

THE TEXAS  
FORUM  
OF TEACHER EDUCATION

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of Teacher Educators

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# THE TEXAS FORUM OF TEACHER EDUCATION

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The Texas Forum of Teacher Education, a publication of the Texas Association of Teacher Educators (TxATE), is a referred journal published once annually. Articles in the journal are directed to both campus-based and field-based Texas teacher educators. TxATE members, including graduate students, are encouraged to submit manuscripts. Authors must be active members as a condition for publication.

The views expressed in the articles are not necessarily those of the Texas Association of Teacher Educators.

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## EDITOR'S INTRODUCTION

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Educator preparation programs are challenged with addressing and persisting through teacher shortages, achievement gaps, mental health concerns, and stability of the teaching profession. *The Texas Forum of Teacher Education* prides itself in publishing practice-based research intended to continuously improve the teacher preparation experience. The response to the Fall 2023 call for proposals revealed that teacher educators across the state recognize the complexity of those challenges, and just as our classroom teachers do every day, rise to the task every single day.

From innovative solutions to advocacy for those foundational tried and true methods, the 14 articles within this issue offer a myriad of insightful opportunities for meaningful changes in teacher education to support and encourage the development of highly-effective educators for current and future classrooms.

- *Julie Mills, Laura Isbell and Melanie Fields* highlight reflective practice as a means of building preservice teachers' capacity.
- *Jamie L. Thompson, Victoria Hollis, Kimberly LaPrairie and Jaime Coyne* explored the integration of a video recording device to support continuous and enhanced accessibility, flexibility, and authentic appraiser feedback for first-year teachers.
- *George Wiley* analyzed teacher candidates' perceptions of how they gain knowledge of the Texas Teacher Evaluation and Support System (T-TESS) during their internship year.
- *Jaime Coyne, Tori Hollas, and Jamie Thompson and Chase Young* examined the differential effects of the 4+1 TEACH pathway to a Year-Long Residency model.
- *Christina Tometchko and Sarah M. Straub* highlight the importance of helping students to become more civically engaged through the use of rhetorical analysis to implement culturally relevant lessons in their own classrooms.
- *Jalene P. Potter, Daphne D. Johnson, Rebecca A. Wentworth and Dustin M. Hebert* present a comprehensive analysis of a biannual longitudinal study which began over 43 years ago, focusing on Texas teachers' moonlighting practices and career considerations.
- *Kayla Abshire, Jodi Pilgrim, Jared McClure and Brian Guenther* discuss the results of a study of teachers' perceptions of the challenges experienced while delivering instruction remotely during the pandemic.
- *Maggie Bryant and Camille Talbert* reveal the results of survey research on pre-service teachers to explore their perceptions about the teaching profession and their roles as emerging professionals in the field.
- *Gina Garza-Reyna, Brent Hedquist and Haibin Su* present the findings of a grant funded cross curricular effort to address low performing scores on the Social Studies (SS) portion of the EC-6 TExES Content Exam.

- *Stacey Gonzalez, Daniella G. Varela, Don Jones and Elvira Sanatullova-Allison* present the findings of a qualitative study which analyzed the perceptions of teachers who were trained as part of a 2+2 teacher preparation program.
- *Amy Corp and Carol Revelle* analyze student teachers' interactions with ChatGPT to help student teachers work smarter and become critical consumers of AI responses.
- *Dustin Kirkpatrick, David Chorney and Douglas Leong* posit that it is vital to equip pre-service teachers (PSTs) with knowledge of mental health literacy, enabling them to recognize and effectively manage mental health issues as they embark on their teaching careers
- *Mayra Vargas, Alma Contreras-Vanegas and Francisco Usero-Gonzalez* present an exploratory study that delves into the experiences of bilingual teacher candidates after participating in Club Leo, a book club designed to enhance academic Spanish proficiency to help them succeed in the BTLPT state exam.
- *Chrissy Cross, Amber Wagnon and Keith Hubbard* examine the journey of one STEM undergraduate, how the Noyce program responded to the participant's individual challenges, and the success and persistence of that Noyce recipient in the STEM classroom.

Submissions for the next issue of *The Forum* are welcome with a deadline of **July 1, 2024**. Please contact Patsy Sosa-Sanchez at [Patsy.Sosa-Sanchez@untDallas.edu](mailto:Patsy.Sosa-Sanchez@untDallas.edu) and/or Becky Fredrickson at [RFredrickson@twu.edu](mailto:RFredrickson@twu.edu) for more information.

We appreciate the willingness of all these authors to share their works and continuously support Texas teachers and schoolchildren.

Respectfully submitted,

Daniella G. Varela, Ed.D.  
Managing Editor, *Forum* 2023



## PRE-SERVICE TEACHERS' REFLECTIONS OF THEIR IMPLEMENTATION OF MATHEMATICAL TEACHING PRACTICES

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### Abstract

In this qualitative research study, preservice teachers were asked to reflect on their implementation of effective mathematical teaching practices as outlined by the National Council of Teachers of Mathematics. The responses and reflections specifically gauged preservice teachers' strengths and areas of growth relating to effectiveness in teaching mathematics in both face-to-face and synchronous online lessons. Participants in this study were most likely to identify practices involving setting goals and assessing student understanding as strengths. Supporting productive struggle and posing questions were the most common practices selected as areas for improvement. The findings from this study promote the use of mathematical teaching practices to promote deep reflection of preservice teachers as a tool to improve their overall teaching. Faculty of Educator Preparation Programs (EPP) may find this study useful when exploring ways to improve reflection and teaching of preservice teachers.

Keywords: *mathematical teaching practices, preservice teachers, reflection, online teaching*

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The purpose of this qualitative study was to examine the reflections of preservice teachers after teaching a mathematics lesson to their university peers in a mathematics methods course in their EPP. Participants in the first semester of data collection delivered traditional face-to-face lessons while participants in the second semester delivered synchronous online lessons. Elementary and middle level preservice teachers (PSTs) answered several lesson reflection prompts including ones regarding the implementation of the National Council of Teachers of Mathematics (NCTM) (2014) effective mathematics teaching practices (MTPs). The study was led by the following research questions:

1. What do elementary and middle level PSTs believe are their mathematics teaching strengths and weaknesses relating to the MTPs?
2. How does the format (face-to-face or synchronous online) of lessons impact the implementation of MTPs?

### Literature Review

Some members of society still believe mathematics instruction should take a traditional approach which emphasizes rote memorization, use of standard algorithms, and instruction that is teacher-centered. The NCTM (2000, 2014) describes those views as unproductive, and believes student-centered

constructivist approaches that encourage problem solving should be used to teach and do mathematics. To promote deep learning, the NCTM (2014) developed a framework of eight MTPs. These practices are:

1. Establish mathematics goals to focus learning
2. Implement tasks that promote reasoning and problem solving
3. Use and connect mathematics representations
4. Facilitate meaningful mathematical discourse
5. Pose purposeful questions
6. Build procedural fluency from conceptual understanding
7. Support productive struggle in learning mathematics
8. Elicit and use evidence of student thinking

When implementing the MTPs in mathematics instruction and curriculum, Smith et al. (2017, 2018) explained the integration of the practices in a coherent way is what truly impacts the effectiveness of a lesson. For example, Smith and colleagues (2017, 2018) pointed out questioning, productive struggle, mathematical representation, and evidence of student thinking as critical parts of the practice mathematical discourse, emphasizing the connection between MTPs and that good teaching reflects more than one practice. Smith et al. (2018) also encouraged teacher collaboration when using the MTPs as a framework to design and evaluate lessons.

The existing literature regarding the implementation of the MTPs focuses on the identification of those practices in teaching vignettes rather than participants reflecting on their own teaching (Shelton et al., 2020; Shelton et al., 2021; Wilkerson et al., 2018). Prior to evaluating the vignettes, participants were familiar with the MTPs, but when evaluating vignettes both teachers (Shelton et al., 2020) and PSTs (Wilkerson et al., 2018) described learning more about the MTPs and how they could be implemented. According to Shelton et al. (2020), participants found the vignettes helpful in reflecting on their own practices and implementation of the MTPs. However, Shelton and colleagues (2021) found PSTs held many misconceptions and sometimes shallow understandings of the MTPs when evaluating their implementation in teaching vignettes. Addressing the gap in the literature, our study examines the reflections of PSTs regarding their own teaching practices in lieu of utilizing vignettes.

## Methods

In this qualitative study, selected response and open-ended survey items were given to encourage PSTs to reflect on a mathematics lesson they created and taught. Participants designed K-8 mathematics lessons and then taught the lessons in their college mathematics methods course to their university peers. Most participants worked in small collaborative groups to design and teach their lessons. After teaching their lessons, participants independently completed a survey regarding their instruction and implementation of the MTPs. The participants were elementary and middle level senior education majors enrolled in an undergraduate mathematics methods course which is taken the semester prior to clinical teaching.

For this study, data was collected from two semesters and included 70 participants. More than eighty percent of participants were elementary education majors (n=57), about 19% were mid-level education majors (n=13), and one participant was a K-12 special education major. More than 90% of participants identified as women (n=65) and the rest identified as men (n=5). The COVID - 19 pandemic occurred during data collection, which impacted the format of the lessons taught. PSTs participating during the first semester of data collection taught face-to-face lessons (n=30) to their peers, while PSTs in

the second semester of data collection taught remote synchronous online lessons (n=40) to their peers via Zoom.

PSTs were asked various questions to prompt deep reflection of their lessons and instruction. For this study, only three prompts from the reflection assignment were analyzed. PSTs were asked to identify the MTPs (NCTM, 2014) implemented in their lessons, explain how they did so, and to describe the teaching practices they wished to improve upon. During analysis the survey response items were coded based on the eight MTPs reflecting a provisional coding (Saldaña, 2013) approach.

## Findings

Participants were asked to complete both selected-response and open-ended prompts regarding the MTPs. The PSTs selected which of the MTPs they believed they achieved in the lesson they designed and taught to their peers in their mathematics methods course. Participants were also asked to explain how they believed they met those practices. In addition, PSTs identified which of the practices they hoped to improve upon. The qualitative analysis of the findings is organized by each of the MTPs and how participants reflected on their implementation of each. The summary of successfully implemented MTPs by PSTs during their teaching experience is reported in Table 1. The summary of MTPs participants identified as an area for growth is reported in Table 2.

## Goals

Most participants reported meeting the first mathematics teaching practice, “establish mathematics goals to focus learning.” Specifically, 80% of the PSTs teaching remote lessons and about 67% of PSTs teaching lessons face-to-face felt they achieved this practice. A few participants mentioned they began their lesson planning with identifying a state standard, “We built our lesson through backwards design by picking our standards, determining our driving questions, and then determining goals and objectives before going into the step-by-step of the lesson.” Several PSTs discussed writing objectives like “ABCD objectives” and emphasized alignment, “we wrote goals and objectives that aligned to our [state] standards.”

Only 3% of participants teaching face-to-face lessons and 12.5% of participants teaching synchronous remote lessons identified establishing goals as an area for improvement. A participant teaching an online synchronous lesson believed stated, “we should've written or stated our learning objective for the lesson before beginning to make sure students were focused on the task.” One middle grades PST who taught face-to-face thought this practice was a challenge due to the inquiry format of her lesson:

I don't think the instructional goals for this lesson were clear. I think because I wanted them to discover the concepts of volume, I didn't want to give too much away but I should have given more guidance. I should have clearly stated that the students were working in a group to discover the formula for the volume of the cone, which would allow them to mathematically prove the number of candies in the cone.

## Reasoning and Problem Solving

Ninety percent of participants teaching face-to-face and 75% of those teaching synchronously online claimed to “implement tasks that promote reasoning and problem solving.” When explaining how

they met this practice, some participants specifically described a problem from their lesson. For example, a PST who taught face-to-face discussed:

Basically, we were telling them what to do, but not how to do it. We promoted reasoning and problem solving by giving students a 'problem' which was, they need[ed] to plan a baby shower for the teacher on a budget but had to have enough stuff to feed everyone and buy a gift. The students had to reason with each other to determine the budget.

A few PSTs encouraged multiple approaches to solving the same problem, "each student used their own approach to estimate the number of candies in the cone. Several methods were discussed within their group when trying to determine the best ways to gather data." When describing how they promoted reasoning and problem solving, participants described students "discovering" concepts, using "estimation" and "asking questions."

When asked which MTPs they could improve upon, only about 7 % of both groups emphasized reasoning and problem solving. Participants expressed that if they could change their lesson, they would have created problems that were "more challenging" and "interesting to the students." One participant believed their selected instructional model limited student problem solving, "I really like when students discover their learning and I wish that we could have implemented more of this. However, with direct instruction, I do not think it would have worked."

### **Mathematical Representations**

The teaching practice, "use and connect mathematical representations," was implemented by about 43% of PSTs teaching face-to-face and almost 60 % of PSTs teaching remote lessons. Several participants emphasized the use of manipulatives and tools like scales, play-doh, shapes, and money as types of mathematical representations. Participants in both groups also mentioned the use of real-world problems, tables, charts, and graphs as representations to deepen understanding of concepts. One participant described how they used multiple types of representation, "We connected the terms even and odd to more 'fun, relatable' terms like 'odd man out' and 'buddy.' We created a task that let the students explore on their own with the number chart and online manipulatives!"

Ten percent of participants teaching face-to-face as well as ten percent of those teaching remote lessons identified this practice as an area of improvement. When describing how they could improve their lessons, a few participants mentioned incorporating student use of "manipulatives" and connecting concepts to the "real-world." Two PSTs mentioned not achieving this practice well due to restrictions beyond their control like, "only having twenty minutes or so was not enough time to accurately use and connect mathematical practices...It would need to be done over several days with students gathering and dissecting the data" and "our standard seemed easy, but it was not. It was very limited on how we could teach it."

### **Mathematical Discourse**

Forty percent of face-to-face teaching and 50% of remote teaching participants reported achieving the practice, "facilitating meaningful mathematical discourse." Several PSTs described their questioning to promote discourse and discussion among their students. A particular PST pointed out several ways they facilitated math discourse, "My co-teachers and I promoted meaningful mathematical discourse by posing pointed questions. As I walked around, I asked the students to tell me their predictions. I then used 'talk moves' to ask students to explain their reasoning." Some participants provided little detail when

describing how they met this practice, “the project we had with students do with the skittles and the graphs helped us facilitate meaningful mathematical discourse.”

Ten percent of remote teaching participants and about 7% of face-to-face teaching participants described the practice “facilitate meaningful mathematical discourse” as a weakness. One participant felt they could have encouraged better discourse by encouraging and modeling the use of mathematical vocabulary. Another participant described facilitating discourse early in their lesson but felt that “it could have been more meaningful if we would’ve allowed them to have the same opportunity near the end of the lesson.” A couple PSTs who taught remote online lessons used break-out rooms for small group discussions, and one pointed out a change they would like to make, “I think when we [class] went into breakout rooms we [teachers] should have gone too just to observe the discussion. In an actual classroom, we would have gotten to hear what our students were discussing.”

## Questioning

When asked if they implemented the practice, “pose purposeful questions,” almost 75% of face-to-face teaching participants responded yes, compared to 50% of participants teaching online. PSTs described using questioning in various stages of the lesson and for the purpose of “scaffold[ing],” “activating prior knowledge,” “check[ing] for understanding,” and “guiding,” students to discover the content. Participants also described posing questions to both groups of students and to students individually.

As an area for improvement, about 27% of participants who taught face-to-face and 20% of participants who taught remote lessons chose “pose purposeful questions.” Some PSTs reflected that their better use of questioning would have “improved student understanding” and allowed “student discussions to be more in-depth.” While most agreed they did pose questions, they argued they could have done better. One PST explained:

I wish that I would have been more effective in posing purposeful questions in the last few steps of this model. I felt like it was difficult for me to think of questions to ask without explicitly telling students the answers. To be more effective next time, I could have questions thought of/wrote down to refer to.

Two participants pointed out the challenge of posing difficult questions when teaching elementary lessons to their college peers:

This lesson is for second graders, so it was a little harder to do this with college students because we obviously know the difference between even and odd, but second graders don’t. So, I think we would’ve had a better discussion with younger students.

## Procedural Fluency

More than 35% of participants teaching face-to-face and 50% of participants teaching remotely reported using the practice, “build procedural fluency from conceptual understanding.” One PST described, “we used models to support the students’ understanding of our concept as well as discussing and explaining” as methods of building procedural fluency from conceptual knowledge. Another participant shared, “through creating general rules with the class at the end of the lesson, I was able to build procedural fluency using the conceptual understanding of our class.”

Only 10% of participants who taught face-to-face lessons and 7.5 % of students who taught remote lessons identified “build procedural fluency from conceptual understanding” as a mathematical practice they hoped to improve upon. Multiple PSTs argued lack of time as a reason for struggling with building procedural fluency, “if we had more time, we could have included more examples and emphasized the pattern...” One participant who taught via Zoom, felt more teacher explanation could have built procedural fluency, “I wish I would have explained step-by-step instructions on how to draw different types of angles with protractors.”

## **Productive Struggle**

About 33% of participants teaching face-to-face and 20% of those who taught remote online lessons claimed to, “support productive struggle in learning mathematics.” The few participants who believed they addressed this practice, provided specific examples from their lessons. According to one PST who taught face-to-face, “my co-teachers and I supported productive struggle by supplying the ‘uh oh cards’ which challenged students’ to adjust and modify their plan and/or solution.” Another participant discussed creating struggle by not allowing the use of calculators. A few participants required students to explain thinking and refrained from giving answers and one participant who taught online explained, “we also encouraged and praised all interactions without confirming or correcting student assumptions.” One person described using logic to promote productive struggle, “Joe answered one of our problems incorrectly and we were able to take his answer and show him why it wouldn’t be that.”

Supporting productive struggle was chosen as an area for improvement by 20% of participants teaching face-to-face and 15% of participants teaching remote lessons. Limited time and teaching adults’ elementary concepts were common reasons for not implementing this practice effectively. One participant shared, “I don’t feel like the students had to struggle too much with our mathematical learning concept, but I might feel differently if it was a real kindergarten class.” Another PST described the challenge of letting students struggle:

When my classmates had a question about how they were supposed to model their thinking, my first instinct was to immediately tell them the answer I was looking for. Instead of giving the answers, my group could have worked together to create questions that would have provoked our classmates to think more deeply to create a solution to the problem they were given.

## **Evidence of Student Thinking**

Regarding the practice, “elicit and use evidence of student thinking,” about 77% of face-to-face teaching participants and 68% of online teaching participants reported demonstration during their lessons. Participants referenced “assessments” and “activities to gauge student thinking” when discussing this practice. Formative assessments like requiring students to explain their thinking, reflection questions, exit tickets, digital quizzes, student presentations, and games were mentioned. One online teaching participant alluded to using student assessment data to make decisions, “we had a plan in place if a student did not understand the concepts we were covering.”

Only one participant teaching a remote lesson and one participant teaching face-to-face lesson commented “elicit and use evidence of student thinking” as an area of weakness. One participant reflected more discussion and “why” questions would have resulted in more student thinking evidence. The other PST expressed this practice as a challenge when working with college students, “I think that when



teaching actual students, the lesson will flow more organically without struggling for engagement and ability to cater the lesson.”

