classrooms. I found a great deal of misused time within the master schedule due to lengthy transitions and no systematic phonemic awareness nor phonics instruction for kindergarten through second grade. At that point, I did not have the authority or presence on the campus to create a climate of accountability for change, but I did make recommendations for teacher training in structured literacy. However, the climate in the district grew very tense and the primary principal resigned effective immediately in February, 2018. In March, 2018, the superintendent approached me about taking over as principal for the 2018-19 school year. So, I quickly arranged for staff to participate in online LETRS training and Neuhaus Education Center structured literacy curriculum training during the summer of 2018 to solidify teacher knowledge of the foundations of reading theory and to ensure placement of a research-based curriculum.

Campus Organization and Grade Level Team Composition

The campus is organized by grade level teams of five or six teachers each. The kindergarten team consisted of five teachers including a very negative, ineffective leader with 15 years of experience, two 2-year veterans who were easily influenced by the leader and lacked skill in reading instruction, and two teachers with zero and one year of experience who desired to provide appropriate instruction and were not easily influenced. The first grade team included four teachers, wholly entrenched in the balanced literacy methodology and no knowledge of the Science of Teaching Reading (STR) with three to four years of experience each, and one teacher who was in her initial year of teaching on an alternative teaching certification plan. She, too, had no knowledge of STR and aimed to do what was right for students while also maintaining the peace among her colleagues. The second grade team consisted of four experienced educators (10-25 years) and

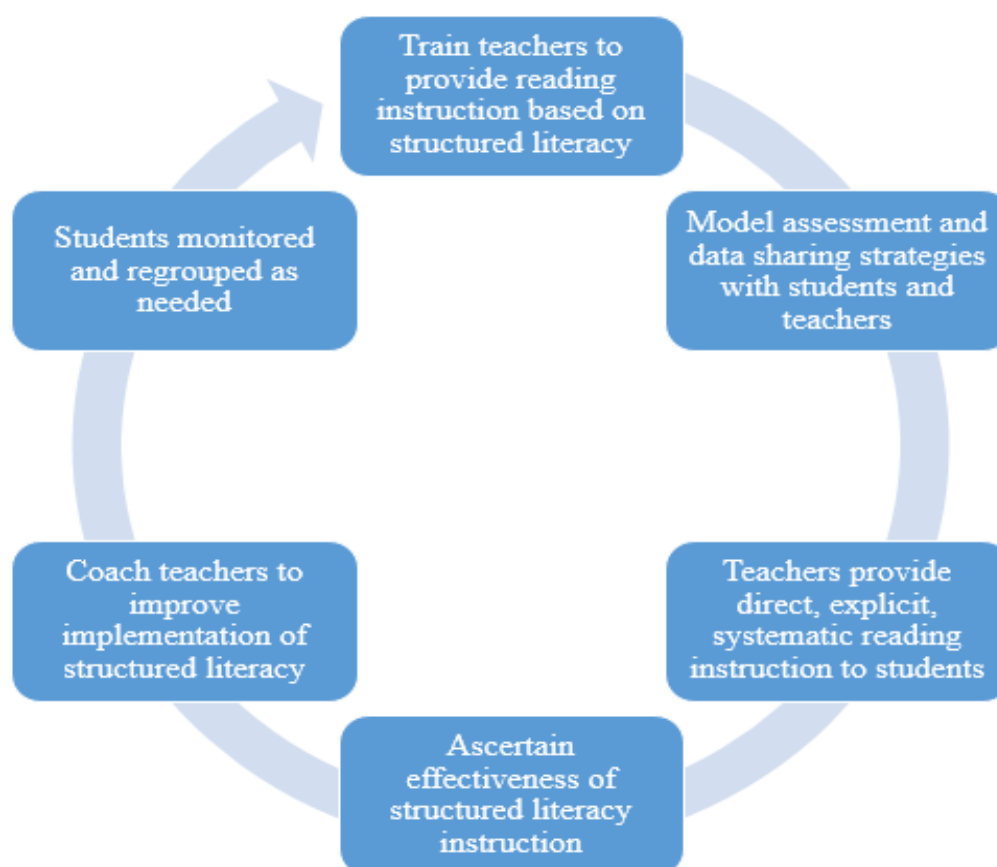
one newer (three to four years of experience), but highly effective, teacher. None had previous experience with STR, but all were open to doing whatever was necessary to close the reading gaps that were evident in their students.

Methodology

Moats and Tolman (2009) state that an instructional leader establishes goals and creates a context in which those goals can be achieved through mutual and reciprocal learning (p. 84). Therefore, in order to ameliorate the effects of years without research-based reading instruction, the following strategies were implemented: revise the master schedule to add specificity for reading instruction and Response to Intervention; find funding for professional development in structured literacy instruction; and give teachers support through ongoing feedback and modeling of research-based reading instruction, assessment, and data analysis. A visual representation of the way these strategies work together is seen in Figure 1.

Figure 1

Conceptual Model of the Research Study



RQ1

To drive improvement of reading achievement on a primary school campus, I aimed to answer two research questions, each using its own data source and methodology. The first research question is as follows: Does student reading performance significantly increase due to the implementation of a structured literacy approach? The campus had not had a phonics curriculum in five years. Therefore, the principal/author arranged to provide Neuhaus Structured Literacy training to the Instructional Coach, the reading interventionist and classroom and special education teachers PK-2nd grade. The training provided not only a foundation in the principles of STR, but also guidance in implementation of the Neuhaus curriculum which is closely aligned to STR. I also provided all teachers training in the use and administration of the Texas Primary Reading Inventory (TPRI), Star Early Literacy and Star Renaissance Reading. Then, I scheduled data meetings to review data from these assessments after each administration in order to best place students in tiers for intervention.

RQ2

The next research question is as follows: Does teacher implementation of structured literacy improve due to accountability and continued feedback and training? To measure this, I performed observations and walkthroughs and also asked for input via a needs survey and regular feedback conversations. From the data gathered from each of these avenues, I offered periodic trainings based on pieces of the curriculum that needed enhancement overall, modeled lessons for individuals that requested that assistance, and also attended weekly planning meetings to support the grade levels that needed that type of support. In January, I led 1st and 2nd grade teachers to create a pacing calendar in order to plan toward a completion point for most students for the year.

Master Schedule Revision

The previous year's schedule had a transition time in place before and after every sequence of instruction as well as before and after recess, specials, and lunch. This reduced instruction time by 45 minutes daily. Therefore, since the goal was to raise reading achievement, the time required for reading instruction and collaborative planning needed to increase. The change also provided the extra block of time

needed for a well-developed Response to Intervention program. Danielson (2002) emphasizes that the way time is blocked off within the master schedule speaks to the priorities of the school. Therefore, I wanted to make sure the emphasis was on reading instruction and Response to Intervention, eliminating some of the waste found in generous transition times.

The master schedule and systems changes (testing, data meetings, Response to Intervention/referrals) were introduced to all staff members during the August 2018 professional learning days prior to the start of the 2018-19 school year. I first met with the staff as a group so that all would receive the information from me. I, then, followed up by meeting with each grade level to allow time for questions and clarification. At this time, I also elaborated on my expectations for the daily use of the Neuhaus curriculum beginning the second full week of school. All staff members were excited to see there was an extra planning period allowed for in the schedule.

Professional Development in Structured Literacy and the Science of Teaching Reading

Washburn et al. (2011) noted that professional development that provides training in basic language constructs related to word structure reaps great rewards for students' reading achievement for both in-service and preservice teacher groups. The National Reading Panel Report also stated that in-service professional development leads to improvement of teacher knowledge and practices and, as a result, has increased student achievement in reading (National Reading Panel, 2000). Furthermore, Concannon-Gibney & Murphy (2012) stated that the most effective type of professional development (PD) emerges from a shared campus vision and is designed with the specific setting in mind rather than copying what has worked in another school. Washburn and et al. (2011) further stated that to ensure professional development creates change for in-service teachers it needs to be ongoing so that it provides real time assistance as problems arise within each individual classroom. Therefore, the district provided federal funding which afforded all reading teachers who serve Prekindergarten through 8th grade students the opportunity to receive training in the foundations of research-based reading instruction through Sopris Learning's online LETRS over the summer. Furthermore, all North Primary School classroom teachers,

the special education teacher, and the reading interventionist were trained in Neuhaus' Education Center's Structured Literacy curriculum which provides explicit, sequential, and systematic phonics and phonological awareness instruction.

Neuhaus Curriculum Implementation

Teachers began the Neuhaus curriculum implementation the second full week of school in August of 2018. I provided teachers with a period of about six weeks to gain proficiency using the Neuhaus curriculum prior to observing in their classrooms. I also maintained an open line of communication for each grade level to request the help they needed to be successful, whether that meant planning support, gathering materials, or modeling. The kindergarten team quickly requested support during the hour they implemented small group instruction based on Neuhaus curriculum, and also, that I meet with them weekly to help plan lessons. So, I reshuffled the schedules of activity teachers to allow them time to serve in kindergarten classrooms for an hour daily. First and second grade teachers wanted time to implement the curriculum prior to observations but still asked for guidance as questions arose.

Table 2

December 2018 NPS Teacher Survey to Gauge Support Needed for Neuhaus Implementation

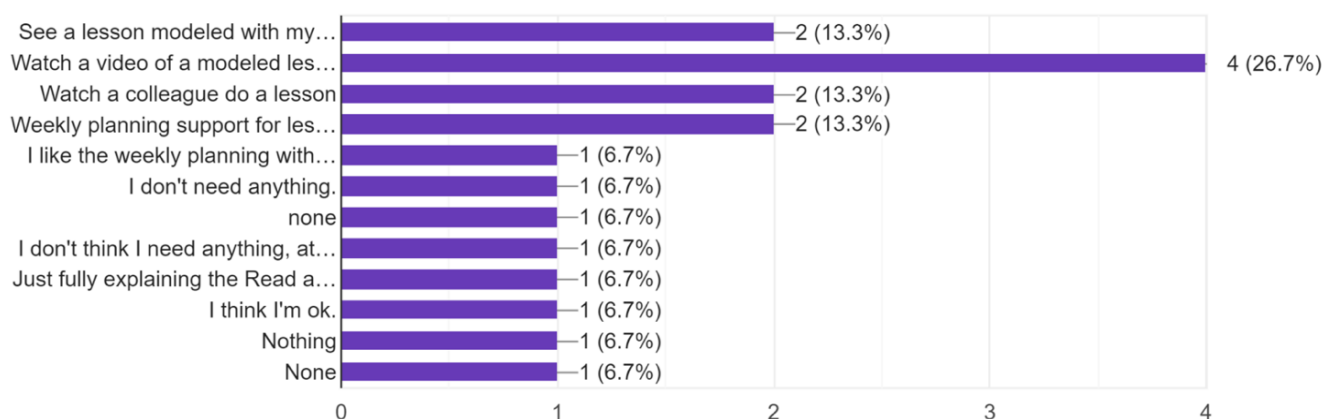
Supports Provided During Implementation

Ogenosky (2017) stated that a successful RtI and Structured Literacy implementation requires the following: program-specific professional development, continual job-embedded professional development, modeling changes desired, and a way to measure staff accountability. Therefore, in October and November, I observed each first and second grade teacher during their small group instruction time for 45 minutes each and followed up individually, sharing feedback through email and in-person conversations. As I noted trends in implementation errors, we met as grade level teams to discuss misunderstandings and to allow me to provide more in-depth coaching in the areas needing improvement. I informally observed kindergarten teachers during walkthroughs completed during their small group times. Then, I gave feedback and coaching during our planning meetings as needed.