**Table 1**

*Self-Reported PSTs Successful Implementation of the MTPs via Face-to-Face vs. Synchronous Online Instruction*

Mathematical Teaching Practice	Face-to-Face (n=30)		Online (n=40)	
	n	%	n	%
Establish Mathematics Goals to Focus Learning	20	66.7	32	80
Implement Tasks that Promote Reasoning and Problem Solving	27	90	30	75
Use and Connect Mathematical Representations	13	43.3	23	57.5
Facilitate Meaningful Mathematical Discourse	12	40	20	50
Pose Purposeful Questions	22	73.3	20	50
Building Procedural Fluency from Conceptual Understanding	11	36.7	20	50
Support Productive Struggle in Learning Mathematics	10	33.3	8	20
Elicit and Use Evidence of Student Thinking	23	76.7	27	67.5

**Table 2**

*Self-Reported PSTs Improvement Areas of the MTPs via Face-to-Face vs. Synchronous Online Instruction*

Mathematical Teaching Practice	Face-to-Face (n=30)		Online (n=40)	
	n	%	n	%
Establish Mathematics Goals to Focus Learning	1	3.3	5	12.5
Implement Tasks that Promote Reasoning and Problem Solving	2	6.7	3	7.5
Use and Connect Mathematical Representations	3	10	4	10
Facilitate Meaningful Mathematical Discourse	2	6.7	4	10
Pose Purposeful Questions	8	26.7	8	20
Building Procedural Fluency from Conceptual Understanding	3	10	3	7.5
Support Productive Struggle in Learning Mathematics	6	20	6	15
Elicit and Use Evidence of Student Thinking	1	3.3	1	2.5

### Discussion

This study was led by two research questions. The first focused on the perceived teaching strengths and weaknesses of elementary and middle level PSTs. Participants chose a variety of MTPs they believed they implemented successfully. Most participants identified the first and last practices as strengths when teaching their lessons. The first practice focuses on establishing mathematics goals while the last emphasizes assessing student understanding. The reason the participants felt confident in these two areas could be attributed to the emphasis of backward design (Wiggins & McTighe, 2005) throughout their teacher education program, as well as specific locations for state standards, objectives, and assessments on their required lesson plan template. The majority of participants in both teaching groups also felt they implemented tasks that promote reasoning and problem solving. Despite the delivery format of the lesson, participants successfully incorporated mathematical tasks in turn creating student-centered lessons that required students to solve problems. Participants did not just lecture and send students away to do independent practice, they provided opportunities for students to solve problems during the lesson. Like the findings from Shelton et al. (2021), participants sometimes provided very little evidence when explaining how they implemented the MTPs which could indicate incomplete understanding of the MTPs or lack of reflection skills.

All the practices were chosen as a weakness or an area of improvement by at least one participant. However, supporting productive struggle and posing purposeful questions were the most identified



weaknesses. Participants highlighted the need to plan deep thinking questions to promote productive struggle, mirroring the idea that MTPs should be integrated in a coherent way to enhance effectiveness of lessons (Smith et al., 2017; 2018). Several participants also mentioned the difficulty of creating productive struggle when teaching an early elementary lesson to their college peers, emphasizing the value of K-12 field experience when teaching mathematics lessons and reflecting on their success. Regardless of teaching format, participants needed more help in posing questions and promoting productive struggle. Mathematics methods instructors and EPPs should place more emphasis on preparing PSTs in these areas and provide more opportunities to reflect on the implementation of these MTPs. To address these areas of improvement, EPPs can incorporate reflective teaching practices within seminar discussions and through early field experience. Students should have the opportunity to share their individual reflections to gauge a further discussion amongst the group of PSTs in the EPP.

Due to the COVID-19 pandemic, some participants taught lessons traditionally face-to-face while others taught in a synchronous online format. Participants who taught face-to-face were more likely to identify reasoning and problem solving, questioning, productive struggle, and using evidence of student thinking as strengths than the participants who taught online synchronous lessons. In the traditional classroom setting, PSTs might have been able to witness more student problem solving and struggle through observation and small group discussions in turn prompting more questions by the teacher, which can be more difficult in an online setting. For example, one PST who taught an online lesson, reflected that she should have joined the breakout rooms when small groups were discussing, just like she would have walked around the classroom during face-to-face small group discussions. Therefore, PSTs need more instruction on how to assess learning and use questioning effectively when teaching online.

PSTs who taught synchronous online lessons chose using mathematical representations, facilitating mathematical discourse, and building procedural fluency as MTPs strengths more often than those teaching face-to-face lessons. One possible reason for feeling more confident in using mathematical representations is that PSTs teaching online had to be more prepared when choosing manipulatives, representations, and tools. PSTs who taught face-to-face knew they had a variety of tools in their university classroom, while the online participants had to consider what resources their classmates had in their homes or what manipulatives were available online prior to the lesson.

One surprising difference was participants teaching online were more likely to choose establish goals as a weakness than their peers teaching face-to-face. While the reasons are unclear, it could be due to the stress of hosting a web session at the start of the lesson causing the PSTs to be less clear when providing goals and directions. Despite the two formats, PSTs identified a variety of strengths and weaknesses. Even when describing the challenges of teaching online, PSTs transferred their previous experience and knowledge of teaching face-to-face lessons to deliver student-centered instruction. The differences found among the two groups could also be attributed to other factors like previous experience, teaching partners, and prior knowledge.

## Conclusion

Examining PSTs' uses of MTPs promotes teacher reflection by allowing teachers to reflect on specific teaching skills. PSTs often lack depth in their reflections of their planning and teaching (Chikiwa & Graven, 2021), and using the MTPs as a guide during reflection provided much needed scaffolding for PSTs. By using specific teaching practices, participants reflected more on their lessons and instruction and less often on factors outside of their control. Due to the qualitative nature of this study, the findings are

not generalizable, but mathematics educators, university supervisors, and EPP providers may notice similarities among their PSTs and find “transferability” when reviewing this study (Lincoln & Guba, 1985).

Furthermore, this allows teacher educators to adjust curriculum and instruction to model and encourage content specific teaching practices. The participants in this study had very little knowledge of the MTPs prior to planning and delivering their lessons, which may have limited their implementation and reflections. Mathematics methods instructors should consider introducing the MTPs early, promote the use of MTPs when PSTs are planning lessons and encourage PSTs to reflect on their implementation of those MTPs. Even though the MTPs are intertwined, it may be more beneficial to focus on just one or two of the MTPs at a time, allowing PSTs to focus their skills and build proficiency. Shelton et al. (2020, 2021) and Wilkerson et al. (2018) found participants benefited from exploring the implementation of MTPs in teaching vignettes, so PSTs may also find value in evaluating the MTPs implementation in lessons taught by their peers, cooperating teachers, and university faculty.

Using PST reflection, teacher educators can reflect and adjust their own teaching practices that benefit student engagement and understanding. With the use of continuous reflective practice, instructors can analyze instructional teaching practices that are supported by student feedback. When this process becomes habitual in practice, educators can adjust instruction to benefit from current classroom scenarios efficiently. By creating a continuous reflective practice which is guided by PSTs, instructors are better equipped to promote and support ongoing instructional improvement.

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## VIDEO AS A TOOL TO SUPPORT TEACHER PERFORMANCE EVALUATION: IMPACT ON FIRST-YEAR TEACHER EFFECTIVENESS

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### Abstract

Research indicates that teacher performance is a critical focus for school districts, administrators, and teachers. Pre-service teacher preparation, teacher retention, job satisfaction, mentoring, continuous feedback, and onboarding support for new teachers are all factors that influence teacher performance. While teacher performance evaluations occur in all districts, the evaluation tools, appraisal components, methods, and procedures drastically differ. The variations in evaluations create inequities that may limit an appraiser's viewpoint of a teacher's performance, which can stifle the feedback an appraiser provides to the teacher. It is this potentially limited viewpoint of the appraiser's feedback that prompted this study. In response, this study explored the integration of a video recording device to support continuous and enhanced accessibility, flexibility, and authentic appraiser feedback for first-year teachers. This study used a descriptive quantitative correlational analysis to explore the relationship between the use of a video recording device and summative Texas Teacher Evaluation and Support System (T-TESS) evaluation scores of 4+1 TEACH first-year teachers. The findings indicate that there is positive correlational significance between the number of uses of video recording device and teacher performance.

*Keywords: Teacher effectiveness; Video recording device; Correlational analysis; Teacher appraisal systems; Texas Teacher Evaluation Support System*

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Research indicates that teacher performance is a critical focus for school districts, administrators, and teachers. Pre-service teacher preparation, teacher retention, job satisfaction, mentoring, continuous feedback, and onboarding support for new teachers are all factors that influence teacher performance (Carver-Thomas & Darling-Hammond, 2017). To measure teacher performance, appraisal systems like the Texas Teacher Evaluation and Support System (T-TESS) have been implemented to assess the quality of instruction within any given classroom in the State of Texas. The results of the teacher performance assessment are used by administrators and teachers for the refinement of pedagogical practices to enhance instruction and learning for students (Holland, 2014; Jiang et al., 2015; Vandermolen & Meyer-Looze, 2021). While teacher performance evaluations occur in all districts, the evaluation tools, appraisal components, methods, and procedures drastically differ. The variations in evaluations create inequities that may limit an appraiser's viewpoint of a teacher's performance, which can stifle the feedback an

appraiser provides to the teacher (Jiang et al., 2015). It is this potentially limited viewpoint of the appraiser's feedback that prompted this study. In response, this study explored the integration of a video recording device to support continuous and enhanced accessibility, flexibility, and authentic appraiser feedback for first-year teachers. While limited in scope, this study has the potential to provide integratory information to support future research on the addition of supplementary evaluation elements to strengthen teacher performance appraisal feedback, conceivably allowing appraisers and teachers to be intentional, innovative, and personalized with feedback and strategies to enhance individual professional growth.

Historically, various systematic teacher appraisal evaluations have been conducted to determine teacher quality. More recently, the focus in these appraisal systems has largely shifted from a teacher-centered approach to a teacher- and student-centered approach. Respectively, in April 2016, the T-TESS, an appraisal system that rates teacher performance based on student engagement, a more teacher- and student-centered approach, was introduced to school districts across Texas. As stated by the Texas Education Agency (TEA, 2022a), T-TESS "strives to capture the holistic nature of teaching – the idea that a constant feedback loop exists between teacher and students and gauging the effectiveness of teachers requires a consistent focus on how students respond to their teacher's instructional practices" (para. 1).

While the T-TESS rubric takes a comprehensive approach in evaluating teacher performance, the way in which evaluations are performed poses a concern. Traditionally, teacher evaluations have included classroom observations by a school administrator, combined with student performance achievement data, typically test-based measures (Ballou & Springer, 2015; Jiang et al., 2015).

Research indicates that teacher quality has a direct impact on student learning. In fact, Wiliam (2016) reports that effective teachers have a 50% increase in student learning over average teachers and a 100% increase in learning over low-performing teachers. Wiliam (2016) also points out that the qualities between effective and ineffective teachers are complex, not clearly defined, and vary tremendously. The challenge then becomes determining what can be done to improve the current teacher appraisal system that would allow flexibility, authentic and continuous feedback, and refinement of pedagogical practices. If the goal of evaluations is truly to refine pedagogical practices to improve instruction and student learning, there must be an appraisal system in place that fosters authentic feedback and flexibility for the feedback to be given continually.

Due to the variations and complexity of teaching, a shift in the trends associated with teacher performance appraisals shows an emphasis on an improvement framework stance, as opposed to an evaluation improvement stance. At the center of this improvement framework stance is flexibility and authentic feedback (Holland, 2014; Jiang et al., 2015; Vandermolen & Meyer-Looze, 2021; Wiliam, 2016). However, trends in research indicate revisions to the current teacher appraisal system may still be warranted, including offering accessibility to a variety of instructional instances, allowing the teacher and appraiser intentional flexibility for when and what lessons are evaluated, and including opportunities to provide authentic feedback related to strengths and weaknesses to foster professional growth (Fradkin-Hayslip, 2021; Goldstein, 2014; Hawthorne, 2021; Holland, 2014; Jiang et al., 2015; Moir, 2009). Specifically, a video-recording device could be incorporated in the evaluation process as an added tool to facilitate enhanced teacher performance, though there is minimal research documenting the results of the inclusion of a video-based recording device within the appraisal process available at this time.

## Literature Review

Teacher effectiveness has a direct impact on students' success in the classroom. The impact extends beyond academics, encapsulating the physical, intellectual, behavioral, and social-emotional well-being of each student (Hepsibha & Catherine, 2022; Killion & Hirsh, 2011; Wiliam, 2016). Research indicates that teacher quality has a direct impact on student learning. In fact, Wiliam (2016) reports that effective teachers have a 50% increase in student learning over average teachers and a 100% increase in learning over poor teachers. These findings imply that students in an average teacher's class will take one year to learn what students in an effective teacher's class will learn in a six-month timeframe. More profoundly stated, students in a less competent teacher's classroom will learn in two years what students in an effective teacher's class will learn in six months. This research study explored teacher performance evaluation measures, the history of measuring teacher performance, the various performance evaluation systems, the T-TESS evaluation system, and teacher evaluations connected to teacher retention. (Danielson, 2011; Goe et al., 2008; Greenville City Schools, 2013; Hepsibha & Catherine, 2022; Killion & Hirsh, 2011; Little et al., 2009; TEA, 2022c; US Department of Education, 2022).

### Teacher Performance Evaluation Measures and Process

Just as teacher effectiveness is complex and difficult to clearly define, it is also challenging to measure. Various measures have been explored, including classroom observations, principal evaluations, instructional artifacts, teacher portfolios, teacher self-reports, value-added models, student evaluations, and standards-based evaluations (Danielson, 2011; Goe et al., 2008, Little et al., 2009). Not only are there various ways to measure teacher performance, but the evaluation tools used also differ.

Hepsibha and Catherine (2022) suggest that while qualitative in nature, there are no fixed conventions by which we study teacher effectiveness. They advocate that to measure teacher effectiveness, researchers must use a quantitative approach simulating a scale to measure "preparation of teaching, teacher communication, and presentation in the classroom, classroom engagement techniques, and their efforts to upgrade or improve teaching" (p. 2117). In support of Hepsibha and Catherine's findings, researchers Killion and Hirsh (2011) state that "for teachers in the classroom, effective professional learning is the single most powerful pathway to promote continuous improvement in teaching" (para. 1). In April 2016, the Texas Teacher Evaluation and Support System (T-TESS) was introduced to school districts across Texas to address the cohesiveness of measuring teacher performance. As an effort to strengthen the way teacher performance is measured in Texas, the T-TESS evaluation tool incorporates components for goal setting, professional development planning, student growth measures, and a cycle approach to the evaluation process, including a pre-conference, observation, and post-conference (TEA, 2022b).

### Performance Evaluation Systems

Complexity and diversity among the types of teacher performance evaluation systems are evident across research. While the measures included within each system can vary drastically, one common goal is prominent in each tool: to improve teacher performance (Goe et al., 2008; Hepsibha & Catherine, 2022; Killion & Hirsh, 2011; Little et al., 2009). As Goe et al. (2008) point out, the system itself should be comprised of multiple measures that align with the contextual factors of the state, district, or campus that intends to implement the system. While all teachers must be assessed, the evaluation tool used is not the



same. In fact, in many cases, school districts have a choice to adopt the state recommended evaluation tool or create their own evaluation tool.

Trends in teacher performance evaluation tools are similar in Texas. Over the past 20 years, the focus of teacher performance assessments has shifted. Twenty years ago, teachers were assessed using the Professional Development Appraisal System (PDAS). This appraisal system required administrators to conduct periodical walk-throughs and one formal in-class assessment (Region 13 Service Center, 2020). The appraisal's focus was on the teacher; student relevance was not addressed. In April 2016, the T-TESS was introduced to school districts across Texas. The focus of the new appraisal system was on teacher performance based on student engagement. This differed from the PDAS system, allowing for a more student- and teacher-centered approach. While the teacher performance measurement system shifted, the way it was administered did not, still requiring an administrator to be present in the room to conduct the appraisal (TEA, 2022b). For this study, the T-TESS evaluation tool was used to evaluate teacher performance for all the target group of teacher residents.

### ***T-TESS Evaluation Tool***

T-TESS was designed to reveal the comprehensive nature of teaching, encapsulating the essence of continual, evidence-based feedback between students and teachers and gauging teacher effectiveness based on student response. With an overall focus on six broad performance standards (*Instructional Planning and Delivery, Knowledge of Students and Student Learning, Content Knowledge and Expertise, Learning Environment, Data-Driven Practice, and Professional Practices & Responsibility*), TEA (2022b) identified four domains to be assessed during the evaluation process using a rubric system. The four domains, *Planning, Instruction, Learning Environment, and Professional Practices & Responsibilities*, focus on both teachers and students. As seen in Appendix A, each domain has subcategories of assessment, identified as dimensions (TEA, 2022a). Five ratings, *Distinguished, Accomplished, Proficient, Developing, and Needs Improvement*, are assessed on the evaluation rubric for each dimension based on the level of student-centered actions versus teacher-centered actions. Higher levels of student-centered actions increase the performance rating. The performance ratings are then used by the evaluator as a common language to provide evidence-based feedback and develop a personalized professional development plan for the teacher (TEA, 2022b). While the evaluation tool approaches the process from a growth mindset, limitations still exist in relation to the narrow and potentially limited window of observation time.

Having a student and teacher-centered approach to the assessment components, supporting autonomy, relatedness, and competence (TEA, 2022b). Supporting research suggests that teacher quality has a direct impact on student learning. In fact, Wiliam (2016) reports that effective teachers have a 50% increase in student learning over average teachers and a 100% increase in learning over poor teachers, indicating that students in an average teacher's class will take one year to learn what students in an effective teacher's class will learn in a six-month timeframe. This research supports the competence aspect, driving home the importance of a growth mindset and student-centered approach. As Wiliam (2016) points out, the qualities between effective and ineffective teachers are complex, not clearly defined, and vary tremendously. It is these variations and complexity in teaching that shift the focus of improvement to an improvement framework stance as opposed to an evaluation improvement stance. A teacher's performance, when deemed highly effective, also elicits high job satisfaction, dedication to the profession, and value for continuous growth (Ryan & Deci, 2017; Fradkin-Hayslip, 2021; Wiliam, 2016).

## Research Method

This study used a descriptive quantitative bivariate correlational research design. The study aimed to determine the relationship between the number of uses of a video recording device and teacher performance measured by T-TESS for first-year teachers. Using archival data, a power analysis and descriptive bivariate correlational analysis were performed, allowing researchers to explore the relationship between data, making inferences about the types of correlational research the variables presented.

For this study, archival data was retrieved from a target group of teacher residents ( $n = 170$ ) who implemented a video-based recording device, a Swivl™ robot, to improve their pedagogical practices. The group of teachers who participated in the archival experimental research study were residents of a four-year higher education institution 4+1 TEACH program located in southeast Texas. They were afforded a video recording device, a Full Release Mentor (FRM), and a Site-Based Mentor (SBM).

### Research Question

The following research question explores the research on the relationship between the use of video recording device and first-year teacher performance. The following research question guided the study: RQ1: Does a relationship exist between the number of uses of a video recording device and teacher performance measured by the Texas Teacher Evaluation and Support System (T-TESS) for first-year teachers?

The purpose of this study was to determine the relationship that exists between the number of uses of a video recording device and first-year teacher performance, which may provide insight into additional measures for improving pedagogical practices for first-year teachers (Beaird et al., 2017; Borich, 2000; Dominguez, 2017; Greenville City Schools, 2013).