In December, I surveyed teachers' needs in a different manner just to see what type of specific help I could provide them to help them achieve fidelity of implementation. These survey results are found in Figure 2. Three teachers requested additional modeling of lessons during their reading blocks. I scheduled this assistance individually and then observed teachers' subsequent implementation and provided feedback. The instructional specialist for elementary accompanied me twice as I provided modeled lessons. She also videotaped portions of the lesson to provide a resource that she shared with teachers as a ready reference if they were struggling with a particular component. In addition to the mid-year survey, I

The following would help me implement Neuhaus lessons in my classroom:

15 responses



scheduled group feedback sessions with each grade level to give teachers an opportunity to voice where they were struggling. First grade teachers were still struggling with the timing of doing all components of the lesson within the small group time while maintaining student engagement in other station activities. Therefore, we decided as a group that those teachers that felt this was an issue would teach portions of the lesson (oral language, new concept) to the whole group and then follow up with other components (reading practice, deck review, extended reading) with small groups during the station time. We agreed that teachers would try this method and then we would reconvene to provide feedback and adjust as needed.

Another concern for first grade teachers was having their on-grade-level students take the time to go through all components of the lesson in a small group when they already knew the material. So, we discussed the fact that providing the concepts and oral language practice in a whole group manner would allow these students to be presented with the concepts to make sure they did not have any gaps in knowledge. They could use the small group time to move quickly through other components and spend more time on extended reading. An additional request by second grade teachers was that I attend weekly planning sessions; so, I added this to my kindergarten meetings that started in the fall. This provided both a time for teachers to ask timely questions and for me time to give mini professional development sessions on upcoming content or misunderstandings.

I repeated the observations for first and second grade classrooms during January and February of 2019. Teacher response to the observations varied both according to grade level and within the grade level. As a whole, second grade teachers were very open to feedback and wanted to make sure their implementation was done with fidelity. The first grade teachers that were on the campus prior to my arrival were very entrenched in balanced literacy and, thus, were resistant to feedback and making the changes needed to implement a sequential, systematic curriculum. They liked the way the concepts were taught and wanted to use the script and incorporate it into the lessons they planned without following the scope and sequence of the curriculum. This change affected the effectiveness of the curriculum implementation as it contradicted the sequential nature of structured literacy that was built into the design. The one new first grade teacher was open to feedback and

modeling and welcomed it as often as it was provided; yet, she also had to plan and stay on track with her colleagues, which made for a tough situation overall. Since I was not on the campus the previous year as an administrator, I am not sure of the level of transparency and openness that had been expected or developed between the staff and principal. This level of sharing feedback was new to the staff and, in retrospect, should have started with a data dig at the beginning of the year so we were all on the same page regarding the story the data told up to that point.

In January, I also asked each first and second grade teacher to create a pacing calendar to plan out what lessons they hoped to complete with their students from January through May. This allowed them to plan for days that were dedicated to other things such as testing, assemblies, and shortened schedules and still see where they would finish with students at the end of the year. This also helped with conversations regarding future planning of the curriculum implementation.

Revision of Campus Response to Intervention Plan

Mellard (2017) defines Response to Intervention (RtI) as “a prevention-oriented, multi-tiered organizational framework that integrates timely assessments and data-based decision making with research-based interventions to support students’ learning, achievement, and positive behavior” (p. 11). RtI’s Tier 2 is supplemental and should well serve the 15-30% of students that may need extra small group instruction to close any gaps in learning. Additionally, Tier 3 is reserved for the 5-15% of students that need intensive intervention (University of Texas, 2005). If a greater percentage of students is being served in Tiers 2 and 3, then the Tier 1 instruction may not be rigorous enough to support learning of the grade level standards. When I first examined the TPRI data from the district lens, I knew Tier 1 was faulty as too many students were falling below standard for reading. However, it took a deeper dive into data and more data sources to discover all that needed change.

It did not take data to determine that the structure and resources currently used on the campus for RtI were not aligned to Tier 1 instruction and that the process for progress monitoring and movement through tiers of intervention was either non-existent or fragmented at best. Foorman and Torgeson (2001) stated that, regardless of the purpose of the instruction (whether Tier 1 for prevention or

for intervention in Tiers 2 or 3), the components of effective reading instruction remain the same. Therefore, providing students with research-based, structured literacy, Tier 1 instruction and aligned tier 2 and 3 interventions would serve to increase students' reading achievement. A study conducted by EdSource in 2003 (as cited in Moats & Tolman, 2009) states that "the introduction of a structured, systematic, comprehensive classroom program used throughout a school...usually accounts for substantial school wide gains" (p. 87) which was exactly the aim. So, the following components were revised at NPS: scheduling, curriculum, progress monitoring, and movement within the tiers as a result of data meetings.

Kindergarten teachers had a one-hour block daily for RtI within the classroom. Using data, they divided students into three groups that rotated through three different stations including 20 minutes of Fast ForWord, teacher table instruction based on Neuhaus's Reading Readiness curriculum, and skill instruction assigned by the teacher and led by an aide that helped facilitate student engagement at student desks and on the computers. After mid-year TPRI testing showed one fourth of kindergarten students were ready to move to structured phonics lessons, I pulled this group and began utilizing Neuhaus' Language Enrichment curriculum with them. Also, the very lowest students were pulled by the reading interventionist for more focused letter naming fluency and phonological awareness training.