### Research Design

This research study intends to determine if a relationship exists between the number of uses of a video recording device and first-year teacher performance in all four domains measured by T-TESS by evaluating a target group of first-year teachers. Using archival data, the number of uses of a video recording device for each participant and the summative T-TESS evaluation scores from all four evaluation domains (Learning, Instruction, Learning Environment, and Professional Practices and Responsibilities) was examined. Utilizing G-Power 3.1.9.7 statistical software, the suggested sample size, based on a 95% confidence level, needed for this study was 138 teacher residents. Archival data was collected for 170 total teacher residents, exceeding the required sample size.

Using a two-tailed bivariate correlational analysis, we examined the relationship between the number of uses of the recording device and the summative T-TESS scores by domain for 4+1 TEACH first-year teachers (Creswell & Creswell, 2018).

### Study Population

The population of the archival sample was a part of the 4+1 TEACH program, cohorts 2-5. Students included in the study population applied to the program in the first semester of their senior year

as an undergraduate. The target group of teachers who applied to the program were seeking an alternative certification with an accelerated teaching placement as teacher of record and a master's degree to be completed within the first year of teaching. 4+1 TEACH teacher residents were required to complete their last semester of course work, graduate with their undergraduate degree, and obtain a paid internship as teacher of record in a partnering school district in their certification area. During their first year of teaching residents were afforded a Full Release Mentor (FRM). The FRM was a mentor who was completely released from classroom teaching duties, had at least 10 years of creditable teaching experience in the grade level/subject of the resident, was a highly effective educator as evidenced by student learning, and was a T-TESS certified evaluator. The FRM was assigned no more than five first-year residents, and they were required to have weekly contact with those residents. The primary responsibility of the FRM was to support first-year teachers in implementing effective classroom management procedures, establishing routines, and implementing evidence-based instructional practices (Edmondson et al., 2018).

The study population consisted of 154 females and 16 males. Teacher residents sought certification in a variety of areas. Certification areas, along with counts of teacher residents, were as follows: EC-6 Generalist (51), EC-6 Bilingual (23), EC-12 Special Education (27), 4-8 Math (21), 4-8 English Language Arts/Social Studies (15), 4-8 Math/Science (11), 6-12 Family and Consumer Sciences (1), 7-12 English Language Arts (3), 7-12 History (4), 7-12 Math (2), 7-12 Theatre (3), 7-12 Social Studies (2), 7-12 Biology (1), 7-12 Life Science (1), EC-12 Spanish (2), and 6-12 Agriculture (3). The ethnic background of the target group of teacher residents included nine African American, two Asian, 39 Hispanic, three International, three Multiple Race, seven Unknown, and 107 White students.

**Table 1**

*Study Population*

Cohort Group	<i>n</i>	Certification Area
Cohort 2	44	EC-6 Generalist (20), EC-6 Bilingual (2), EC-6 Special Education (5), 4-8 Math (5), 4-8 English Language Arts/Social Studies (4), 4-8 Math/Science (2), 7-12 History (2), 7-12 Theatre (2), 7-12 Social Studies (1), and 7-12 Biology (1).
Cohort 3	45	EC-6 Generalist (18), EC-6 Bilingual (9), EC-6 Special Education (4), 4-8 Math (5), 4-8 English Language Arts/Social Studies (4), 4-8 Math/Science (3), 7-12 History (1), and 7-12 Life Science (1)
Cohort 4	45	EC-6 Generalist (4), EC-6 Bilingual (4), EC-6 Special Education (13), 4-8 Math (7), 4-8 English Language Arts/Social Studies (3), 4-8 Math/Science (4), EC-12 Spanish (2), 6-12 Agriculture (3), 7-12 English Language Arts (2), 6-12 Family and Consumer Sciences (1), 7-12 History (1), and 7-12 Social Studies (1)
Cohort 5	36	EC-6 Generalist (9), EC-6 Bilingual (8), EC-12 Special Education (5), 4-8 Math (4), 7-12 Math (2), 4-8 English Language Arts/Social Studies (4), 4-8 Math/Science (2), 7-12 English Language Arts (1), and 7-12 Theatre (1)

*Note.* *n* = 170



## Data Analysis

IBM® SPSS was used to analyze archival quantitative data collected by the 4+1 TEACH team. A two-tailed bivariate correlational analysis was performed to examine the relationship between the number of uses of the recording device and the summative T-TESS scores by domain for 4+1 TEACH first-year teachers (Creswell & Creswell, 2018). Scatterplots were used to present the correlations between variables. To measure the strength of the relationship between the two variables, Pearson's Correlation Coefficient (Pearson's  $r$ ) was used (Creswell & Creswell, 2018; Field, 2018). Pearson's  $r$  ranges from -1.00 to +1.00, with -1.00 representing the strongest possible negative relationship and +1.00 representing the strongest possible positive relationship. Pearson  $r$  correlation coefficients near  $\pm .10$  are considered small in relationship strength, near  $\pm .30$  are considered medium in relationship strength, and near  $\pm .50$  are considered large in relationship strength (Creswell & Creswell, 2018; Field, 2018).

## Results

A descriptive quantitative correlational research design using a bivariate correlational analysis was applied to explore the relationship that existed between the number of uses of a video recording device and teacher performance measured by the Texas Teacher Evaluation and Support System (T-TESS) for first-year teachers. This study analyzed the summative T-TESS evaluations of first-year 4+1 TEACH residents and the number of times each teacher resident uploaded a video recording. Quantitative methods were used to provide an objective means that allowed the researcher to explore, collect, analyze, and determine possible relationships (Creswell & Creswell, 2018; Field, 2018).

### Descriptive Analysis

Utilizing G-Power 3.1.9.7 statistical software, the suggested sample size, based on a 95% confidence level, needed for this study was 138 teacher residents. The archival data collected provided data for 170 total teacher residents, exceeding the required sample size. The target group of teacher residents for this study were part of a four-year higher education institution 4+1 TEACH program located in southeast Texas. The study population included teacher residents from cohorts 2-5,  $n = 170$ . Teacher residents applied in the first semester of their senior year as an undergraduate. Teacher residents who applied were seeking an alternative certification with an accelerated teaching placement as teacher of record and a master's degree to be completed within the first year of teaching.

For this research, the focus was related to all four T-TESS domains: Planning, Instruction, Learning Environment, and Professional Practices and Responsibilities. The T-TESS evaluation rubric used a 5-point scale, which included ratings for *Distinguished* (5), *Accomplished* (4), *Proficient* (3), *Developing* (2), and *Needs Improvement* (1). TEA identifies the target rating that teachers must achieve for each domain of the T-TESS evaluation is (3) *Proficient*. A rating of 3 or higher dictates that the teacher has met the performance expectation (Texas Education Agency, 2022c). As indicated by the data provided in Table 1, each domain had a mean score of 3 or higher; *Planning*  $M = 3.136$ ,  $SD = .495$ , *Instruction*  $M = 3.082$ ,  $SD = .556$ , *Learning Environment*  $M = 3.223$ ,  $SD = .649$ , *Professional Practices and Responsibilities*  $M = 3.267$ ,  $SD = .564$ . The 4+1 TEACH program expected teacher residents to use the Swivl™ video recording device a minimum of six times. The data provided in Figure 1 show that the program expectation was met with  $M = 8.35$ ,  $SD = 4.89$ .

**Table 2***Descriptive Statistics*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
T-TESS Planning	170	3.136	.495
T-TESS Instruction	170	3.082	.556
T-TESS Learning Environment	170	3.223	.649
T-TESS Prof Practice & Responsibilities	170	3.267	.564
# of Swivl Video Uploads	170	8.35	4.89

Note. *n* = 170

**Correlational Analysis**

Using IBM® SPSS, a two-tailed bivariate correlational analysis was performed to examine the relationship between the number of uses of the recording device and the summative T-TESS scores by domain for 4+1 TEACH first-year teachers (Creswell & Creswell, 2018). Pearson *r* correlation coefficients near  $\pm .10$  are considered small in relationship strength, near  $\pm .30$  are considered medium in relationship strength, and near  $\pm .50$  are considered large in relationship strength (Creswell & Creswell, 2018; Field, 2018).

Table 2 provides the correlational analysis for each of the four domains of the T-TESS and the use of the Swivl™ recording device. For the T-TESS Planning domain, there is an approaching moderate, positive correlation between the two variables,  $r(170) = .243, p = .001, r^2 = 5.9\%$ . T-TESS Instruction domain has a small, positive correlation between the two variables,  $r(170) = .171, p = .025, r^2 = 2.9\%$ . T-TESS Learning Environment domain has an approaching moderate, positive correlation between the two variables,  $r(170) = .268, p < .001, r^2 = 7.2\%$ . T-TESS Professional Practices and Responsibilities has a small, positive correlation between the two variables,  $r = .189, p = .014, r^2 = 3.5\%$ .

**Table 3***Correlational Analysis*

Variables	# of Swivl Video Uploads			
	<i>n</i>	<i>r</i>	<i>r</i> <sup>2</sup>	<i>p</i>
T-TESS Planning	170	.243**	.059	.001
T-TESS Instruction	170	.171*	.029	.025
T-TESS Learning Environment	170	.268**	.072	< .001
T-TESS Prof Practices and Responsibilities	170	.189*	.036	.014

Note. *n* = 170

\*\* Correlation is significant at the .01 level (2-tailed).

\* Correlation is significant at the .05 level (2-tailed).

Figure 1 through Figure 4 provide the scatterplots used to present the correlations between variables.

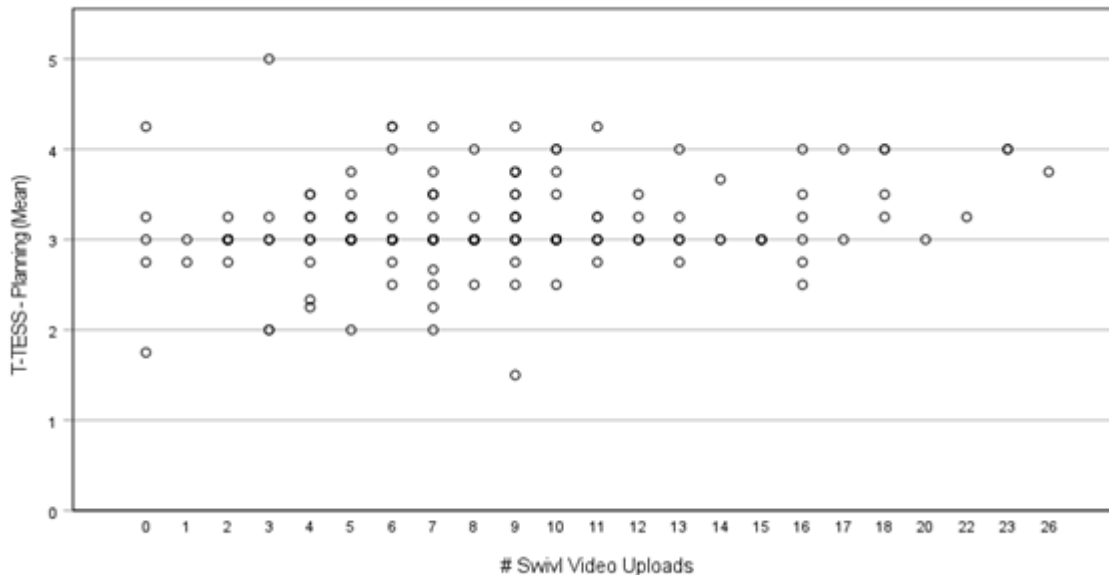
**Figure 1***T-TESS - Planning Domain Scatterplot*

Figure 1 provides data for the T-TESS Planning domain. This scatterplot shows that teacher residents who uploaded six or more video recordings, more than not, received a score of 3 (Proficient) or higher for this domain. The correlational data for this domain showed an approaching moderate, positive correlation between the two variables,  $r(170) = .243$ ,  $p = .001$ ,  $r^2 = 5.9\%$ . These results indicate that 5.9% of the T-TESS Planning score can be attributed to the number of videos uploaded. Although there is an approaching moderate correlation, the results were lower than anticipated. It is reasonable to suggest that because of the rigorous qualifications required to be admitted into the 4+1 TEACH program, program participants can be considered high achievers, possibly impacting the overall results. The categories within the T-TESS Planning domain include *Standards and Alignment*, *Data and Assessment*, *Knowledge of Students*, and *Activities*. Characteristics expected of program participants scoring a 3 (Proficient) or higher in this domain include that they should be proficient with the ability to align lessons to state standards, create alignment between goals and objectives, implement technology integration, and use activities, assessments, and materials that incorporate diverse learner needs and that are relevant to all learners. Appropriate time management should also be evident. In addition, program participants should be able to assess student learning and use collected data to modify instruction to meet learner needs, including drawing on prior knowledge, addressing gaps in learning, providing clear instructions to ensure learners know expectations, creating instructional groups to meet learner needs, and challenging learners to think critically and apply knowledge (TEA, 2022b).

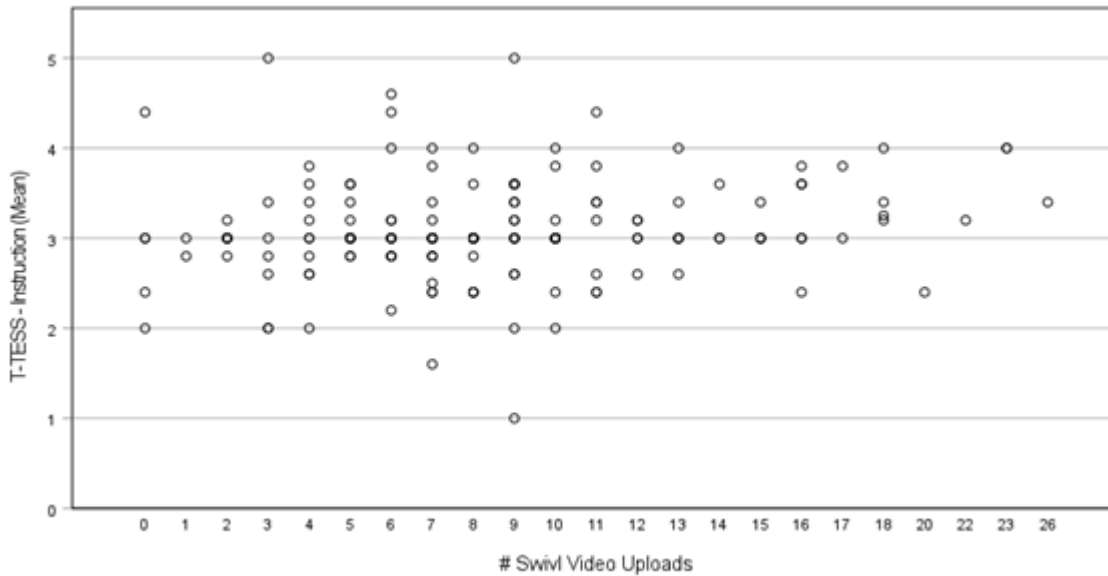
**Figure 2***T-TESS - Instruction Domain Scatterplot \*

Figure 2 provides data for the T-TESS Instruction domain. This scatterplot shows that program participants who uploaded six or more video recordings, more than not, received a score of 3 (Proficient) or higher for this domain. The correlational data for this domain showed a small, positive correlation between the two variables,  $r(170) = .171$ ,  $p = .025$ ,  $r^2 = 2.9\%$ . The results indicate that 2.9% of the T-TESS Instruction score can be attributed to the number of videos uploaded. The Instruction domain has the lowest attribution percentage. These results were much lower than anticipated. It is reasonable to suggest that because of the rigorous qualifications required to be accepted into the 4+1 TEACH program, that program participants can be considered high achievers, possibly impacting the overall results. The categories within the T-TESS Instruction domain include *Achieving Expectations*, *Content Knowledge and Expertise*, *Communication*, *Differentiation*, and *Monitor and Adjust*. Program participants scoring a 3 (Proficient) or higher in this domain should be proficient with the ability to achieve learner mastery on concepts, address learner misconceptions, and provide instruction in a manner that challenges learners. They should also have proficiency with the ability to integrate objectives across disciplines and plan instruction that encourages learners to use diverse types of thinking (research-based, creative, analytical, or practical). Communication between program participants and students should provide opportunities for both written and oral communication, clear communication should be evident, peer collaboration should be utilized, and probing questions should be used to elaborate and clarify learning. Differentiation is evident within instructional methods to ensure learner needs are addressed. Learners' social and emotional needs are addressed, learner confusion about content knowledge is corrected, and the quality of student participation and performance is regularly monitored. Student behavior, engagement, and understanding are actively monitored to ensure mastery is achieved (TEA, 2022b).

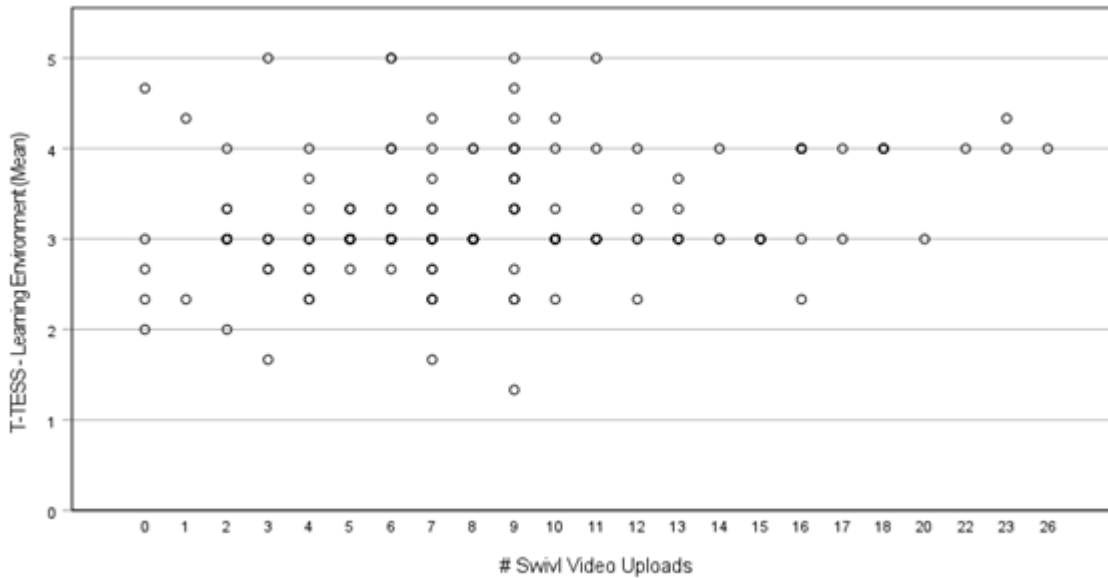
**Figure 3***T-TESS - Learning Environment Domain Scatterplot*

Figure 3 provides data for the T-TESS Learning Environment domain. This scatterplot shows that program participants who uploaded six or more video recordings, more than not, received a score of 3 (Proficient) or higher for this domain. The correlation data for this domain show an approaching moderate, positive correlation between the two variables,  $r(170) = .268$ ,  $p < .001$ ,  $r^2 = 7.2\%$ . As the researcher, I can conclude that 7.2% of the T-TESS Learning Environment score can be attributed to the number of videos uploaded. Although this domain has an approaching moderate correlation, the results were again lower than anticipated. It is reasonable to suggest that because of the rigorous qualifications required to be admitted into the 4+1 TEACH program, that program participants are considered high achievers, possibly impacting the overall results. The categories within the T-TESS Learning Environment domain include *Classroom Environment*, *Routines and Procedures*, *Managing Student Behavior*, and *Classroom Culture*. Program participants scoring a 3 (Proficient) or higher in this domain should be proficient with implementation of routines, procedures, and transitions that are clear and efficient. Learners should be provided with the opportunity to manage materials and work both individually and with peers, requiring minimal teacher direction. The classroom should be safe, inviting, and organized, allowing learners an optimal learning environment to be engaged and active in the learning process (TEA, 2022b).

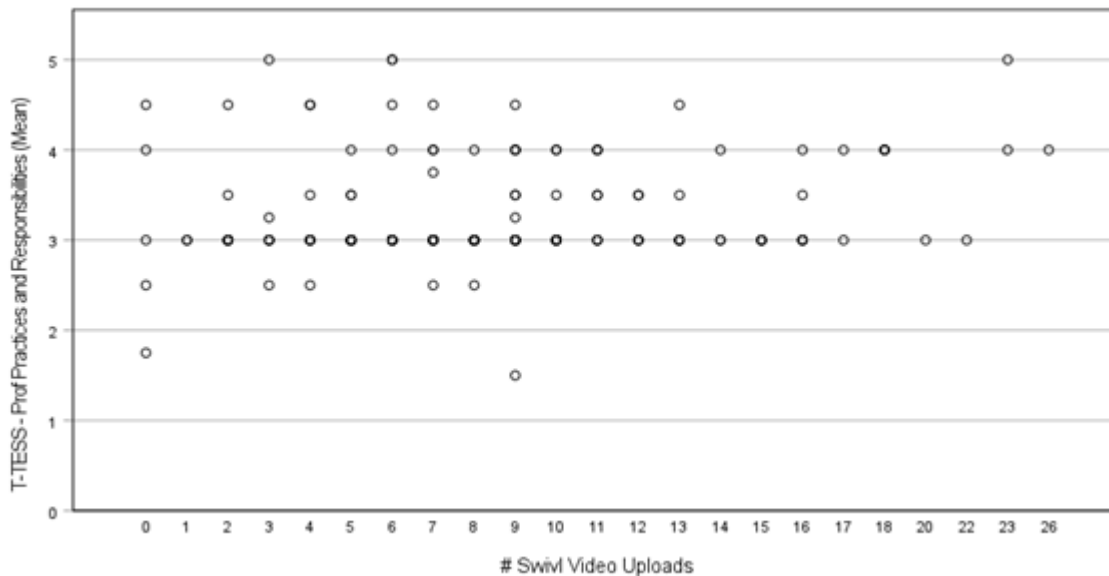
**Figure 4***T-TESS - Professional Practices and Responsibilities Domain Scatterplot*

Figure 4 provides data for the T-TESS Professional Practices and Responsibilities domain. This scatterplot shows that program participants who uploaded six or more video recordings, more than not, received a score of 3 (Proficient) or higher for this domain. The data for this domain show a small, positive correlation between the two variables,  $r = .189$ ,  $p = .014$ ,  $r^2 = 3.5\%$ . The results indicate that 3.5% of the T-TESS Professional Practices and Responsibilities score can be attributed to the number of videos uploaded. Similar to the other three domains, the results were lower than anticipated. Again, it is reasonable to suggest that because of the rigorous qualifications required to be admitted into the 4+1 TEACH program, program participants can be considered high achievers, possibly impacting the overall results. The categories within the T-TESS Professional Practices and Responsibilities domain include *Professional Demeanor and Ethics*, *Goal Setting*, *Professional Development*, and *School Community Involvement*. Program participants scoring a 3 (Proficient) or higher in this domain should be proficient with professional conduct as it relates to the Code of Ethics and Standards for Texas teachers, set short and long-term professional goals, exhibit a growth mindset soliciting professional growth opportunities that align with professional goals, actively communicate with parents, and participate in outreach programs that foster the mission and goals of the district in which they teach (TEA, 2022b).

### Implications and Recommendations for Future Research

This study's findings indicate a statistically significant positive correlation between the number of uses of video recording and T-TESS evaluation scores. This evidence suggests that the frequency of use of video recording devices is positively correlated to novice teacher performance scores. While the findings of this initial study indicate a statistically significant positive correlation between the uses of the video recording device and the summative T-TESS evaluation scores, further research is necessary to determine if strengthening the variations in the use of the video recording device can increase the effect of the correlation between the two variables.

Teacher performance is evaluated within every school district. The variations in appraisal components, tools, methods, and procedures pose challenges to the accessibility, flexibility, and authentic feedback necessary for teachers' professional growth (Deci, 2009; Fradkin-Hayslip, 2021; Jiang & Luppescu, 2015; Wiliam, 2016). These challenges may be mitigated by implementing a video recording device in the evaluation process to foster a more cohesive teacher-evaluator interaction. Further research is recommended to evaluate the specific, authentic feedback process used in conjunction with the video recording device. This research did not examine the data related to the specific feedback provided by mentors during the video recording process. However, data suggests that with the approaching moderate correlational relationship for T-TESS Planning and T-TESS Learning Environment domains, and a small correlational relationship for T-TESS Instruction and T-TESS Professional Practices and Responsibilities, if the qualitative data is reviewed, further evidence might be uncovered to strengthen the relationship between variables.

While the sample size,  $n = 170$ , of the study population exceeded the suggested sample size,  $n = 138$ , identified using the power analysis, G-Power 3.1.9.7 statistical software, recommendations to increase the number of the target group of teacher residents is advised. The small sample size combined with the rigorous criteria 4+1 TEACH residents met prior to admission may have stifled the results. Conducting research that represents a larger novice teacher population might provide additional support of the correlation between the two variables. In addition, expanding research to include first-year teachers that teach within more diverse school demographics might also be explored.

### Conclusion

Long-standing research has established a connection between teacher autonomy, motivation, and job satisfaction. Having the ability to make independent choices, being in control of instructional related issues, and sharing in the decision-making processes are all present in an environment that fosters these connections (Deci, 2009; Fradkin-Hayslip, 2021; Goe et al., 2008). The use of a video recording device in the evaluation process of first-year teachers could provide them with a collaborative tool to be intentional in the evaluation of their pedagogical practices. Further research is necessary to investigate possible ways a video recording device could be used to improve the mentoring process. Authentic feedback data was not evaluated in this study; however, it is recommended that a qualitative analysis be performed to examine the data related to the specific feedback provided by mentors during the video recording process. If the qualitative data are reviewed, further evidence might be uncovered to strengthen the relationship between variables.

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## AN ANALYSIS OF ALTERNATIVE CERTIFICATION CANDIDATES' PERCEPTIONS ON THE TEXAS TEACHER EVALUATION SYSTEM (T-TESS)

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### Abstract

Teacher retention among alternative certification candidates is lower than that of candidates who earn certification through traditional teacher certification program. Texas implemented a merit pay program in 2019 as a means to curb teacher attrition. The merit pay system is based upon a combination of teacher performance on their annual evaluation and academic performance of their students. This study analyzed two candidates' perceptions of how they gaining knowledge of the Texas Teacher Evaluation and Support System (T-TESS) during their internship year which coincides with their first formal year of teaching. The candidates were interviewed immediately following the completion of their internship year. Findings revealed that the candidates received limited information through their Educator Preparation Program (EPP) or through their district's new teacher orientation about the evaluation process. Most information gained during the year about the evaluation process occurred through interactions with other educators. The study reinforces previous research which indicates that new teachers' assimilation into their professional role is unstructured. Also, the significant impact that principals can have on teachers during their induction phase is highlighted. Findings from this study will allow the EPP to more closely align course content with the T-TESS instrument.

**Keywords:** *Teacher retention; Teacher Evaluation; Alternative Certification; Merit Pay*

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### Background

The state of Texas fully implemented a new teacher evaluation method, the Texas Evaluation and Support System (T-TESS), during the 2016-17 school year. In 2019, Texas initiated a merit pay model that allows local school districts to submit plans to the state that allow for teachers to earn various levels of merit pay. Teacher performance on their annual evaluation is a mandatory component of these merit pay plans. The state of Texas is placing a large emphasis on using teacher evaluation as a lever to promote higher academic achievement. However, research has found that teacher evaluation has a low impact on improving student performance (Hallinger et al., 2014). If the intended focus of the T-TESS and the corresponding merit pay system is to be met, it is essential that teachers have appropriate orientation on the various measurement criteria in the evaluation instrument so that they can both improve student performance and position themselves to earn available merit pay. Providing teachers with the best opportunity to earn merit pay will serve as a means to reduce teacher attrition as well as keep a larger percentage of effective teachers in Texas' classrooms. University Educator Preparation Program (EPP), including course instructors and field supervisors, play a critical role in ensuring that teachers have appropriate knowledge of the components of the state evaluation system.

Performance pay models that have been used within the private sector for many decades are now becoming integrated into public school teaching (Aksoy & Şahin, 2022). The introduction of the

additional compensation aspect of teacher evaluation broadens the scope of evaluation beyond measuring effectiveness and guiding instructional development. In the context of the current labor market where teachers have a multitude of career opportunities outside of the profession, it is imperative that we provide novice teachers with an awareness of the teacher evaluation process so that they have the opportunity to earn performance pay. Performance pay systems have been implemented with the intent of retaining a greater number of teachers and it is plausible that earning, or failing to earn, merit pay will influence teachers' decisions to remain in the profession. This research informs those involved in teacher preparation about the needs of candidates in developing awareness of the expectations of the evaluation process to greater initial success of alternative candidates during the induction phase of their careers.

### **Theoretical Framework**

Neo-institutional theory is the framework to examine the interaction between the bureaucratic elements in implementation and the educators impacted. Scott (2008) found that policy implementation is complex of both conformance and legitimization. He states that in the cultural-cognitive element is where teachers develop the meaning of policy implementation. Adolfsson & Alvunger (2020) discovered that participants at the lowest level of the bureaucracy often struggle with finding the balance between local expectations and those that are at higher levels of the government policy structure. This study will examine how alternative certification candidates internalize the components and personal meaning of the state-adopted teacher evaluation system.

This study also is examined through sensemaking theory (Weick, 1995). The theory is based on how context influences people in their construct of organizational meaning. This study will address whether the formal teacher preparation experience or other influences lead to the alternative candidates forming meaning about the teacher evaluation process.

### **Literature Review**

Alternative certification programs appeal to a group of individuals who have a university degree but are not certified to teach (Mulvihill & Martin, 2019). The reduced period of preparation for alternative candidates in comparison to traditional candidates results in programs needing to be more intentional in their design. Furthermore, they recommended that programs consider how they can assist candidates to embracing teaching as a profession rather than simply a job. One of the ways that this can be accomplished is assisting candidates in taking ownership of their professional growth.

Despite the importance of the formal internship experience of alternative teaching candidates, there is less research in this area in comparison to those who have completed traditional teacher certification programs. As more candidates pursue an alternative path for teacher certification, it is necessary to understand the types of supports they need during their internship period ((Wilhelm et al., 2021). Mulvihill and Martin (2019) emphasize that since alternative teacher preparation programs have become a fixture in educator preparation, programs should focus on preparing candidates for all aspects of practice and professionalism needed for success candidates to be successful teachers.

Teacher evaluation continues to play a dual role of both retention, promotion, and tenure decisions as well as a means to guide pursuing improved teaching practices. However, school leaders have historically done a poor job of presenting and managing these two functions (Donaldson & Firestone, 2021). This study provides educator preparation programs with insight into the perceptions of alternative

certification candidates related to their level of knowledge about the formal teacher evaluation process at the conclusion of both their alternative program experience as well as their first year as classroom teachers.

The research on teacher education preparation remains small in comparison to other areas of the profession and there is a vast deficiency in the area of clinical field supervision (Slippery Rock University & Alexander, 2019). Without available research on the needs of teacher candidates during their formal internships, instructors and field supervisors will be unable to adjust their practices to better support candidates during this crucial time of development. Such knowledge is important as faculty expand their scope to provide a sense of community to those candidates whom they serve. It is essential that teachers begin their formal careers with a fundamental knowledge of good teaching practices (“Our Responsibility, Our Promise,” 2012). The quality of the educator preparation program often dictates whether or not a beginning teacher has the knowledge of basic teaching practices and how they will be measured by the systems in which they educate students.

Data does support that teacher attrition among those who fulfilled their certifications through alternative programs is greater than the attrition rate from traditional programs (Mitani et al., 2022). This discrepancy has been found to be linked with teachers who participate in alternative certification programs feeling less prepared than those who progress through traditional routes due to the condensed amount of preparation curriculum and activities. Furthermore, alternative candidates typically begin their careers in high-need schools which likely skews the retention data among this group. Finally, it must be noted that vast differences are present within the structure of various alternative programs and it is likely that some models meet the needs of candidates at higher levels than others.

One of the key ingredients of a high-quality teacher preparation program is a clinically-based approach (“Our Responsibility, Our Promise,” 2012). Such programs strive to provide candidates with information and experiences that are aligned with real-world application. A part of this experience is orienting clinical teachers and internship participants to the process and expectations of the teacher evaluation system. Based on a meta-analysis, Hallinger, et. al. (2014) developed a theory of action underlying most current teacher appraisal systems. Most systems, they claim, attempt to combine aspects of both evaluation (to make employment decisions) and supervision (to provide coaching and feedback), with formative and summative aspects, in one system. The three intended outcomes of these models are to filter out poor performers, improve student outcomes through meaningful instructional feedback, and to develop a results-oriented campus culture. Donaldson & Firestone (2021) state that there is a gap in the literature regarding ways in which teacher evaluation can be used for the formative purpose of improving instruction. The authors advocate for the use of human capital, social capital, and material capital to be leveraged to improve the teacher evaluation process.

### **Statement of the Problem**

Texas EPPs are preparing teachers for a rapidly changing teaching environment. Teachers who enter the field of teaching must feel adequately prepared to resist exploring other career opportunities that are widely available in the present economy. With unemployment rate of 3.7% and real wage growth increasing 5.1 % within the United States economy, school districts are stressed to fill classrooms with certified teachers (Randazzo, 2022). Therefore, new teachers need to be properly oriented on both the elements of the teacher evaluation process and the performance criteria that are associated with approved

merit play plans. Field supervisors and preparation instructors of alternative certification candidates need feedback on the preparation levels of candidates related to the expectations of the state evaluation process.

### Methodology

Two alternative certification candidates who were conducting their internships during the 2021-22 school year were the participants in this study. The candidates were fulfilling university coursework as well as completing their first year of teaching in Texas public schools. The candidates participated in interviews related to their perceptions of the teacher evaluation process at the conclusion of their internship. The interviews were conducted in the month of June to ensure a strong recollection of perceptions associated with the first year of teaching. Participants provided responses to questions related to how they were oriented about the evaluation process, the perceived value of the observation pre-conference and post conference, degree in which the process will guide their development entering their second year of teaching, and how the university program prepared them for the observation process. The responses from the interviews were coded into themes which are explored in relation to theoretical frameworks on teachers' perceptions of the evaluation process.

Interview questions were designed to gain the perceptions of the candidates on the teacher evaluation process. The two participants were the only two candidates in the EPP who fulfilled their internship experience during the 2021-22 school year.

One of the participants in the study completed her internship at a Central Texas middle school. She was one of six beginning teachers on the campus and 47.2% of the teachers had five or less years of experience. The principal of the campus was in serving in that capacity for the seventh year in the district. The other participant fulfilled her internship at a Central Texas elementary school. She was one of four beginning teachers on the campus and 51% of the teachers had five or less years of experience. The principal of the campus was in her first year in the district.

Both of the candidates in this study were interviewed during June of the month immediately following the conclusion of their internship year which coincided with their first year as classroom teachers. Therefore, the interviews were conducted within two months of the candidates completing their annual summative evaluations that are part of the annual T-TESS cycle. The timing of the interviews was purposeful to allow for sound recall of the events that had occurred throughout the previous year related to their induction into the teacher evaluation process.

The research study was designed to answer the following research questions:

- 1) What were the perceptions of alternative certification candidates pertaining to the teacher evaluation process prior to entering their internship?
- 2) How did the alternative certification candidates become aware of the expectations of T-TESS during their internship.
- 3) What were the perceptions of alternative certification candidates pertaining to the teacher evaluation process after completing their internship?

The interview questions and protocol were modified by the researcher from a previous study in which the researcher inquired about the perceptions of the evaluation process among student teachers using a different population. Eleven unique questions related to perceptions of teacher evaluations, including specific references to the T-TESS system, were posed to the participants. The interview questions were evaluated by a panel of experts to ensure construct and content validity.

## Findings

In response to the first research question, the following themes emerged as the responses to the interview questions were coded:

Both the EPP and local districts provided limited orientation on the T-TESS process prior to the start of the candidates' internship. Participant 1 shared:

*We did not receive a formal orientation prior to the school year. My mentor did help me use the system to submit my goals prior to the due date.*

Participant 2 added:

*I remember my professors saying 'when you are evaluated' or 'when the principal steps in' but no specific reference to T-TESS.*

The candidates did not recall remembering specific information about the state-adopted evaluation systems as part of their coursework prior to beginning their field experiences. They did recall an emphasis being placed on the importance of principal evaluation. Participant 2 revealed:

*I recall in August during the two weeks before students arrived being pulled into this meeting with all of the teachers where they were discussing merit pay and how your test scores and evaluation calculated for you to earn merit pay. A lot of the veteran teachers had a lot of questions about the merit pay.*

Candidates learned about the process prior to the internship through other experiences such as prior service as an instructional aide or networking with other educators outside of their assigned schools.

Participant 1 stated:

*I remember teachers talking about their scores, when they were evaluated, among other things, during the time I was a teacher's aide.*

In response to the second research question, the following theme emerged:

Professional networks within the candidates' schools assisted with orientation on the T-TESS process. These networks included guidance provided by administrators, instructional leadership staff, and mentor teachers. Participant 1 recalled:

*I felt like my appraiser didn't hold me to the same standard as a five-year or 15-year teachers. My scores were 3's. She praised my student relations at the end of the year.*

Participant 2 discussed the impact that her mentor teacher had on her gaining knowledge about the format and expectations of T-TESS:

*My mentor gave me a color-coded flip chart in January. In the margins it had a 1.1, 1.2, etc. explaining the terms. When I had my end of the year meeting, I used this and I was much better prepared.*

In response to the third research question, the following themes emerged:

The candidates perceived that the evaluation process assisted with their instructional growth during the school year. Participant 1 shared:

*A lot of other teachers don't like people in their classrooms but I like the feedback. I felt like I accomplished my two goals for the year. I feel like I am ready to move on to something else next year.*

Participant 2 shared how the process guided her development:

*In the fall, my target was classroom management. I was very surprised that I had challenges in this area. I had homeschooled my own kids for 18 years and lead a large choir of 120 youth. I had to get this area in order first.*



The candidates will use the feedback they received during the process as part of their self-guided development moving into the subsequent school year. Participant 2 shared how she sees the evaluation process has providing clarification on her role as a teacher:

*I understand how the state wants me the TEKS delivered. They want me to connect the TEKS to the students. I have more confidence and am clear on the expectation. Having the anchor of the evaluation system allows me to put my own spin on things.*

### **Discussion**

The findings of this research correspond with other findings related to the experiences of alternative certification candidates. Doran (2020) found that these candidates often do not feel as well prepared as those who have completed a traditional certification path. This correlates with the candidates experiences in this study where they became informed about the evaluation process from their mentor, through their observations as teacher aides, and through conversations with their colleagues rather than through formal channels. It was identified in the same previous research that having just one trustworthy colleague on campus can be extremely beneficial for alternative candidates. For the one participant in this study, through being moved to a different grade level due to staffing needs she was assigned to a new mentor. The new mentor became a lifeline for this candidate in understanding the expectations of the evaluation process. This discovery is consistent with the need to select mentors purposefully and provide them with the necessary to support the new teachers whom they serve (Tekir, 2022). Moreover, the importance of school administration cannot be underestimated in the success of beginning teachers. Principals must be self-aware of the important role they play in the induction process and take such actions as supplying mentors time to collaborate with new teachers, organizing other induction activities, and providing basic resources. As evidenced by the findings of this research, the reassurance that the principal provided the second participant that she had mastered her goal for the school year gave her the confidence to set a more ambitious goal going into her second year. The other participant in this study also commented on several occasions during the interview that the principal took the necessary time to thoroughly review her observations results with her which was much appreciated by the candidate.