RtI for first and second grade classrooms followed a similar structure which was very different from kindergarten. Tier 2 instruction took place in the classroom, led by the classroom teacher, while students in Tier 3 groups traveled to the reading interventionist's classroom and the Fast ForWord lab. Neuhaus's Language Enrichment curriculum was used during RtI, yet the pacing was adjusted during Tier 2 and 3 instruction to serve students who were struggling with the Tier 1 pace. Additionally, ESL, dyslexia, and special education services were all scheduled during RtI, so no students missed core class time. First and second grade students had two 30-minute assignments during RtI, whether it occurred within the classroom or a different setting. Additionally, as students met grade-level expectations in reading, they were moved to an enrichment class during the RtI block. This was a real incentive for students and helped many truly push for growth on assessments.

Measuring Growth and Discussing Data

Danielson (2002) notes that assessments have many purposes. For example, they measure the progress of students and the effectiveness of programs and/or teachers. However, the teachers on the campus had not been provided a model for how to administer the tests with fidelity and, thus, did not give much credence to administering the tests or providing feedback to students or parents. Because of this, the classroom teacher, the reading interventionist, and I all gathered in the lab to provide support to students and teachers, monitor their continual engagement with the assessment, and celebrate progress and success.

In August, all kindergarten and first grade students were assessed with Star Early Literacy, a 27-question, computer-adaptive assessment which, in large part, reads test content to students. Star Early Literacy assesses four of the five components identified as important by the National Reading Panel. Second grade students were assessed with Star Reading, a 34-item, computer-adaptive assessment which is read entirely by the student. The assessments start with content that mimics the grade level reflected by the student registration, and then goes up and down in rigor until the completion of the assessment. At that point, an overall scaled score is provided and percentile rank for each subskill is given. An Instructional Reading Level is assigned as well for those students taking Star Reading. The students that were classified as dyslexic, special education, or English learners were provided extra time as an accommodation. These tests were repeated on five subsequent occasions to provide progress monitoring for students and to allow for celebration of student success. Seventy-two kindergarten students and 78 first grade students were tested using Star Early Literacy, a product of Renaissance Learning. This assessment is almost entirely read aloud and is computer adaptive, providing an ebb and flow of content based on student responses until arriving at a normed score.

Seventy-three second grade students took the Star Reading assessment. This, likewise, is a product of Renaissance Learning and computer adaptive throughout but is read entirely by the student. Students who are English learners, are dyslexic, or receive accommodations through special education are provided extra time on the assessment (Renaissance Learning website, retrieved June,

2019). The same students, kindergarten through second grade, were once again assessed with the Star assessments in September, 2018 (a month after the first assessment) to ensure RtI and small group placements were made on the most accurate baseline data.

In Texas, schools are also mandated to implement an assessment from the TEA's list of K-2 tests that measure literacy. Additionally, in Texas, students in kindergarten through second grade must be assessed three times per year with an assessment from the Commissioner's List of Reading Instruments. The Texas Primary Reading Inventory (TPRI) fits that description, is used widely throughout the state, and has been used for many years at North Primary School. In years past, teachers were provided substitutes so they had the time and concentrated attention to assess their students. However, when I discussed this process with the former principal and the instructional specialist for elementary, the principal recommended that we utilize a more standardized testing protocol to make sure the data were not inflated. Therefore, the superintendent asked that the reading interventionist, the instructional specialist for elementary, and I take over the TPRI. Then, at the end of September, the classroom teachers by grade level, the reading interventionist, the counselor, the dyslexia therapist, and I met to analyze the data from the two Star assessments and TPRI data and considered classroom observations and classwork in order to make the most appropriate initial RtI placements.

Danielson (2002) stated that "flexible grouping provided through RtI allows students to receive just-in-time help on particular topics guided by data" (p. 46). She went on to say that grouping and regrouping "sends the message that failure is not tolerated, and progress is expected" (p. 101). Therefore, after each assessment window, the aforementioned group of staff members gathered to examine the data, discuss student needs, and place or move students between RtI tiers. Moats and Foorman (2008) state that, "without structured team meetings and opportunities to interpret student data, teachers did not use it purposefully" (p. 99). Additionally, during first grade data meetings, we also discussed which students needed to be moved from Star Early Literacy to the Star Reading assessment, which requires students to read on their own. In March, I invited parents to meetings held to discuss

reading improvements and test data to make sure they understood where their child was at the time. This was incredibly well received and attended by many.

Results

RQ1 Data

The initial research question examines whether reading performance would increase significantly due to the implementation of a structured literacy approach. In looking at data regarding this question, I examined the overall improvement in students' baseline scores. This information is shown in Tables 1 through 4 for first grade students and 6 through 9 for second grade students. Each table looks distinctly at a grade level and a particular diagnostic assessment, charting the growth from the beginning-of-year assessment to the end-of-year assessment.

First Grade Students' Data

Table 1 provides a visual of first grade student growth by percentages on the TPRI.

This table is provided for triangulation of data and comparison only but not to show statistical significance. The TPRI changes from a screener at the beginning of the year to a full assessment of skill by the middle of the year. Due to this change, these tables were included as extra data to provide continued historical comparison but not as the basis for statistical significance for growth.

Table 2 references first grade students' numeric and percentage growth through the following Star reading levels: Early Emergent, Late Emergent, Transitional, and Probable Reader. Therefore, this table is also included only for comparison and extra information for discussion purposes. These first two tables are also what school administrators would more readily relate to if they were considering utilizing a similar approach on their campuses.