### **Limitations**

This study was limited to two alternative certification candidates who were performing their internships during the 2021-22 school year. The candidates mentioned that the school year was still being impacted by the COVID-19 pandemic to include teacher absenteeism and staff turnover. One participant mentioned how her assimilation to the campus was impacted when she was moved from one grade level to another at the conclusion of the first six weeks. She stated that this actually benefitted her because she perceived her new mentor has more competent and capable of providing her with quality guidance. She also stated that the instructional coach who worked directly with her during the first semester left the campus and it took some time to develop a new rapport with the new coach. The candidates also mentioned that during their college courses during the 2020-21 school year were quickly moved to online delivery due to the pandemic which could have influenced their professor's coverage of T-TESS in their courses.

### **Implications for EPP**

The internship for alternative candidates moves them from the preservice stage of teaching to the actual induction period of teaching which is considered the initial years in the classroom (Smith &

Ingersoll, 2004). The need for continued support of teachers during the time period is generally accepted as a key component of successful transition into the profession as well as a variable in new teachers remaining in the profession. Due to the internship serving as a final step in the preparation process, as well as the first step in the career path of candidates, it is important that preparation programs work in conjunction with school districts to support candidates during this time. (Tekir, 2022) found that if communication between invested stakeholders is not clear and concise during the induction period, confusion and lack of motivation can occur among beginning teachers.

Alternative certification program candidates are more likely to initially be employed in high-needs schools in comparison to those who completed a traditional route to certification. Lee et al., (2021) stated that one of the primary desired outcomes for Texas' TIA is to place high quality teachers in schools that are traditionally difficult to staff. Even though districts have a great degree of flexibility in the design of their TIA plan, all plans must be designed administrative observation of teachers' classrooms and the academic growth of their students. Therefore, it is prudent for Texas EPPs to prepare candidates for the criteria of the state evaluation system as well as introduce them to the performance pay model. Although not currently present in all Texas' school districts, new teachers are likely to experience merit pay plans in most districts in which they are employed.

## Curriculum Revisions

It was apparent that the two candidates involved in this study were not directly oriented on how the coursework in their university classes correlated with the state evaluation system. One of the participants commented:

*It would have been nice to have had something like the flip chart given to me in my curriculum and instruction class. Also, possibly an assignment where you are shown that you will have to select a goal with your principal.*

Although professors may mention to their students that they will be evaluated, they need to give specific orientation on how T-TESS connects with various parts of their teaching responsibilities. For example, when lesson planning and collecting formative data is covered in university coursework, students could be shown how these correlates to Domain I of T-TESS. When the usage of various research-based instructional techniques is covered in class, candidates potentially would be shown how these are expectations within the higher levels of performance outlined in Domain II. When classroom management is emphasized, instructors might show students the connection to Domain III.

## Faculty Training

It is important for instructors and field supervisors to use the language within the T-TESS evaluation system when discussing various aspects of the job responsibilities that candidates perform as teachers. Field supervisors are required to attend a one-day observation training that is correlated to the three-day T-TESS training that is required for campus appraisers. However, teacher education instructors who are not field supervisors are not required to attend any formal training on the system. Educator preparation programs should establish protocols to orient all faculty in teacher preparation courses on the T-TESS language so that they can correlate various aspects of the courses with the state-recommended evaluation system. This will allow for better alignment of vocabulary between educator preparation courses and the language that will be used when teachers are evaluated in districts in which they are completing their internships.

## Conclusions

The findings of this study indicate that the EPP should seek to better align course content with the descriptors found in the T-TESS scoring rubric. Although the candidates in this study were aware that they would be evaluated in their roles as beginning classroom teachers, they had initial difficulty in correlating course content to the evaluation process within their districts. Furthermore, the participants indicated that sharing specific information about the state evaluation instrument in their coursework would have been beneficial.

From a school leadership perspective, this study highlights the impact that a strong relationship with a professional colleague can have on the assimilation of a new teacher to the profession. One of the candidates indicated that her principal fulfilled this role while the other indicated that it was her assigned mentor. These findings support the importance of supporting relationships on the self-efficacy of new teachers and further validate the importance of ensuring that professional supports are available for new teachers as a means to ensure the retention of new teachers within the profession.

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## EXAMINING THE DIFFERENTIAL EFFECTS OF THE 4+1 TEACH PATHWAY TO A YEAR-LONG RESIDENCY MODEL

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### Abstract

With elevated teacher shortages across the nation the authors worked to mitigate the teacher shortage by establishing the 4+1 TEACH program, a nontraditional teacher preparation program that aims to recruit a diverse pool of teacher candidates from the university student body who serve high-need schools through a three-year residency. Innovative in nature, the program is unique in that it is an alternative certification program with a traditional-based experience. Convergent research has identified several critical factors that are essential for preparing teacher candidates including effective teacher preparation, mentorship, K-12 school partnerships, and providing targeted professional development which are key components of the 4+1 TEACH program. Through this study, we examined the differential effects of the 4+1 TEACH pathway to a Year-Long Residency model, that is more traditional in nature. Using T-TESS Teacher Evaluation data, the 4+1 TEACH candidates outperformed the Year-Long Residency students in planning, instruction, and learning environment. A notable component of the 4+1 TEACH program is a strong mentorship initiative. The mentoring program affords teacher candidates a mentor employed as university faculty, allowing the mentor to provide flexibility, ensuring extensive experience working with novice teachers, and a manageable workload to increase opportunity for availability.

Keywords: *teacher preparation, novice teachers, mentorship*

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### Introduction

We are currently amid a teacher shortage across the nation. In fact, last fall, 53% of public schools were understaffed entering the 22-23 school year reporting a lack of qualified teacher candidates (IES, 2022). Many factors including teacher pay, veteran teachers retiring, and the decrease in enrollment in teacher education programs have strongly contributed to this dire teacher shortage (Castro, 2023). The COVID-19 Pandemic has exacerbated the teacher shortage as the pressure for teachers intensified as public schools reported that half of their students were behind grade level (Schmitt & deCourcy, 2022). Some researchers suggest the reason behind the shortage is that an increasing number of qualified teachers are leaving the classroom due to current teacher compensation and stressful working environments (Schmitt & deCourcy, 2022). This shortage has forced many districts to use alternative

solutions including looking toward employing alternatively certified teachers. But there has been much skepticism about the hiring of teachers from alternative certification programs due to the lack of clinical experience and pedagogy in preparing their teacher candidates (Carver-Thomas & Darling-Hammond, 2019). Before the Pandemic, over one-third of current Texas teachers were certified through an alternative certification program (Rubiera, 2018). There is no doubt that the percentages of alternatively certified teachers have increased exponentially with districts in desperate need of filling teaching positions.

To help alleviate the teacher shortage crisis, the authors established the 4+1 TEACH program, a nontraditional teacher preparation program that aims to recruit a diverse pool of teacher candidates from the university student body who serve high-need schools through a three-year residency. Innovative in nature, the program is unique in that it is an alternative certification program with a traditional-based experience.

### Literature Review

Convergent research has identified several critical factors that are critical for preparing teacher candidates including effective teacher preparation, mentorship, cultivating and fostering K-12 school partnerships, and providing targeted professional development (Darling-Hammond, 2021; Darling-Hammond, 2014) which are key components of the 4+1 TEACH program.

#### Traditional Effective Teacher Preparation

Traditional teacher preparation has been shown to have positive effects on teachers' self-efficacy, student achievement, and teacher attrition (Podolsky et al., 2019). It is essential that teachers have the knowledge and skills to meet the needs of K-12 students. In a study, Darling-Hammond (2014) found that effective teacher preparation programs have an aligned curriculum, use of assessments, opportunities to apply knowledge, strong relationships with school district partners, a common vision among faculty, and purposeful clinical experiences. The Council of Chief State School Officers (CCSSO) through its Interstate Teacher Assessment and Support Consortium (InTASC) adopted standards that many teacher preparation programs follow in licensing teacher candidates (Darling-Hammond, 2021). The standards outline what teachers should be able to do to prepare their K-12 students to ensure they are prepared for college or the workforce in a global society (CCSSO, 2013) which center around the following four summarized components.

**Table 1**

#### *InTASC Core Teaching Standards*

Category	Summary of Category
The Learner and Learning	Teachers understand the learning process and that each student brings their own individual differences to the learning process and understand the importance of creating a conducive environment for each student to be successful.

Content Knowledge	Teachers must have a deep understanding of content areas and ensure it is accessible to all learners that builds on cross-disciplinary skills, access information, apply knowledge in real world examples and make connections to local, state, and global issues.
Instructional Practice	Teachers must understand and integrate assessment, planning and instructional strategies that promote personalized learning.
Professional Responsibility	Teachers engage in meaningful professional learning through self-reflection, collaboration, and model ethical behavior.

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Types of teacher preparation programs are strong predictors of teacher retention rate (Van Overschelde & Piatt, 2020; Ronfeldt, 2021). Teachers who are alternatively certified are more likely to leave the profession than those who are traditionally certified. Researchers argue that this is due to the fact that teachers who obtain alternative certification have less coursework and less clinical experience than teachers who go through a traditional teacher preparation program (Carver-Thomas & Darling-Hammond, 2019; Podolsky et al., 2019).

### **Mentorship**

Mentorship is another key element to ensuring both preservice and novice teachers' success in the classroom. The role of mentorship is critical and has shown to increase teacher retention, teacher self-efficacy, as well as student achievement (Intergoll & Strong, 2011; LoCasale-Crouch, et al., 2012). Schwan, et al. (2020) found in their study with over 140 new teachers that mentorship led to improved instruction, collaboration, positive interaction and a sense of community for both the mentor and mentee.

Successful mentoring programs' common key characteristics include extensive mentor training, clear expectations for the mentor-mentee relationship, opportunities for timely feedback, reflection, continuous communication, and safe places (Garza et al., 2019; Nesje & Lejonberg, 2022).

### **K-12 School Partnerships**

One area that is not always recognized but serves as a critical component to effectively preparing teachers is partnerships between the teacher education program and K-12 schools. Not only is cultivating and sustaining K-12 school partnerships with teacher preparation programs good practice, but it is mutually beneficial for both entities. K-12 schools can provide hands-on clinical experiences that help prepare teacher candidates. Teacher candidates can serve as additional instructional support, especially at a time when schools are understaffed. Furthermore, providing clinical experience for teacher candidates is critical to attrition with those who received even one semester of clinical experience are more likely to stay in the profession than those with no clinical experience (Podolsky, et al., 2019).

The Council for the Accreditation of Educator Preparation (CAEP) which is the accrediting body for teacher education programs has adopted standards for teacher education programs to assure quality and continuous improvement in efforts to increase EC-12 learning. *Standard 2* addresses clinical partnerships and practice for teacher candidates:

The provider ensures effective partnerships and high-quality clinical practice are central to candidate preparation. These experiences should be designed to develop candidate's knowledge, skills, and professional dispositions to demonstrate positive impact on diverse students' learning and development. High quality clinical practice offers candidates experiences in different settings and modalities, as well as with diverse P-12 students, schools, families, and communities. Partners share responsibility to identify and address real problems of practice candidates experience in their engagement with P-12 students (CAEP, 2022, Standard 2).

Partnerships that employ a shared governance model are key in collaborating work together with open communication and input in efforts of providing optimal learning experiences for teacher candidates that will best prepare them to meet the needs of all students.

### **Targeted Professional Development (TPD)**

No one can argue that there is not a “one-size-fits-all” approach that meets the needs of all students, which is also true for teachers. Preservice and in-service teachers bring to the classroom a variety of experiences, as well as varying levels of knowledge, and skills (Mausbach & Kazmierckak, 2023). As Mausbach and Kazmierckak (2023) share, differentiating professional development can increase engagement and effectiveness providing a more targeted approach based on the needs of teachers to best meet the needs of K-12 students. In a study conducted by Simonsen et al. (2020), researchers point out that when TPD was implemented with in-services teachers to close the implementation gap of effective classroom management techniques teachers involved in the study found the approach to be acceptable, feasible, and usable. Citing that TPD can be used as an effective measure of professional development that provides individualized support for teachers (Simonsen et al., 2020).

### **Context of Study**

As one of the largest teacher preparation programs in southeast Texas, many surrounding districts employ our teacher candidates. As previously shared, to help the teacher shortage crisis, the authors established the 4+1 TEACH program, a nontraditional teacher preparation program that aims to recruit a diverse pool of teacher candidates from the university student body who serve high-needs schools through a three-year residency. The program follows an evidence-based pre-service teacher training and novice teacher induction model. The program is designed so that teacher candidates earn their bachelor's degree, Master's of Education in Teaching and Learning, and teacher certification in five years. During the first 3.5 years of the program, 4+1 TEACH candidates complete all coursework and field experiences required of teacher candidates enrolled in the university's traditional teacher preparation program. Candidates receive extensive, diverse field experiences in public schools that follow a gradual release of responsibility model. Candidates are awarded their bachelor's degrees after their fourth year, having completed nine semester credit hours of graduate coursework credited toward the M.Ed. in Teaching and Learning. A major component of our program is mentorship in which our students receive a dedicated professional mentor for their first three years of teaching. The 4+1 TEACH is unique in that it is an alternative-certification program with a traditional-based experience along with critical components including mentorship, K-12 school partnerships, and targeted professional development. As with any new program, we wanted to assess its effectiveness by examining the differential effects of the 4+1 TEACH pathway to a YLR model that is more traditional in nature.

## Research Questions

Since this study was designed to assess the effectiveness of the 4+1 TEACH program the following question was formulated and helped guided this study:

- Using the Texas Teacher Evaluation and Support System (T-TESS) how does the teaching performance of the 4+1 TEACH Residents compare to that of traditionally prepared teacher candidates (YLR Residents)?

## Method

The purpose of this study was to examine the effects between two pathways to teacher certification to determine the effectiveness of the 4+1 TEACH model.

## Study Population

Participants in this study were 199 yearlong residency students (traditionally prepared) and 258 4+1 TEACH Residents from a university located in the southwest regions of the United States.

For reference, the 4+1 TEACH Residents have a paid internship serving as teacher of record and the YLR Residents have a year-long residency serving under the supervision of a certified teacher.

## Instrumentation and Data Collection

This study aimed to examine the differential effects of two pathways to certification that have yearlong residency components. The YLR Residents' and 4+1 TEACH Residents' The Texas Teacher Evaluation and Support System (T-TESS) observations were compared focusing on the four domains areas of *planning, instruction, learning environment, and professional practices and responsibilities (PPR)*. The T-TESS is a statewide evaluation tool that helps teacher candidates and teachers focus on continuous improvement using timely feedback (TEA, 2022).

## Results and/or Conclusions

The purpose of this study was to examine the differential effects of two pathways to certification that have yearlong residency components. Using the residents' last T-TESS observation by university-trained observers, significant differences were compared on four domains of the T-TESS, including *planning, instruction, learning environment, professional practices, and responsibilities (PPR)*. Because the groups were already intact and not randomly assigned, propensity score matching was used to reduce the bias between the groups.

The full data set began with 199 yearlong residency residents (YLR) and 258 4+1 TEACH Residents (4+1). The summary of balance of the unmatched groups revealed two of the three covariates mean difference effect sizes were above the acceptable threshold of .20; ethnicity had a small effect ( $d = .23$ ), and certification level had a moderate effect ( $d = .52$ ) on the outcome measures. GPA (Grade Point Average) was below the .20 threshold but was approaching a small effect ( $d = -.12$ ). After propensity score matching on ethnicity, certification level, and GPA on a distance caliper of .20 with replacement, all mean differences were negligible, indicating that the bias between groups was greatly reduced. The final analysis included 121 YLR students and 204 4+1 students (Table 2).



**Table 2***Summary of Balance for Unmatched and Matched Groups*

	Unmatched ( $N = 457$ )			Matched ( $N = 325$ )		
	Treated <i>M</i>	Control <i>M</i>	<i>D</i>	Treated <i>M</i>	Control <i>M</i>	<i>D</i>
Ethnicity	2.46	2.27	<b>0.23</b>	2.43	2.40	0.04
Certification Level	1.54	1.11	<b>0.52</b>	1.32	1.33	-0.02
GPA	3.37	3.46	-0.12	3.47	3.48	-0.01

The descriptive statistics for both groups are summarized in Table 3. A visual inspection of the descriptive statistics shows that 4+1 Residents had higher means in all four dimensions, but slightly larger standard deviations. Further parametric analysis was then conducted.

**Table 3***Descriptive Statistics*

Pathway to Certification		<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
Planning	YLR	121	2.92	0.29	0.03
	4+1	204	3.10	0.52	0.04
Instruction	YLR	121	2.89	0.35	0.03
	4+1	204	3.05	0.55	0.04
Learning Environment	YLR	121	2.99	0.34	0.03
	4+1	204	3.21	0.68	0.05
PPR	YLR	121	3.16	0.43	0.04
	4+1	163	3.24	0.60	0.05

An independent samples *t*-test was used to determine whether significant differences existed between the groups. An *a priori* power analysis indicated the minimum sample size required 176 (at least 88 in each group) to achieve 95% power for detecting a medium effect, at a significance criterion of  $\alpha = .05$ . Therefore, the sample size in this study ( $N = 325$ ) exceeded the requirement for the analysis. Lavene's *F* was significant and thus homogeneity of variance was not assumed, so the results of the *t*-test in Table 3 include the corrected values. The 4+1 TEACH Residents significantly outperformed YLR Residents in *planning*, *instruction*, and *learning environment*. There were no significant differences in *PPR*.

**Table 4***Independent Samples T-Test*

	<i>T</i>	<i>Df</i>	<i>P</i>	<i>CI</i>	
				Lower	Upper
Planning	-3.90	322.15	< .001	-0.26	-0.09
Instruction	-3.18	322.08	< .01	-0.26	-0.06
Learning Environment	-3.87	315.86	< .001	-0.33	-0.11
PPR	-1.32	281.85	0.19	-0.20	0.04

**Discussion**

As shared, there is a critical shortage of teachers, and many teacher preparation programs are looking for innovative pathways for certification. The 4+1 TEACH is a program that can help recruit a diverse pool of teacher candidates. Through our study, we wanted to examine the differential effects of the 4+1 TEACH pathway to a YLR model that is more traditional in nature. The 4+1 TEACH Residents outperformed the YLR Residents in *planning*, *instruction*, and *learning environment*.

In reviewing our results, a major component of the 4+1 TEACH program is a strong mentorship program. The 4+1 TEACH's mentoring program is unique in the fact that it employs university faculty, with many of them being retired principals to mentor the teacher candidates. This is different from other mentoring programs that employ campus teachers who do not have the same flexibility. Site-based mentors face challenges in mentoring novice teachers including time constraints, lack of training, and inexperience in working with novice teachers.

In addition, the mentors provided timely feedback regularly. The 4+1 TEACH Residents regularly uploaded their recorded lesson using SWIVL. The mentor teachers would provide constructive feedback that was both timely and meaningful. This combination of mentoring and coaching can be a powerful and effective combination in supporting novice teachers (Steiner, et al., 2022).

Another component that sets the 4+1 TEACH program apart from other teacher candidates is the prioritization of professional development. Candidates who are accepted into the 4+1 TEACH program must attend professional development and earn microcredentials. Professional development is practice-based professional development that provides learning experiences for the residents as well as opportunities to demonstrate their understanding. Practice-based professional development has been shown to increase content knowledge and self-efficacy as opposed to traditional lecture-based professional development, (Hirsh, et al., 2020). One example is the STEM+C Camp in which the residents had intense, hands-on training on STEM-based learning and computational thinking. Residents then had opportunities to plan, design, execute, and assess STEM+C lessons with guidance from the STEM+C instructors. The following week, the 4+1 TEACH Residents had the opportunity to teach their lessons and work with K-12 students from local schools.

Also, the 4+1 TEACH Residents work with their mentor to choose microcredentials that are personalized and aligned with their learning goals. Earning microcredentials allows individuals to deepen their understanding of specific skills and provides an opportunity to demonstrate their mastery while receiving meaningful feedback (DeMonte, 2017). Through this self-regulated system of learning

individuals can work at their own pace and can receive digital badges after demonstrating evidence of competency in the new skill learned (Gish-Lieberman, 2021; DeMonte, 2017; West, et al., 2020). Mentors also are afforded the opportunity to earn microcredentials increasing their knowledge in meaningful feedback, support, communication, and coaching, which are all important components of the mentoring process.

### **Implications**

As shared, we are amid a teacher shortage and as teacher education programs, we need to find innovative ways to meet the needs of our K-12 students. However, these innovative methods should ensure they effectively prepare teachers through mentorship and meaningful professional development.

There is no argument that strong mentorship can be beneficial in nurturing novice teachers through their first years of teaching. Teacher preparation programs as well as school districts should ensure there is proper training to adequately prepare individuals to be mentors. Mentors should have dedicated time to work with their mentees in a non-threatening environment. In our program, we were fortunate to provide experienced full-release mentors who were hired to mentor novice teachers.

In addition, it is critical that teacher candidates and residents are afforded meaningful professional development opportunities that are tailored to their needs as a teacher. Teacher preparation programs and school districts should ensure teacher candidates and residents are provided opportunities to attend specialized professional development. Microcredentials are also a great option that can be personalized to meet individual teachers' needs.

### **Limitations**

One limitation of this study was that the only assessment used in this study was T-TESS data to examine the differential effects of the 4+1 TEACH pathway to a YLR model. Another assessment data that could be added is The Principal Survey results from Texas Education Agency (TEA). This survey is administered to principals who supervise first-year teachers to measure how satisfied they are with their teacher preparation (TEA, 2023a). The New Teacher Satisfaction Survey, also developed by TEA is another valuable source of information that could be incorporated to help evaluate the program. This survey is administered to first-year teachers to determine their satisfaction with their teacher preparation (TEA, 2023b).

### **Concluding Thoughts**

Through the 4+1 TEACH program, we provide an additional pathway in which teacher candidates are provided traditionally based teaching preparation, intense mentoring, targeted and professional development as well as a paid internship and a graduate degree. These results are promising for teacher education programs as they have the potential to help alleviate the teacher shortage by adopting innovative teacher pathways.

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## INTRODUCTION TO RHETORIC AND COMPOSITION: TEACHING FOR GLOBAL CITIZENSHIP IN AN URBAN CLASSROOM

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### Abstract

The article will focus on a high school introduction to rhetoric and composition (IRC) course. It will begin with a section that explains the history of IRC and its pathway for curricular adoption in an urban school district. IRC can be simplified as a pre-AP language course. However, the critical component of this particular course is its focus on issues of equity. It will continue with one teacher's reflections on how to continue to offer a necessary critical perspective despite the current political climate.

Keywords: *Introduction to Rhetoric and Composition (IRC), equity, urban education*

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“Texans reject critical race theory and other so-called ‘woke’ philosophies that maintain that one race or sex is inherently superior to another race or sex or that any individual, by virtue of his or her race or sex, is inherently racist, sexist or oppressive” (Lt. Gov. Dan Patrick in Agnew, 2021). This statement, made in response to the passage of Senate Bill 2202, shows a lack of understanding about what critical race theory is. SB 2022 and HB 3979 have the potential to be more bark than bite, but they are currently having Texas teachers re-evaluate what they are teaching and how they are approaching topics with students.

For far too long, only one perspective and narrative has been the predominant - if not the sole - perspective taught in American schools. This perspective aligns most closely with white dominant culture. With increasing frequency, however, teachers across the country, and in Texas specifically, aim to amplify the voices of those who have been marginalized and oppressed throughout history while providing students with mirrors and windows that represent true American history. As state legislatures across the country introduce bills that aim to curtail these important discussions, teachers need concrete strategies to continue to implement culturally responsive teaching in the classroom while aligning to new statewide mandates.

The article will focus on a high school introduction to rhetoric and composition (IRC) course. Any references to the specific classroom come directly from that teacher of record. The teacher of record is the primary author of this piece. It will begin with a section that explains the history of IRC and its pathway for curricular adoption in an urban school district. IRC can be simplified as a pre-AP language course. However, the critical component of this particular course is its focus on issues of equity. It will continue with one teacher's reflections on how to continue to offer a necessary critical perspective despite the current political climate.



## The Adoption of IRC into Core Curriculum

The charter school district of focus is located in an urban setting in Texas. It has identified their mission as increasing college access for its students, many of whom are first-generation students of color. While many school districts across the state of Texas follow a traditional model of offering English I through IV in high school, this district has adopted a different approach through the creation of the Introduction to Rhetoric and Composition class and implementation of an AP for all approach to English instruction. During their junior year, students at this district have the option of enrolling in either AP English Literature or Introduction to Rhetoric and Composition with the understanding that all students will take AP English Language and Composition during their senior year. While school districts that choose to offer English III and English IV must focus their instruction on American and British literature, further emphasizing white-dominant and Euro-centric approaches to studying the English language, the Introduction to Rhetoric and Composition class at this district allows teachers and students to read texts from diverse perspectives and explore real-world issues, all while preparing for rigorous AP instruction.

As students prepare to exit high school and enter the real world, it is essential that they have a strong foundation in rhetorical appeals in order to make compelling arguments and understand the ways in which the media, corporations, and political figures use these same strategies to convey their own messages. The Introduction to Rhetoric and Composition course at this district aligns closely to the AP English Language and Composition curriculum and focuses heavily on developing skills related to rhetorical analysis, argument, and synthesis- the three main styles of writing that students need to master on the AP exam. Through reading texts such as *We Should All Be Feminists*, *The Death of the Salesman*, and *Just Mercy*, students develop these skills while engaging in meaningful rhetorical analysis and discussion around everything from racial and gender equity, to the American Dream, to capital punishment and the school to prison pipeline. Ultimately, this curricular shift has allowed the district to focus on equity while simultaneously providing access to rigorous instruction that prepares students for post-secondary success.

## Theoretical Framework

Culturally responsive pedagogy was a theoretical framework that was most supported through the educator's work with Teach for America in the summer institutes where she has taken on numerous roles, including Content Facilitator. While initially a trainee, the educator became a trainer and ultimately applied lessons learned to her classroom in the academic year 2020-2021. She specifically committed to the inclusion of academic rigor, cultural competence, and sociopolitical consciousness.

In IRC, students learn to critically examine and analyze rhetoric in a variety of print and digital media. As the 2020-2021 school year began, the educator's students expressed interest in learning more about the current election and the differences between both candidates. Thus, the unit on Political Rhetoric was born. In this particular lesson, students focused on identifying appeals to ethos, pathos, and logos through studying political campaign ads from both Joe Biden and Donald Trump. They identified areas of success and opportunity within campaign ads for both candidates and were able to tangibly see how the art of rhetoric is used to influence our opinions and beliefs in everyday life.

In the second unit, students were introduced to the concept of intersectionality as they read *We Should All be Feminists* by Chimamanda Ngozie Adiche. This particular lesson focused on helping students to identify the difference in connotation vs. denotation of the word “feminism”. After diving into the ways that cultural differences play a role in our own definitions of the word, students had the opportunity to complete a rhetorical analysis of Hillary Clinton’s “Women’s Rights are Human Rights” speech at the 1994 United Nations Convention and ended the lesson by researching an individual of their choosing who embodied intersectional feminism.

### **Teacher Research and Self Study Research**

Praxis, the process by which a theory is realized, is a focus for all educators. Oftentimes, educators in survival mode are not truly considering the theory that informs their teaching practices. When time does permit, however, innovative practices aligned with theory lead to transformational learning opportunities for students. In this particular example, the teacher - the teacher-researcher - is taking her background in culturally responsive teaching and applying it to the curriculum she has developed. The teacher-researcher was previously (admittedly) not very well versed in critical race theory. However, because of the controversy surrounding critical race theory in Texas, she has had to take some time to learn about the constantly evolving tenants and how these apply to her curriculum. The fact that she (and many other teachers) are learning about critical race theory this year just shows how misguided Texas’ fight against this theory truly is. Teachers are learning more about it in order to see if what they are teaching puts them at risk for disciplinary action and are finding that - quite often - any *conversation* about oppressive systems can be a potential risk.

What the teacher-researcher is doing is called teacher research (Stenhouse 1975) because this is defined as a “self-reflexive process that is systematic, critical inquiry made public” (Feldman, 1998, p. 28). The successes and the errors made in her classroom will be shared so that readers can learn and enhance their own practice. Specifically, the teacher-researcher is engaging in teacher research via self-study. This is conducted by the teacher about her own classroom practice. Loughran (2002) suggests that self-study creates a system in which the educator can reflect on their practice to identify areas of conflict. Both of these methods are rooted in constructivism (Piaget, 1972; Bruner, 1990; Vygotsky, 1978) and in reflective practice (Campbell, 2003).

During the Fall of 2020, the teacher-researcher developed a unit on Political Rhetoric in response to her students’ desire to learn more about the upcoming presidential election and her observation of the need to enhance their rhetorical analysis skills when studying speeches and public addresses. Prior to starting this unit, students were introduced to the concept of rhetoric as the art of persuasion and heavily studied the three main rhetorical appeals- ethos, pathos, and logos. They analyzed rhetoric in letters and speeches by using the rhetorical triangle- a tool aimed at analyzing the audience, message, and purpose of different pieces of rhetoric. As the class began to focus specifically on political rhetoric, she knew it was important to first build context on the political landscape in America. As a result, the class studied the platforms of both the Democratic and Republican parties in order to gain a deeper understanding of the issues that were important to each group and the language and rhetorical strategies they utilized to convey their messages. Once students had a baseline understanding of both party platforms, they were ready to engage in a lesson focused on analyzing the specific rhetoric used during political campaigns.

## The Role of Rhetoric in Political Campaigns

In the lesson titled “The Role of Rhetoric in Political Campaigns”, the objective was as follows: The student will be able to (SWBAT) analyze the intended audience and impact on messaging in political campaign ads. The teacher-researcher began the lesson with a Do First focused on remembering the elements of the rhetorical triangle. Students received a blank copy of the rhetorical triangle and worked in groups to fill in the different components (Speaker, Audience, Message, Historical/Social Context, Purpose, Tone, Audience). For each component students were required to list and define the element. Once students finished filling in the triangle with their groups, the class reviewed the components whole group and zoned in on the audience, their main focus for the day. The class reviewed the definition of audience and talked specifically about how to identify both the direct and indirect audience of a message and determine how the audience impacts the tone, purpose, and rhetorical strategies that a speaker uses. After the Do-First, students completed a pre-reading activity in which they defined ethos, pathos, and logos in their own words and learned about different strategies that campaign ads often use to appeal to ethos, pathos, and logos. Students took notes as the class reviewed the following rhetorical strategies in campaign ads: testimonial, plain folks, bandwagon, fear, and data. Students then worked in groups to identify hypothetical examples of each strategy and shared their examples with the class.

Once the class finished discussing the pre-reading activities, students split back into groups and watched a series of four different types of campaign ads. For each type of ad, students watched a set of videos- one from the Democratic nominee, Joe Biden, and one from the Republican nominee, Donald Trump. In this lesson, students watched campaign ads on the following: Covid-19, Climate Change, Race and Equity, and Attacks on Credibility. These different topics were chosen because they were key aspects of each party platform, both candidates had ads that fit into these categories, and they were issues that the students had previously expressed interest in learning more about. As students watched each ad, they completed a chart on their handout that asked them to identify and analyze the rhetorical strategies that were utilized in the campaign, specifically focusing on how the intended audience impacted the message in each ad. First, students identified the topic of the ad, intended audience, and message. Then, they determined if the ad appealed mostly to ethos, pathos, or logos and provided evidence to support their conclusion. The teacher-researcher checked in with each group as they watched the ads and engaged in discussion, being sure to focus her probing questions on the rhetorical appeals that were used and the ways in which the ads were targeted to specific audiences. Students were able to identify examples of many of the strategies the class discussed during pre-reading such as plain folks, fear, and data. Once all students were finished watching the campaign ads and completing the charts, the class engaged in a whole group discussion about the overarching themes and rhetorical strategies in each campaign. Students were able to identify that both candidates utilized different strategies depending upon their intended audience.

### Teaching Reflections

Overall, the lesson on rhetoric in political campaigns was a success. Students were able to actively engage in the political process, deepen their understanding of both presidential candidates, and make informed, individual decisions about which platforms aligned most with their ideology and personal beliefs. They were able to do this all while honing the rhetorical analysis skills needed to be successful not only in their Introduction to Rhetoric and Composition class, but as informed global citizens.

One of the key strengths of this lesson was the fact that it provided students with an accessible gateway to studying rhetorical appeals. Terms like ethos, pathos, and logos can be intimidating at first,

but it is incredibly important for students to know that rhetoric is a part of everything we do. As the teacher-researcher discussed at the beginning of our lesson, rhetorical analysis happens every day—whether you are reading a news article, watching a TikTok, or dissecting a conversation you had with friends. No matter the form of media, teaching students how to analyze rhetorical appeals sets them up to be critical consumers of information. Doing this analysis with political campaigns in particular encourages students to be civically engaged and provides an avenue for them to develop their own opinions on important social and economic issues. Studying rhetorical appeals through the lens of campaign videos allowed students to develop a more nuanced understanding of how politicians appeal to ethos, pathos, and logos through the use of tried and true rhetorical strategies. This ultimately set them up to successfully do similar analysis on more complex political speeches and letters later in the unit.

If the teacher-researcher were to do this same lesson again, there are a few tweaks that she would make. One of the issues that she noticed during class was that many students did not have foundational knowledge of the major political parties in the United States or a nuanced understanding of how a political campaign works. This made it difficult for students to differentiate between fact and fiction in some of the campaign ads and skewed their perception of how each candidate effectively appealed to the different forms of rhetoric. If the teacher-researcher were to do it again, she would provide students with an anonymous poll at the beginning of class to gauge their understanding of the political system in the United States and provide space during the Do First to do a high-level overview of the system. Additionally, she would model analyzing rhetoric in campaign ads using examples from a previous election, such as Obama vs. McCain in 2008 or Bush vs. Gore in 2000. This would provide students with a strong example to follow when analyzing their own ads and would help them see how the intended audience directly impacts the message that is being delivered. Finally, she would adjust this lesson to be a jigsaw activity in which students become “experts” on a specific topic of campaign ads (i.e. environment, foreign policy, etc.) and teach both the topic and their analysis of the videos to the class. This would allow students more time to dig deeply into each ad and search for detailed examples of all of the rhetorical appeals, not just one or two.

### Conclusion

As the educator looked at the text of the bills re: critical race theory in the Texas legislature, she felt like a lot of what she was already doing would still be allowed. The bills focus on teaching all sides when talking about current events and she felt like “that’s just good teaching” (Ladson-Billings, 1995), and her lessons do that fairly well. The students examine multiple perspectives, encourage discourse and discussion, and respect differences in opinions.

We as educators must recognize the power of rhetoric in our daily lives and acknowledge its importance while sharing the role that it can play in shaping ours and our students’ perspectives. To do this, we must be explicit in teaching our students to be critical consumers of information. This paper has shown a particular example for teaching students to discern fact from fiction. A final call to action is to remind educators that we play an important role in promoting civic engagement in our students. Studying rhetorical appeals through political campaigns encourages our students to be engaged while also providing a platform for them to form their own opinions. With another election coming up, a recommitment to this skill is essential for our classroom teachers.

Not only does this article highlight the importance of helping students to become more civically engaged through the use of rhetorical analysis, but it also provides examples of concrete strategies that

teachers can use to implement culturally relevant lessons in their own classrooms given the current political climate. In this particular lesson students developed their foundational knowledge on political campaign ads, saw modeling and examples of how to analyze rhetoric in previous ads, and were able to become experts on a topic through the use of a Jigsaw activity. Each of these instructional moves is an example of “good teaching” and provides evidence that educators can engage in culturally relevant discussions in class while still meeting instructional standards and goals. This article will hopefully encourage other educators who are fearful in light of the current political agenda to be confident in continuing with this “good teaching”.

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## EXPLORING TRENDS AND PERSPECTIVES: A 40+ YEAR STUDY OF TEXAS TEACHERS' MOONLIGHTING PRACTICES AND CAREER CONSIDERATIONS

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### Abstract

Moonlighting for teachers has become a topic of interest and concern in the education sector. This paper presents a comprehensive analysis of a biannual longitudinal study which began over 43 years ago, focusing on Texas teachers' moonlighting practices and career considerations. By examining trends since 2016, this paper investigates the prevalence of moonlighting among teachers, the earnings derived from secondary jobs, and the salary threshold that would prompt them to quit moonlighting. Additionally, the study delves into the emergence of teachers' intentions to leave the profession since 2010 and explores the underlying reasons driving these career contemplations. The findings shed light on the evolving landscape of Texas teachers' work-life balance and provide valuable insights for educational policymakers and practitioners alike.

Keywords: *moonlighting, Texas teachers, salary, education*

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In the fall of 1980, Sam Houston State University (SHSU) and the Texas State Teachers' Association (TSTA) collaborated to develop a survey aimed at gaining insights into the characteristics of the average teacher in Texas. The survey was distributed to all TSTA members via mail, accompanied by instructions, a consent form, and a return envelope. A deadline was set for the return of completed surveys, and reminders were periodically sent to encourage participation. Upon receiving the completed surveys, the data were averaged to determine the typical profile of a Texas teacher. This methodology remained consistent until 2010 when the survey transitioned to an online format and was emailed to all TSTA members. The returned surveys were still tallied and analyzed as with previous administrations.