Table 1

Scores for 1st Grade Students Based on Texas Primary Reading Inventory (TPRI)

Date of Assessment	# Students Assessed	# at Still Developing	% at Still Developing	# at Developed	% at Developed
September, 2018	77	39	50	38	49
April, 2019	84	53	63	31	37

Table 2

Scores for 1st Grade Students Based on Star Early Literacy

Date of Assessment	# Students Assessed	% at Early Emergent	% at Late Emergent	% at Transitional	% at Probable
August, 2018	78	15	58	15	10
April, 2019	84	0	10	46	44

According to Table 2, first grade students moved from 10% of the students functioning at a Probable Reader designation to 44% of students at Probable Reader. This stands as contradictory to the data presented in Table 1 from the TPRI assessments in September, 2018 and May, 2019. However, as mentioned previously, the nature of the TPRI assessment changes from a mere screening at the beginning of the year to a full assessment including a fluency measure by the end of the year. However, the Star Early Literacy assessment measures students' improvement on a continuum of literacy skills, adding new content as students show mastery of previously assessed skills. Also, teachers administered the September, 2018 TPRI assessment to their homeroom classes whereas I gave the end-of-year TPRI assessment in May, 2019. Therefore, the assessment results were more standardized in May, and the difference in test administrators could have caused reliability issues if used to prove statistical significance.

Table 3 provides the descriptive statistics for the paired samples t test done to show statistical significance of

growth in first graders' reading knowledge during the 2018-19 school year. Table 4 provides the results of a paired samples t test performed to prove statistical significance of growth for first graders during the 2018-19 school year.

Table 3

Descriptive Statistics for 1st Grade Paired Sample t Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ESS	775.52	77	65.401	7.453
	BSS	602.92	77	111.214	12.674

Table 4

Data From 1st Grade Paired Samples t Test.

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	ESS - BSS	172.597	90.817	10.350	151.984	193.210	16.677	76	0.000

Tables 3 and 4 provide SPSS data for first graders. I conducted a paired samples t test which compared growth from the first Star Early Literacy assessment in 2018-19 to the final one done in May, 2019. These tables show n=77 whereas Table 1 lists n=77 and 84, and Table 2 lists n=78 and 84. The difference in student number is based on student mobility. However, students had to be present for both the beginning and end of year tests to be included in the results in Tables 3 and 4. The first test occurred during the second week of school and the final test was the first week of May, 3 weeks prior to the end of school. Therefore, based on 32 weeks of instruction in reading, the mean growth was 172.597 scale score points, which produced a 0.00 score for statistically significant growth. The Benchmark, Cut Scores, and Growth Rates chart available on the Renaissance Learning website shows that moderate growth for a first grader who is meeting benchmark expectations is 3.71 scale score points per week, which equates to 118.72 points in 32 weeks. The Renaissance Learning website also stated that, according to

national data for Star Early Literacy, 50% of the students at each level of growth shown on the chart (from the 20th percentile to the 80th percentile) were able to achieve the level stated as moderate growth (retrieved from renaissance.com on September 24, 2019). Therefore, NPS first grade students grew, on average, more than 50 scale score points above the expected rate for moderate growth during the 2018-19 school year.

Lastly, Table 5 shows the movement of first graders from the Star Early Literacy Assessment to the more rigorous Star Reading assessment. This is another table that does not provide statistical significance data but does provide more information that will be included in the discussion portion. First graders who were moved to the Star Reading assessment continued to take the Star Early Literacy assessment as well to maintain a continuous comparison of growth on one instrument throughout the year.

Table 5

Number of 1st Grade Students Moved from Star Early Literacy to Star Reading

	# Students Tested on Star in November, 2018	# Students Tested on Star in January, 2019	# Students Tested on Star in March, 2019	Grand Total Moved to Star in 2018-19 School Year
Teacher 1	3	0	4	
Teacher 2	4	1	3	
Teacher 3	3	3	5	
Teacher 4	1	4	2	
Teacher 5	4	3	4	
Total Students	15	11	18	44

Table 5 shows the number of students by classroom that were moved from the Star Early Literacy Assessment to Star Reading during the 2018-19 school year. As students progressed to approximately 700 scaled score points on the Star Early Literacy assessment, classroom teachers, the reading interventionist, and I discussed moving them to the Star Reading test for subsequent assessment windows. The teacher was given the final authority for moving a student to the Star Reading assessment. I encouraged teachers to share their informal and observational data to determine placement in the new test so they could also consider how the student functions in class and not base the decision solely on Star Early Literacy assessment data. Star Reading requires that students have a 100-word vocabulary and they read the entire test by themselves whereas the Star Early Literacy was predominantly read to them. After the October, 2018

Star Early Literacy assessment was administered, teachers added 15 students to the list of those that would be administered the Star Reading test in November, 2018. This equated to 34% of the total moved to Star during the year. Only 44 students were moved by March, 2019, which equated to 52% of first grade students.

Second Grade Students' Data

Table 6 provides a summary of student growth as measured by the TPRI for second grade students. As mentioned previously, since this assessment moves from a screener to a full diagnostic assessment for students, it is included for triangulation purposes and to further the historical data trend understanding presented in the introduction of this study.

Table 6

Scores for 2nd Grade Students Based on Texas Primary Reading Inventory (TPRI)

Date of Assessment	# Students Assessed	GK 3 or more* % D	WR 2 or more* % D	Story 1 Reading % D	Story 1 Comp. % D	Story 2 Reading % D	Story 2 Comp. % D
September, 2018	71	13	45	63.4	53.5	56.3	39.4
April, 2019	79	66	75	73.5	60.8	77.2	58.2

*Texas Literacy Plan Standards

GK = Graphophonemic Knowledge; WR=Word Reading; D= Developed; SD=Still Developing

Table 7 provides numerical and percentage movement through the following Star Reading labels: Pre Primer, Primer, 1.0-1.9 (below grade level Instructional Reading Level), and 2.0 and above (at grade level Instructional Reading Level and above). Just as mentioned for first grade data sources, this table does not provide statistical significance for growth, but instead provides a source of information that is easily understood by school personnel.