Now, 43 years later, the study is still ongoing with the exception of no 2020 data collected due to the COVID-19 pandemic. In every even-numbered year, the survey is sent to all TSTA members with minimal changes. Once the responses are collected, the data are analyzed and presented at various conferences, often attracting media attention.

The 2011 report by Maninger et al. (2011) focused on the "relationships between teachers' self-reported moonlighting practices and (1) how that affected quality of instruction, (2) the commonalities of



teachers who involved themselves in working a second job, and (3) if their salaries were higher, would the participants quit their moonlighting jobs” (p. 69). Although the collected data has shown stability over the course of the 43-year biennial longitudinal study, the research focus has shifted for the purpose of this manuscript.

### **Research Questions**

Research Question 1: What trends can be observed in the number of teachers seriously contemplating leaving the teaching profession since 2016, and what reasons are provided for considering a career change?

Research Question 2: What trends have emerged since 2016 regarding the number of teachers engaging in moonlighting, their earnings from these additional jobs, and the salary increase required for teachers to consider leaving their moonlighting positions?

### **Literature Review**

“Throughout the nation, to supplement salaries, many teachers work at other jobs in addition to their teaching, a practice commonly called ‘moonlighting’” (Smith & Cooper, 2018, p. 36). In the most recently published manuscript regarding this longitudinal study, Maninger et al. (2011) reported that 42% of teachers in Texas public schools hold moonlighting positions. In that report, the researchers stated that “a male, head of household, breadwinner, seriously considering leaving the teaching profession was the most likely participant to involve himself in a moonlighting job” (p. 70). They also reported that an average increase of \$5,934 in annual salary would be adequate for them to consider quitting their moonlighting position.

Similarly, Garcia and Weiss (2019) reported, “After accounting for education, experience, and other factors known to affect earnings, teachers’ weekly wages in 2018 were 21.4 percent lower than their nonteaching peers” (p. 1), a phenomenon they call the “teacher pay penalty” (p. 4). In their article, Garcia and Weiss speculate that female dominance historically in teaching positions, being one of very few professions open to women, is partially to blame for the teacher pay penalty. Whatever the reason for this gap between teacher wages and the wages of other professionals with similar education and experience, the authors conclude that teaching salaries are incapable of maintaining a middle-class lifestyle.

### **Methods**

Contact between the researchers and the Texas State Teachers’ Association (TSTA) occurred in spring 2021 to initiate the survey process. The researchers reviewed the survey questions, made minor editorial changes to some items, and added eight COVID-19-related questions.

Once the final survey was prepared, a hyperlink to the web-based survey was provided to TSTA staff who distributed it to members. The return of the completed survey indicated consent. After the survey window expired, the data were analyzed to determine the average response in each category or the responses with the highest frequency.

## Sample

The participants in this study were P-12 teachers in the state of Texas who are members of TSTA. The survey was sent through TSTA to an estimated N=5,000 teacher members, and n=688 responses were received, resulting in a 13.8% response rate. This represents a significant decrease compared to the two previous administrations in 2016 and 2018, which received n=837 and n=974 responses, respectively.

## Instrument

The survey consisted of 22-29 items including 5-point scaled (Strongly Disagree to Strongly Agree) single choice, multiple choice, and constructed responses. Twenty-two of the 29 items directly relate to moonlighting work beyond a teacher's role as a professional educator (Brown et al., 2019). Demographic items addressed topics such as age, gender, marital status, credentials, income, and teaching experience. Items related to the reasons for and implications of moonlighting addressed morale, self-perception of teaching quality, classroom and lifestyle expenses, hours devoted to teaching and moonlighting, professional stressors, perceptions of the public and state leaders regarding teachers, and the impacts of the COVID-19 pandemic on teaching.

## Data Collection and Analysis

According to Maninger et al. (2011), the survey was first distributed in 1980 and has been administered biannually since then with the most recent administration in 2022. Data collection procedures have remained consistent across survey administrations, with the primary variation being the shift from paper-based to web-based versions. Over time, additional questions were added to gather more data. For instance, questions related to teaching post-COVID were included in the 2022 survey.

TSTA staff sent an email invitation to members, providing participation details and a hyperlink to access the Web-based survey. Participation was voluntary with no reward or penalty associated with participation or non-participation. Completion of the survey indicated consent. After data collection concluded, the n=688 responses were analyzed by calculating response percentages for objective items while constructed response data underwent qualitative narrative analysis.

## Results

To summarize the most recent teacher demographics, the average teacher in Texas is a married female with a bachelor's degree. She teaches K-5, is the primary breadwinner, and resides in an urban setting. She has been teaching for 16 years, earns a salary of \$59,000, and is seriously contemplating leaving the profession. Many of these demographic characteristics align with the results of the 1980 survey, which also showed that the average teacher was a married female with a bachelor's degree, teaching K-5 in an urban setting. The first notable difference is in the annual salary, which was \$14,113 according to the 1980 results. Using the CPI Inflation Calculator (2023), this amount is equivalent to \$52,098 in 2023, suggesting that teacher salaries have slightly adjusted towards a living wage. Another significant change is that in 1980, teaching was the primary household income only 40% of the time, whereas today, 63% of teachers report that their income is the primary household income. This indicates that in the 43 years since this study began, teachers have gone from being primarily a supplemental family income to the primary family income, and with the salary only being slightly corrected to cover cost of

living, this puts teachers' families further behind in maintaining a middle-class lifestyle. See the Appendix for the complete data set.

The first research question focuses on the trends in the number of teachers seriously considering leaving the teaching profession since 2016 and explores the reasons behind their contemplation of a career change. In the 2016 and 2018 surveys, 53% of teachers reported that they were seriously considering leaving the teaching profession. However, this percentage has skyrocketed to 70% in the latest survey. Unfortunately, data regarding this specific item are not available from the 1980 results.

The qualitative responses to the question "If you answered 'Yes' to the previous question, why are you considering leaving?" provided a range of reasons beyond financial aspects. While inadequate compensation was identified as a major factor, teachers also highlighted concerns about classroom safety, lack of discipline, insufficient support from administration, excessive non-teaching duties, low-quality health insurance, excessive focus on standardized tests, large class sizes, lack of respect from school leaders, state legislators, and parents, as well as the negative impact of stressful conditions on their health. Coupled with perceived low quality of health insurance, one teacher wrote, "I cannot afford the copays I require for a major set of tests, so I am having to live in pain even though I have healthcare insurance."

The second research question focuses on the trends related to teachers who engage in moonlighting, their earnings from moonlighting jobs, and the salary increase required for them to quit moonlighting. The survey results reveal an increasing trend in the percentage of teachers involved in moonlighting, rising from 31% in 2016 to 39% in 2018, and most recently, 41% in 2022. Similarly, the earnings from moonlighting jobs have also increased over time, with teachers earning \$5,383 in 2016, \$5,873 in 2018, and \$7,039 in 2022.

When asked about the salary raise needed to quit moonlighting, teachers consistently indicated an amount higher than their earnings from moonlighting jobs. In 2016, teachers stated that an \$8,974 salary raise would be necessary, followed by \$10,559 in 2018 and \$12,106 in 2022. It is noteworthy that 79% of respondents in 2018 and 2022 perceived moonlighting to negatively impact the quality of their teaching. These figures contrast with the 1980 results, where only 22% of respondents engaged in moonlighting, and a salary increase of \$3,398 was considered sufficient to leave a moonlighting position. Adjusted for inflation using the CPI Inflation Calculator (2023), this amount is equivalent to \$12,541 in 2023, strikingly similar to numbers reported in the 2022 survey.

## Discussion and Implications

Over the last 43 years, researchers have collected data from Texas public school teachers regarding their participation in moonlighting jobs, outside of their fulltime teaching positions. In that time, teachers reported a financial incentive to work part-time jobs both during the summer break and during the school year, in the evenings and on weekends. Over the last 10 years, the percentage of teachers reporting moonlighting jobs has remained stable, holding steady at 42%. However, the data also indicate an all-time high of 55% of teachers holding summer jobs. This contradicts the recommendations of researchers who suggest rest and exercise (Ogren, 2018) and engaging in professional development (Post, 2014) are more beneficial to a teacher's success throughout the school year. This is potentially true for the way teachers spend their time in the evenings and on weekends, making sure their bodies are strong and rested and their minds are active and engaged in the latest trends in educational theory and practice.

Public teachers in Texas, on the other hand, find it necessary to augment the annual salary provided by public schools with income earned at a part-time job. With an average moonlighting income of \$7,039 and a summer income of \$3,591, teachers are better able to meet the costs of living in the communities in which they teach, helping them to maintain a middle-class lifestyle, otherwise unattainable (Garcia & Weiss, 2019). This augmentation detracts from adequate classroom preparation, adds to fatigue and burnout, and pushes many of them to consider leaving the profession in a time when schools are already grossly understaffed.

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## Appendix A

Table 1

*Moonlighting Data 2016-2022*

	2016 n=837	2018 n=974	2022 n=688
Average Age	49.2	48.2	48.0
Gender			
Male	21%	20%	19%
Female	79%	80%	81%
Marital Status			
Married	62%	60%	57%
Single	29%	39%	35%
Other	9%	1%	8%
Working Spouse/Partner	51%	51%	49%
Highest Degree			
Bachelor	54%	58%	52%
Master	44%	41%	46%
Doctor	2%	1%	2%
Teaching as Income			
Major Income	59%	62%	63%
Minor Income	21%	19%	16%
Equal Income as Spouse/Partner	20%	19%	21%
Teaching Community			
Urban	52%	51%	53%
Suburban	38%	39%	40%
Rural	10%	10%	7%
Grade(s) Taught			
K-5	42%	45%	46%
6-8	26%	23%	22%
9-12	32%	32%	32%
Years of Experience	16.9	17.2	16.4
Received Mentoring			
Yes		44%	33%
No		56%(n=154)	53% (n=159)
Average Salary	\$53,147	\$53,221	\$59,000

	2016 n=837	2018 n=974	2022 n=688
Earn Stipend to Teach Difficult Courses			
Yes		20%	19%
No		80%	81%
Seriously Considering Leaving Profession	53%	53%	70%
Teaching Quality Compared to 5 Years Ago			
Better	22%	26%	13%
Worse	48%	44%	62%
Same	30%	30%	25%
Out-of-Pocket Annual Cost of School Supplies	\$656	\$738	\$846 (n=668)
Out-of-Pocket Monthly Cost of Health Insurance	\$326	\$359	\$846 (n=620)
Weekly Hours Spent Outside Classroom on Related Work	17	17	15
Inadequate Preparation Time	71%	69%	78%
Worst On-the-Job Problem			
Discipline	50%	55%	50%
Paperwork	28%	27%	20%
Drugs	1%	1%	3%
Administration	10%	7%	0%
Safety	0%	3%	2%
All Others (8 categories)	11%	7%	25%
Single Exam Should Not Determine Promotion	95%	94%	96%
Student Exam as Part of Teacher Evaluation			
Strongly Disagree		70%	65%
Disagree		20%	22%
Have Summer Job	49%	56%	55%
Summer Job Income	\$4,330	\$2,746	\$3,591
Have Moonlight Job	31%	39%	41%
Moonlight Extra Income	\$5383	\$5,873	\$7,039
Moonlit Hours Weekly	13.1	14.1	13.3

	2016 n=837	2018 n=974	2022 n=688
Moonlighting Harmful to Teaching Quality	72%	79%	79%
Desire to Quit Moonlighting	86%	85%	87%
Raise Needed to Quit Moonlighting	\$8,974	\$10,559	\$12,106
Believe General Public Has Positive Opinion of Teachers			
Strongly Agree	4%	4%	4%
Agree	26%	29%	14%
Neutral	17%	18%	18%
Disagree	39%	36%	38%
Strongly Disagree	14%	13%	27%
Believe State Leaders Have Positive Opinion of Teachers			
Strongly Agree	2%	1%	1%
Agree	6%	6%	5%
Neutral	12%	13%	9%
Disagree	42%	41%	32%
Strongly Disagree	38%	39%	53%



**Appendix B**

## Teacher Moonlighting and Morale – 2022

*Directions: Please answer all the items that apply to you. Comments are welcome with questions that have a designated text box.*

\* Indicates required question

What is your age?\*

What is your gender?\*

- Male
- Female

What is your marital status?\*

- Married
- Single
- Other:

If married, does your spouse work?\*

- Yes
- No
- N/A

What is your highest degree?\*

- Bachelor's
- Master's
- Doctorate

Are you the major breadwinner in your household?\*

- Yes
- No
- Equal

In What type of district do you teach?\*

- Urban
- Suburban
- Rural

What grade level do you PRIMARILY teach?\*

- K - 5
- 6 - 8
- 9 - 12

How many years have you taught in the public schools?\*

Only answer if you are in your first five years of teaching experience. Did you receive the appropriate kind and amount of mentoring to help you become a successful teacher?

- Yes
- No
- Other:

What is your current teaching salary PER YEAR?\*

Do you receive a financial incentive or stipend to teach a difficult to staff class (or campus)?\*

- Yes
- No

Are you seriously considering leaving the teaching profession?\*

- Yes
- No

If you answered "Yes" to the previous question, why are you considering leaving?

If you answered "Yes" that you are seriously considering leaving the profession, would an incentive-based pay system that had the potential to award you more income keep you in the profession?

- Yes
- No
- Maybe

During the COVID-19 pandemic, the level of support for my personal and professional needs provided by my campus administration...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

As a result of the COVID -19 Pandemic, the level of stress in my professional life...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

As a result of the COVID - 19 Pandemic, the level of financial pressures/issues...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased

- Substantially Increased

As a result of the COVID - 19 Pandemic, the level of my family and/or personal issues...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

As a result of the COVID - 19 Pandemic, the amount of my planning time and/or my workload...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

As a result of the COVID - 19 Pandemic, my students' mastery of educational content...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

As a result of the COVID - 19 Pandemic, my students' social/emotional needs...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

As a result of the COVID - 19 Pandemic, the level of my classroom parental support...

- Substantially Decreased
- Decreased
- Remained the Same
- Increased
- Substantially Increased

How is the quality of teaching at your school compared to FIVE years ago?\*

- Better
- Worse
- Same

How much do you spend out-of-pocket on school supplies per year?\*

How much do you pay PER MONTH out-of-pocket for the health insurance?\*

How many HOURS PER WEEK are spent outside of class on school related work?\*

Do you have adequate time to prepare and teach?\*

- Yes
- No

If you answered "No" to the previous question, what changes could be made?

What is the WORST problem in your school?\*

- Drugs
- Discipline
- Paperwork
- Safety
- Other:

Should a single standardized exam determine whether a student gets promoted?\*

- Yes
- No

Should a single standardized exam, taken by students, be a portion of a teacher's annual evaluation?

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Do you have an extra job during the SUMMER?\*

- Yes
- No

How much EXTRA do you earn during the summer?\*

- None
- Other:

Do you have an EXTRA (Moonlighting) job during the REGULAR SCHOOL YEAR to supplement your teaching salary?\*

- Yes  
*Skip to question 36 (next question)*
- No  
*Skip to question 42 (labeled final section)*

If your answer to the previous question was "Yes", please answer the following questions.

How much EXTRA money do you earn during the REGULAR SCHOOL YEAR?

How many HOURS PER WEEK during the regular school year do you spend working at the MOONLIGHTING job?

Do you feel that the quality of your teaching would improve if you did NOT have a second job during the regular school year?

- Yes
- No

Would you QUIT the second job if your teaching salary would enable you to give up moonlighting during the school year?

- Yes
- No

How large a raise in your teaching salary would you require to enable you to QUIT moonlighting during the regular school year?

What is your EXTRA job during the school year? (Please give a job title)

### Final Section

I believe that the general public has a positive opinion about teachers.\*

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

I believe that state leaders and legislators have a positive opinion about teachers.\*

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

What is your state of residence/employment?\*

- Texas
- Other:

## A STUDY OF ELEMENTARY TEACHERS' PERCEPTIONS OF TECHNOLOGY SUPPORT AT PRIVATE TEXAS SCHOOLS DURING THE ONSET OF THE GLOBAL PANDEMIC

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### Abstract

The pandemic impacted private schools across Central Texas. School closures across the nation required schools to implement remote learning procedures. Framed by the TPACK model, the purpose of this qualitative study is to explore elementary teachers' transitions to remote learning, and their expectations with technology use as the pandemic hit the US in 2020. Private elementary school teachers' transition from face-to-face to online teaching and the use of technology within the classroom during the COVID-19 pandemic provided challenges for teachers as they sought ways to deliver and assess content remotely. Individual, semi-structured interviews were conducted with elementary, private school teachers in the Central Texas region. Data analysis revealed three primary themes. The first primary theme, Resourcefulness, related to ways schools and teachers were innovative in finding technology for students and teachers to use during the quarantine. The second primary theme, communication, related to communication between teachers and administrations, teachers and students, and teachers and parents. The final primary theme, emotional factors, reflected affective experiences that impacted teachers.

*Keywords: asynchronous, case study, collective case study, epidemic, pandemic, Private School, Remote, Synchronous, resourcefulness, communication, emotional factors*

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The onset of the COVID-19 pandemic disrupted public and private schools nationwide. School closures required a change to remote learning. New modes of delivery challenged teachers to practice flexibility in instructional learning styles to meet the student's needs during the changing time. Focusing on private schools, the purpose of this qualitative study is to explore elementary teachers' transitions to remote learning and their expectations with technology use as the pandemic hit the US in 2020. Because technology integration enables teachers to transform learning (Office of Educational Technology, 2017), this study is significant for teacher educators as they consider ways to prepare teachers for technology use in an ever-changing world. The study also informs ways school administrators may support teachers' technology use.



## Background

Elementary educators faced challenges during the pandemic with remote learning and teaching in an online environment. By the end of the 2019-2020 school year, projections of COVID related learning loss were 63-68% of learning gains in reading and 37-50% of learning gains in math compared to a normal school year (Irwin et al., 2022). Many school principals lacked plans for prolonged school closures and remote learning (Diliberti and Kaufman, 2020).

As COVID changed instructional delivery from a face-to-face setting to online delivery for many educators, the use of technology tools became essential. McQuirter (2020) stated, “Prior to the pandemic in 2020, 68% of teachers had never tried remote teaching, 66% had never tried online teaching, and 55% had never tried blended teaching” (p. 191); therefore, “The unexpected arrival of COVID-19 and the almost overnight need to move delivery of programs online at every level of schooling has exacerbated an already uneven implementation of digital technology” (McQuirter, 2020, p. 48). Perhaps due to an absence of prior training or experience with online platforms, teachers struggled to adapt to online learning, deliver the techniques needed digitally, and comfortably transition into successful online teaching (McQuirter, 2020). Other struggles included student attendance, student interactions, workload, little collaboration time with other teachers, lack of resources, training online, knowing how to remotely use online learning platforms, and having a clear boundary between home and work (Knott, 2014; De Paepe et al., 2018).

## Theoretical Framework

Acknowledging the importance of technology integration during the pandemic and post-pandemic era, this study was framed by the technological, pedagogical, and content knowledge (TPACK) model. The TPACK model, developed by Mishra and Koehler (2006), expands Shulman’s (1986) pedagogical content knowledge model by adding technological knowledge as a component of teaching. TPACK “provides a model for effective technology integration by encouraging teachers to make purposeful decisions about when and why to use technology and within what context” (Linton, 2012, p. 26). The goal of TPACK is to seamlessly overlap each section's technological, pedagogical, and content knowledge to help support effective instructional strategies within the classroom (Figure 1).