In considering the data for student achievement for second graders, I looked at tables 6 and 7 separately to examine progress on each assessment instrument and compared the results to see if consistent conclusions can be drawn between the data sets. Shown in Table 7, which summarizes the results of students on Star Reading, the number of students reading at a Pre Primer level (PP) decreased from 33 to 16, and the number of students reading at or above grade level increased from 13 to 53. In looking at Table 6 containing TPRI results, the percentage

of students scoring Developed (D) on graphophonemic knowledge (GK) tasks increased from 13% to 66% by April, 2019. Furthermore, the percentage of students scoring Developed on Word Reading (WR) tasks increased from 45% to 75%. The next area of the table details the percentage of students who successfully read story 1 and 2 on an independent or instructional level, which are proficient enough levels of reading that they do not significantly impede comprehension. Both story reading and story comprehension columns for stories 1 and 2 show increases. In fact, story reading and comprehension for story 2 show almost 20 percentage point gains for both areas.

Table 8 provides the descriptive second grade student statistics used for the paired samples t test, which was used to show student growth that occurred from the beginning of the 2018-19 school year to the end-of-year assessment.

Table 7

Scores for 2nd Grade Students Based on Star Reading

Date of Assessment	# Assessed	# at PP	% at PP	# at P	% at P	# at 1.0-1.9	% at 1.0-1.9	# at 2.0 and above	% at 2.0 and above
August, 2018	73	33	45	6	8	23	32	13	18
April, 2019	79	16	20	4	5	6	8	53	67

Table 8

Descriptive statistics for 2nd grade one-sample t test based on change value

Variable	n	Min. Scale Score	Max. Scale Score	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
BSS	65	66	500	171.15	97.535	1.095	0.297	1.171	0.586
ESS	65	71	559	325.15	128.545	-0.497	0.297	-0.526	0.586

BSS = Beginning of year scale score; ESS=End of year scale score

Table 9

Paired samples t Test for 2nd grade growth

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	ESS - BSS	154.000	89.437	11.093	131.839	176.161	13.882	64	0.000

Finally, Table 9 provides the results of the paired samples t test conducted to show the statistical significance for the growth that occurred from the beginning-of-year assessment to the end-of-year assessment during the 2018-19 school year.

Moderate growth for a second grader who is meeting benchmark expectations is 3.6 scale score points per week, which equates to 115.2 points in 32 weeks. The Renaissance Learning website also stated that, according to national data for Star Early Literacy, 50% of the students at each level of growth shown on the chart (from the 20th percentile to the 80th percentile) were able to achieve the level stated as moderate growth (retrieved from renaissance.com on September 24, 2019). Therefore, NPS second grade students grew on average more than 38 scale score points above the expected rate for moderate growth during the 2018-19 school year.

Therefore, upon comparing both tests administered to second grade students, significant growth in students' reading abilities is seen as a result of the structured literacy implementation, data meetings to discuss tier placement/movement between RtI tiers, and assessment/data analysis, coaching, and feedback.

RQ2 Data

Research question 2 looked at the effect that accountability had on teacher implementation of structured literacy. I used observation and feedback data, pacing calendar data versus end-of-year student data form information, as well as personal observation of student word attack while administering the TPRI test in January and May of 2019. Table 10 provides the comparison among all teachers in grades 1 and 2 pacing charts.

Table 10

Comparison of Teacher Pacing Chart Completed in January, 2019 with Actual Final Lesson Taught in May, 2019

Role	Grade Level	Pacing Chart Plan Estimate for Lesson to be Completed by May, 2019	Final Lesson Completed by May, 2019
Teacher 1	1	79	37
Teacher 2	1	78	42
Teacher 3	1	79	39
Teacher 4	1	79	44
Teacher 5	1	79	37
Teacher 6	2	90	92
Teacher 7	2	90	89
Teacher 8	2	90	88
Teacher 9	2	91	90
Teacher 10	2	89	89
Teacher 11	1 and 2	75	74

Bambrick-Santoyo (2018) states that “exceptional school leaders are very intentional about how they use observations and walkthroughs, placing the utmost emphasis, not on scoring, but on giving the right feedback and follow up to make sure teachers implement feedback” (p. 7). Thus, I felt extended observations with feedback afterward provided more support for teachers during their implementation of the curriculum.

After studying the data and comments from the December, 2018 midyear teacher survey, I realized that first grade teachers only provided structured literacy lessons four days per week and, instead, conducted level testing and Fun Friday activities each Friday. On the other hand, second grade teachers provided structured literacy lessons all five days and did not do level testing at all. As a result of the survey, I met with the first grade team during a January, 2019 professional development day and discussed their progress in the curriculum and the importance of providing structured literacy lessons all five days. We also adjusted their Friday schedule to ensure teachers had time to complete all activities. Furthermore, all teachers completed a pacing calendar to gauge where students

would end in the curriculum in May if structured literacy lessons were provided to them 5 days per week. According to their pacing calendars, first grade teachers were on track to finish around lesson 79, which is more than halfway through the first year of the Language Enrichment curriculum. However, as shown in Table 10, they finished around lesson 34.

In stark contrast, second grade teachers ended around lesson 90, and the reading interventionist that served both grades 1 and 2 ended at lesson 74. Therefore, putting in place accountability measures such as walkthroughs, surveys, lengthy observations with feedback, data meetings, and grade-level meetings had inconsistent impact between the grade levels.

Discussion

Results Analyzed by Research Question

RQ1. Does Student Reading Performance Significantly Increase after the Implementation of a Structured Literacy Approach?

When looking at the data in Tables 1 and 2, the picture seems contradictory for first grade students unless the structure of the TPRI assessment is considered. This is because, at the beginning of the year, a student can earn Developed based on a screening only, but as the year progresses, the whole test must be completed. However, in looking at Table 4, the paired samples t test showed statistically significant growth. Also, as compared to the nationally normed Renaissance data, both first and second grade students experienced greater than moderate growth compared to what is expected to achieve a score that meets Benchmark standing. Furthermore, looking at the number of first grade students that moved to Star Reading by March, shows that all measures taken during the 2018-19 school year, including creating conditions for valid assessment, sharing data with students, and including phonics instruction through a structured literacy implementation, created the opportunity for many students to succeed at high levels.

The data in tables 6-9 show incredible progress for second grade students as well. In August, 45% of second graders tested at a Pre Primer (PP) level, but in April, only 20% were still at this level. Among these still at PP are students who were identified as needing special education and as dyslexic. Also, at the beginning of the year, 18% of second graders scored on grade level or above and, at the end of the year, 67% were on grade level or above. Furthermore, every area of the TPRI showed significant growth by second grade students. Table 9 shows that student growth was statistically significant and, when that growth is compared to Renaissance Learning's nationally normed data, the growth rate was almost 40 scale score points ahead of the norm.

RQ2. Does Teacher Implementation of Structured Literacy Improve After Accountability and Continued Feedback and Training?

This area of the results probably surprised me the most as it runs so contrary to my educational philosophy. Anderson et al. (2007) state that action researchers who work in schools are often ill-prepared for resistance (p. 51). I am a rule follower and change does not bother me as long as it has merit and will benefit student success. Furthermore, the last time I had to lead a change initiative, it was forced upon the district by a TEA audit. Therefore, everyone in the district was held accountable to buy into or

at least go through the motions to make the change process a reality. Therefore, implementing change is very straightforward to me. If it is a research-based solution that is good for students and leads to increased achievement, it is the right thing to do.

The second grade team, along with the reading interventionist, responded just as I would have when presented with a curricular change or expectation. Trusting the research, they implemented Structured Literacy with fidelity. However, the first grade team proved to be resistors. Each grade level team meeting proved to be a heated debate over how to alter the system to fit in all they had taught before and Neuhaus lessons. Au and Scheu (1996) chronicled the attempt to make change a reality at Kamchemeha Elementary Education Program in Hawaii and found that, even after 5 years of working with teachers who were willing to learn and grow, change is still challenging to accomplish. Moats and Tolman (2009) state that, "if a faculty is divided by differences in philosophy, methodology or interpretive framework, then productive teamwork is nearly impossible" (p. 84).

Ridley (1990) identified four factors that cause teachers to resist change: a lack of understanding about a topic, unwillingness to change, a lack of resources, and uneasiness concerning accountability. For this current study, I believe that three of the four factors were at work. Teachers did not lack resources, yet there was resistance to change. I feel this resistance was caused by the tide of changes that had occurred over the last few years resulting in a general sense of mistrust in change itself. In a private conversation with one teacher, she stated, "I have been here for four years and every year we have done something different." That is certainly a valid point of which I was unaware at the outset. The first grade team's feelings surfaced first in November, which opened up some honest communication. However, their silent resistance had already caused a stall in student learning and impacted the culture among all stakeholders. Two other causes of resistance were the teachers' orientation toward activities rather than philosophy and the concern over accountability, both of which point to a lack of knowledge of structured literacy. Teachers were insistent that sight word testing and level testing were vital to student improvement, and they also felt driven to follow the scope and sequence presented in the TEKS Resource System. During a workshop on the new English language arts standards adopted for

implementation during the 2019-20 school year, the English language arts consultant for the local Education Service Center stated that if a district purchases a structured phonics program such as Saxon Phonics, then the scope and sequence included with the program is what should be followed rather than the one presented in the TEKS Resource System (Callie Fortenberry, personal communication, April 9, 2019). However, at that point, I was unaware of the fragmented manner in which the first grade teachers were implementing the Neuhaus curriculum. Bates and Morgan (2018) state that teachers' plates are already full. Thus, when new administrators introduce their "one more new thing", teachers struggle with where to fit it all into their schedules. Therefore, it would have helped for me to have taken the time to pause in November when the first concerns arose and guide them in doing a time audit of their schedules to prioritize curricular choices.

Reliability and Validity Concerns or Equivalents

Reliability

One measure of reliability was the nature of the assessments given. Star Renaissance assessments and the TPRI are both research-based assessments that measure essential components of students' progress toward becoming proficient readers. As previously mentioned, the original aim was to have one individual give all TPRI assessments to ensure they were administered without bias and in a standardized manner. In the past, teachers were provided substitutes for their classrooms and they gave the assessments to their homeroom classes. However, district administration suggested that the data gained in the past might have some bias. Therefore, an attempt was made to change this by hiring a recent retiree. Then, in September, that plan had to be altered and teachers gave the TPRI assessment in the fall. Then, in January, I administered the assessment to all first graders and the reading interventionist gave the test to all second graders. Therefore, we maintained the same grading standards for all students in each grade level from midyear to the end-of-year assessment without being subject to bias.

Another measure of reliability was the manner in which the Star Reading and Star Early Literacy were administered. Previously, teachers simply assessed students in their classrooms without much monitoring or test preparation preceding the examination. The procedure was different throughout the study in that students came into a

computer laboratory setting with several adults who could monitor students' attention and engagement with the content. If the data seemed to prove less than accurate, the student was asked to retest with greater supervision to ensure the data truly showed the level of the student's knowledge.

Validity

The study was structured to provide several measures of internal validity. I provided the same monitoring and feedback throughout the study. We had data discussions about student placement in tiers as a group so that all were part of the discussion. We also tested students as a group to make sure we were achieving accurate data. One major validity concern was based on the first grade teachers' lack of faith in the validity of the Star reading assessments. This assessment was purchased for the campus in 2017, yet teachers received no training or coaching in how to administer the assessment with fidelity or how to interpret data from the assessments. Thus, this was a learning curve that I had to tackle during the study. Furthermore, although I had an inkling that I knew what the data would show, I refrained from making a solid judgment until I looked at all the data points in an organized fashion, which brought much greater clarity. Again, the fact that the study was set to have more than one way to determine an answer to a question provided more validity to the results.

Questions I Still Have

There are questions I still have in regard to improving implementation. For example, if I had started by researching Structured Literacy with teachers and looking at data more transparently, I am curious whether the results would have been more impressive. However, I could also agree with many other researchers before me that teacher professional development and school change can take many years to implement (Bambrick-Santoyo, 2018). As for me, it is hard to sacrifice the important years when children experience literacy growth for the preferences of adults. Because of this, if I had the chance to do this process again, I would probably still approach the situation with the urgency that I did.

I also wonder if a different coaching or accountability approach would have caused teachers to more fully support direct, explicit, systematic instruction. When I presented the Language Enrichment curriculum to the kindergarten

teachers in February, 2019, I approached it differently than I had with first and second grade teachers. First, I had teachers come observe me with the groups of kindergarten students who I had started teaching the month prior. I then taught the teachers the curriculum in small pieces, providing only what they needed to know for the upcoming week. Although there was still some resistance to doing things differently than they had always done, they were more open to implementation than other teachers had been. Furthermore, I have pondered whether posting the scope and sequence of the curriculum outside the door with dates beside each lesson completed have improved my ease of monitoring? I received this suggestion from a Neuhaus coach in March, 2019, so it was a bit late for the current year. However, I feel it would increase the realization and expectation for teachers that they need to remain on track with instruction.

Personal Reflection

I learned several lessons from this study. The first is the importance of gaining initial buy-in from the top to the bottom stakeholders as early as possible. Due to my odd transition to the campus principal role, the departure of my superintendent in June, 2018, and the new superintendent's arrival in August, 2018, I was unable to gain full buy-in for my plan for improving reading outcomes for the campus at both campus and district levels. The new superintendent was supportive of my actions and plan but lacked full understanding of Structured Literacy and Neuhaus Education Center curriculum. In retrospect, although he had to tackle many other issues that needed his attention in August, I wish there had been an opportunity to sit with him or connect him to resources at Neuhaus Education Center to help him see the importance of the work from the beginning.

Another lesson learned that I would handle differently next time is presenting beginning-of-year data in a more transparent fashion. I am not sure this would have made a difference in the attitudes and actions of the first grade team as opposed to the second grade team, but it might have. In an effort to build a more positive culture and because we were moving forward with a new structure, I chose to simply start with emphasizing beginning-of-year data briefly and moving on instead of dissecting the reasons behind where first graders ended the previous year.

Lastly, through coaching kindergarten teachers in the spring, I learned how to coach teachers more effectively. I trained them to use the program and then came in weekly to present just-in-time help and modeling of concepts and activities that the teachers and students would encounter soon. This seemed to give teachers as much information as they needed without overwhelming them with the whole picture. I also allowed them to observe me teaching the program to their students a few times prior to their initial training. This allowed them to have a positive view of what their students would be capable of just a few weeks into the program before implementing it in their classrooms. This approach did not totally ameliorate negative feelings of change, but it helped most teachers move forward confidently.

Conclusion

In August 2018, I was confident and excited about the student data-driven instruction that NPS would be utilizing for the coming year. I truly felt I had worked to examine things from a research-based perspective and, at the same time, not overwhelm staff by too many changes. I knew that, if we as a staff were going to improve reading achievement for students, it would depend on several factors working in tandem: well-trained staff members that teach utilizing structured literacy, meaningful data gained through progress monitoring and diagnostic assessments, and collaboration from all parties to ensure students are moved through the tiers of Response to Intervention to ensure all are given the opportunity to succeed at reading.

The student reading success that occurred during the year as a result of the changes instituted on the campus was nothing short of phenomenal. After the initial baseline Star Reading testing in August of 2018, 24 of close to 80 students qualified for Tier 3 assistance through scoring at a Pre Primer level. Feeling challenged but hopeful, I told my diagnostician, that I did not plan to refer all these students. My belief was that they had not had effective instruction and, when they did, we would sort out those that truly needed a referral for other services. My prediction was correct. The second grade teachers and reading interventionist began implementing Structured Literacy with fidelity, and by January, I was able to go back to my diagnostician and report that only 8 students were being served by Tier 3. This is the value of effective reading instruction. So, regardless of the current political shift

regarding reading instruction in the district and the struggle to get a few teachers on board with research-based practices, these successful students' lives are forever changed, and that is worth it.

In conclusion, I agree with the International Dyslexia Association's belief that "inadequately prepared teachers place students, themselves, and schools systems at risk of failure" (International Dyslexia Association, 2019, p. 15). Researchers have known this for decades, and it was my hope to make a difference for the teachers and children on my campus. I believe that indeed occurred and, as a result,

my passion for structured literacy only burns brighter. Therefore, I will continue to stand with and work toward the IDA motto, "until everyone can read" because, as stated by Hessler and Morrison (2016), "our children are precious and are the most important stakeholders. When academicians, administrators, publishers, researchers, or administrators of public policy lose sight of that, they inadvertently risk harming those they aim to educate" (p. 50). I plan to do my part to keep that from happening anywhere I can make an impact.

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