The TPACK framework was also developed with the understanding that context, represented by a dotted circle, impacts the integration of technology. According to Koehler and Mishra (2009), “social and contextual factors also complicate the relationships between teaching and technology” (para. 5). School closures changed the context of instructional delivery, as educators sought ways to teach K12 students in remote settings during the pandemic. Even though Koehler and Mishra (2009) maintained that technology knowledge includes being able to continually adapt to changes in information technology, school closures due to the pandemic left many teachers and schools unprepared for unprecedented changes in instructional delivery.

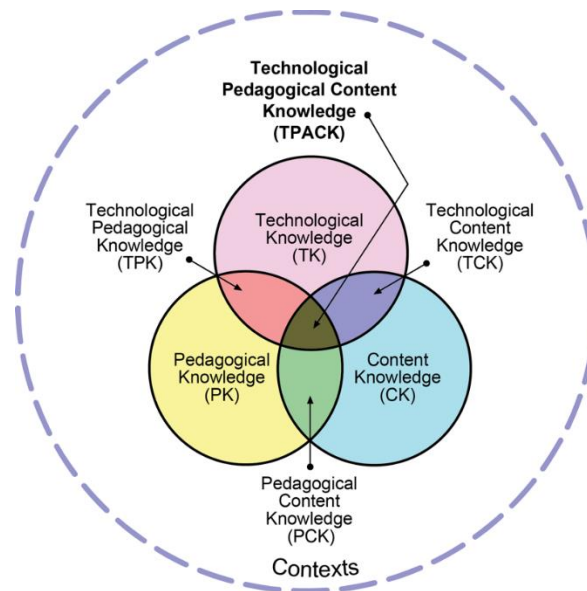


Figure 1. The TPACK framework illustrates the overlapping of the three domains of effective instruction and technological integration. (used by permission from tpack.org)

## Literature Review

Before COVID-19 and the pandemic, teaching was a stressful job. Educators in Texas have many pressures and responsibilities to meet the Texas Essential Knowledge and Skills (TEKS) and the Texas Education Agency (TEA) technology standards. According to the article *Teaching and Teacher Education* (2017), stressful elements of teaching led to “40-50% of teachers leaving teaching during the first five years” (Ryan et al., p 2).

Teacher attrition rates since the onset of COVID-19 have increased. Texas, in particular, has experienced 8,600 teachers retiring since the 2021 fiscal year (Lopez, 2022). Remote teaching contributed to teacher stress levels as teachers adjusted delivery methods, and technology integration became a key focus. New lesson delivery increased time spent preparing for each lesson (Plummer et al., 2021). The unexpected arrival of the coronavirus impacted teachers as they had to learn new online programs and implement digital tools for their content to the students while moving from face-to-face to entirely remote. According to Leech (2022), remote lessons “are not necessarily designed for online, but rather reformatted to work in an online format” (p 247). Due to the exacerbated move, according to McQuiter (2020), there was an “absence of prior training, modeling of best practices, or easily accessed technical support” (p. 49). Teachers struggled to adapt to online learning, deliver the techniques needed digitally, and comfortably transition into successful online teaching. Struggles including student attendance, student interactions, workload, little collaboration time with other teachers, lack of resources, training online, knowing how to use online learning platforms remotely, and having a clear boundary between home and work are only a few struggles educators faced (Knott, 2014; De Paepe et al., 2018). Teaching remotely did not only entail teaching solely online but also using online platforms and systems. Educators reported not knowing how to remotely use various online learning platforms for students. The goal of moving forward with technology is for educators to successfully utilize these tools when returning to face-to-face or blended instruction during and after COVID-19.

Technology integration was a national focus prior to the onset of the pandemic. The Department of Education, in conjunction with the Office of Educational Technology, released a National Education

Technology Plan Update in January 2017. The goal for teaching with technology stated, “Educators will be supported by technology that connects them to people, data, content, resources, expertise, and learning experiences that can empower and inspire them to provide more effective teaching for all learners” (Office of Educational Technology, p 28). To allow this goal to happen, schools need to support educators in accessing the required technology and teaching them how it can be used effectively through professional development, mentors, and collaboration with coworkers. According to the Office of Educational Technology (2017), “Roughly half say that lack of training is one of the biggest barriers to incorporating technology into their teaching” (p 29). Technology is designed not only to transform learning but also help “enable transformative learning” (Office of Educational Technology, 2017, p 42). An educator’s ultimate goal is the success of the students. During COVID-19, technology tools were implemented and introduced that were best suited to incorporate into previous face-to-face lessons. Surveys conducted by the Association of Christian Schools International (ACSI) found that “83% of schools had utilized at least one distance learning tool/method before COVID-19, while 17% reported never using any distance learning tools/methods before” (Swaner, 2020, p. 3).

### **Research Method and Design**

This qualitative study employed a case study design. Creswell (2002) states, “A case study is a problem to be studied, which will reveal an in-depth understanding of a ‘case’ or bounded system, which involves understanding an event, activity, process, or one or more individuals” (p 61). Though bounded by teacher experiences with technology during COVID, the collective case study seeks to explore the individual cases about a situation or experience to help answer the questions of “why” and “how” while comparing cases to understand the issue (Schoepf & Klimow, 2022). The purpose of this qualitative case study is to delve into private elementary school teachers' transition from face-to-face to online teaching and the use of technology for instructional delivery during the COVID-19 pandemic. The following research questions guided the research study:

R1: What perceptions do Central Texas private elementary school teachers have of the technology support they received as schools moved to remote learning in the spring of 2020?

R2: What support did teachers desire for remote learning during the onset of the pandemic?

R3: What were the experiences of Central Texas private elementary school teachers in implementing new COVID-era teaching strategies?

### **Setting & Participants**

This qualitative case study is a bounded system in Central Texas private elementary schools. It involved interviews with kindergarten through fifth-grade teachers to gain perspective on their use of technology in the classroom during the COVID-19 pandemic. Interviews were conducted in January and February of 2023. Participants consisted of kindergarten through fifth grade Central Texas private elementary school teachers. To qualify for the study, prospective participants had to have taken part in teaching during the COVID-19 pandemic and virtual learning within a private school setting.

### **Data Collection**

Using snowball sampling, administrators helped distribute the call for study participants. Overall, 11 teachers volunteered to participate in 1:1 interviews. Participants ranged from first-grade to fifth-grade teachers at private schools in Central Texas. Data Collection involved the use of a semi-structured interview protocol, which included questions developed by the researcher and Dr. James Martinez

(Martinez & Broemmel, 2021) (Appendix A). Following each semi-structured interview, recordings were transcribed, and each participant was assigned an interview code. Pseudonyms and demographic information for each participant are noted in Table 1.

**Table 1**

*Participant Demographics*

<b>Participant</b>	<b>Years of Teaching Experience</b>	<b>Grades Taught During COVID</b>	<b>Subjects Taught</b>	<b>Availability of Technology at Home</b>	<b>Gender</b>	<b>Age Range</b>	<b>Degree/Level of Education Completed</b>
Teacher 1	6-10	4/5	Mth/Sci/SS/Bible/Tech	Laptop/Internet Access	F	31-45	Master's
Teacher 2	6-10	2	All Subject	Laptop, Chromebook, iPads, air pods	F	15-30	Master's
Teacher 3	16-20	1	All Subject	Computer, iPad	F	46+	Bachelor's
Teacher 4	0-5	5	All Subject	Computer	F	46+	Bachelor's
Teacher 5	21+	2	All Subject	Computer, laptop, High Speed Internet	F	46+	Master's
Teacher 6	11-15	3	ELAR/Bible/PE/Tech	Internet/laptop/iPad	F	31-45	Bachelor's/Alt . Teacher Certification
Teacher 7	16-20	4	All Subject	WIFI, iPad, laptop, smartphone, desktop computer	F	31-45	Bachelor's
Teacher 8	21+	5	ELAR/Mth/Sci/SS/Bible/PE/ Tech	Laptop, Camera, Document Camera, XP Pen Device	F	46+	Bachelor's
Teacher 9	0-5	3	ELAR/Mth/Sci/SS/Bible	Laptop, iPad, iPhone	F	15-30	Master's
Teacher 10	21+	3	Mth/SS/PE	Computer, Printer	F	46+	Bachelor's
Teacher 11	6-10	1	All Subject	Chromebook	F	31-45	Bachelor's

*Note.* n=10; F=Female; M=Male; Mth=Math; Sci=Science; SS=Social Studies; Tech=Technology/ELAR=English Language Arts; PE=Physical Education; Alt.=Alternative

### Data Analysis

Throughout the interview process, memo writing was used by the researcher. Memo writing included initial thoughts on the topics being discussed and helped begin the coding system's development (Clarke, Friese, & Washburn, 2018). In addition to memo writing, data sources include the transcribed interviews. Open coding was used to sort through the data and to categorize events and concepts. Then,

the categories were collapsed into overarching themes: Resourcefulness, Communication, and Emotional Factors. The reliability of the coding methodology was verified through an inter-coder agreement process utilizing a sample of the transcripts and the codes within the document. The inter-coder agreement was held at 100% agreement with another qualitative researcher who agreed that the codes were valid.

## Findings

Analysis of teacher experiences led to three primary themes: Resourcefulness, Communication, and Emotional Factors. Theme 1 relates to ways schools and teachers were innovative in finding technology for students and teachers to use during the quarantine. Theme 2 relates to communication between teachers and administration, teachers and students, and teachers and parents. Theme 3 relates to the emotions teachers experienced during the pandemic.

### Primary Theme One: Resourcefulness

When asked about their experiences with technology, teachers shared many tools they used. Participants also reflected on the support schools were able to provide for them. This theme emerged as teachers shared ways they located and implemented the use of technology to meet student needs. Some schools allowed students and teachers to stay home an extra week after Spring break to plan for what they thought might be coming. Some held training through Zoom or other online platforms, and some schools provided very little technological support. Schools, teachers, and students were resourceful in their application of technology skills and tools.

In terms of technology use, demographic data indicated that hardware used by teachers included computers/laptops, document cameras, iPads, and other basics that allowed the educator to be successful with online teaching. Even though a requirement of the study was that participants had taught online during the pandemic, that did not mean that the technology used was provided by the schools. Participants were resourceful and used personal computers and iPads. Overall, four out of 11 participants stated that they used their personal computers during the pandemic. Nine out of 11 participants stated that they also used a school laptop or computer. The overlap indicates that while some educators had access to their school's technology tools, they also had access to their personal equipment. Teacher 2 stated, *"I think everyone, really all of our admin really stepped in and got us any technology we thought we might need."* Appendix B presents an overview of the technology hardware available to private school educators from this study. For example, some participants clearly stated that the school provided certain technology to them during remote learning while other participants did not specifically state that it was given to them.

Because private schools do not receive state funding, resourcefulness became a necessity for both participants and the schools for which they worked. Therefore, during the pandemic, participants in this study relied on the resources that were free or readily available to them. Nine out of 11 participants used their own personal technology device. Some teachers had setups with a document camera, laptop, and whiteboard in a home office so that it looked like their classrooms. Some teachers had just a laptop. Technology or instructional technology support was acknowledged by four out of 11 participants, whereas six out of the 11 participants stated that they were on their own, had to do the best they could, or had a lack of training. In this case, participants showed their version of resourcefulness in other ways. For example, Teacher 9 confirmed, *"The second week was spent training the teachers on how to best utilize each resource we needed to make sure we felt supported."* The Center for the Advancement of Christian Education acknowledged the difficult process and stated, "To put people, processes, and products in place



that full support a complete and effective online learning experience is impossible to do well quickly” (CACE, Oaks Christian Online, 2023). Teacher 4 similarly states about administration, *“They just encouraged us to take full advantage of the hour a day to use our tools that were on Canvas and to make videos. You know, don’t underestimate the power of recording yourself doing problems and things like that.”*

In contrast to the support that some teachers received Teacher 10 voiced, *“The only thing they could provide me was my computer from school. I had two computers...one of them was mine. The school didn’t really provide much, technology or anything. They didn’t have it to provide really.”* Teacher 3 agreed, *“For a private school, I just used my own computer at home. I didn’t get any computer or anything like that from school.”* In order for this participant to be able to teach remotely, their resourcefulness came from utilizing the technology they had available at home. Others demonstrated their resourcefulness by relying on each other. This resourcefulness came as a necessity more than a want. One of the teachers gave two examples of this resourcefulness. Teacher 11 stated, *“Everyone kept calling it trauma bonding...it kind of was in a way, like just going through an impossible situation. But we did it... We all just kind of did the best that we could, the kids did the best that they could.”*

While Teacher 9 and 11 felt as though they had to become their own IT person and that they were alone, Teacher 3 followed by stating, *“We got the IT support from people at work.”* Teachers sought technology tools to help them develop lesson plans, create slideshows and forms, read books online, and allow students to record and comment on each other’s videos. Teacher 2 emphasized how much the students enjoyed one of the technology programs, *“We use Flipgrid a good amount, which was fun for interaction with the kids.”*

Appendix C provides insight to the variety of technology applications that were used by the participants in the study. It is important to keep in mind that while many resources were opened up during this unprecedented time, some of these resources were used sparingly as they might not have worked for particular situations the educators were in. Teacher 2 alluded to this fact, *“It was tricky to have change midstream several times and say, Okay, this didn’t work. Let’s do this.”*

Teacher 6 discovered Google Forms within the G-Suite and explained,

*They were the best thing in the whole world. . . It would show me how many kids answered this particular question in this way. And when they were done, and that was great, and then I didn’t have to print anything.*

Zoom was a popular platform used by all 11 participants that, according to Teacher 9, *“It was a lifesaver of being able to go on and meet with the students, meet with the parents and meet with other faculty members.”*

## **Primary Theme Two: Communication**

As participants were asked about the support they received and successful practices implemented, communication stood out as a predominant theme. Communication was appreciated, desired, and deemed critical during the uncertain times. After spring break, many schools took one to two weeks off to form a plan as announcements were starting to be made of school closures. These plans were made in person and via an online platform. After some schools could form plans, face-to-face communication became a thing of the past due to the severity of what was happening. Schools, administration, teachers, and parents began using platforms such as Zoom, Google Meet, or their phones to communicate. Overall, eight out of



11 participants said that emails and Zoom were their administration's primary forms of communication. Communication with their administration through text or phone calls was represented by seven out of 11 participants, and two out of 11 participants expressed that their administration was always available, would send out messages to their community, and wanted more communication, as shown in Table 4. Teacher 9 emphasized messages to the community, *"Our two principals, elementary and secondary, also would put out recorded messages to the community. I feel like it just kind of helped keep some semblance of a community going."*

Participants were in a situation with no correct answer to the questions of professional and personal support. For example, as teachers discussed support, communication through emails, Zoom, or phone emerged as the type of support that was most helpful. Administrators were receiving information from the Texas Education Agency and the Capitol about the latest CDC updates. Based on this information, administrators made choices and communicated information to their staff and faculty.

Communication was critical during the pandemic and was executed in various ways based on the convenience of the administrators, faculty, and staff. Teacher 7 explained:

*Because you're not in touch with everyone since you're at home, he [the principal] would ask us either daily questions, or like, twice a week or three...reply all so we can get to know everybody across our elementary campus.*

These recorded messages allowed parents, faculty, staff and students to feel a part of the school and the community even when they were not able to be around each other. Teacher 10 also noted regarding communication at their private school, *"We could ask questions and say, hey, how are you doing this? You know and he would ask what is working? What is not working?, What can we do to make things better?"* Teacher 8 also similarly agreed,

*I do think it was helpful. ...an email is something you can choose to open when you want to and read when you want to. And the emails were helpful, because a lot of times they would have information that sometimes you're hit with so much information, that it's nice.*

Teachers worked very closely with parents through remote learning. Parents became the teachers at home but depended on the educators to provide the necessary work to be completed. This was relevant to communication because educators and parents worked together for the benefit of the students. Overall, six out of 11 participants expressed that their students' families were positive and appreciative of the time they were putting into their child's education. Parent involvement with their child's education was described by five out of 11 participants. Teacher 3 stated how families were more engaged with their child, *"Parents were with their kids more. And they got to do the assignments with them. ... and they enjoyed it. And they made it fun. And they did the best they could. And I think that parents saw how much you know, teachers do in the classroom."* Teacher 6 explained:

*It was their parents because all my parents wonderful, engaged, dedicated people who were remarkably kind and supportive. You know, but they don't know what's going on either. And they are all most of them anyway are working. You know, so some of them would get on and talk to me too. And some of them it was like okay, here's the phone explain to my kid how to do the math because I have to go do this.*

Teacher 8's administration told their staff and faculty:

*They would tell us the feedback they were getting from parents was positive and appreciative and, and they shared that with us, they made sure we knew that. That the parents were appreciating us*

*and we got feedback from parents also and making sure we were okay, as well as us making sure they were okay.*

While it was not an ideal situation, participants agreed that the families played a significant role in helping the educators, even if they were also working.

### **Primary Theme Three: Emotional Factors**

Participants expressed difficulty in the transition from face-to-face learning to emergency remote learning. The emotional barriers presented during the pandemic brought a unique experience that educators have not forgotten. While some educators had more experience with technology than others, remote learning was a new way of teaching for the students, administration, parents, and educators. Emotional factors that came out during the interviews reflected feelings of stress, inability to accomplish tasks, ineffectiveness, and struggle. During the pandemic, five out of 10 participants expressed that they would rather be in person than have to teach remotely. Other participants expressed that remote teaching was challenging, that they did not want to do it again, and that it took a lot of motivation to get up each day and go online. One participant even alluded to Post Traumatic Stress Disorder (PTSD) when they opened up their Google Classroom. Educators were placed in a situation that caused emotional stress. While it was a situation of many questions and possibilities, emotional factors such as student impact, criticism of their teaching ability, and confusion on how to teach their content were factors that played into this theme.

Teacher 4 expressed the hardest part for them, *“I love the face-to-face. . . I really did feel fairly ineffective a lot of time even though..., you could go back and ask some of the parents, and they’re still like, oh, it was such a great time. And it was so wonderful. In my mind. It’s like, oh, I need eye contact. And yeah, that was hard.”* Teacher 3 expressed, *“The struggle with just getting up every day..., honestly, just finding the motivation to do it again.”* Teacher 4 continued, *“I just, I don’t, I really, really did not enjoy it at all. There was nothing about it that I thought was oh, this is great. Or I’m enjoying this process. I did not. I like being face-to-face with the kids.”* Teacher 7 emphasized, *“It’s just hard to make those connections and as much as you try through a screen, it’s just not, it’s not the same....the personal relationships, I think really suffered between teacher and student and student and student.”* Teacher 5 agreed, *“I just don’t look forward to technology. I’m an in-person, kind of person. That the process, and it’s just not as personal.”*

Frustration rose to the top of emotions for the participants and even presented itself in the form of sadness when speaking about teaching during the pandemic. Teacher 10 stated, *“It was frustrating, quite honestly. We were in a situation, we were told, here’s what we have to do, but don’t have the skills or the people to help us do it. No, it was frustrating.”* Teacher 8 reiterated, *“It’s a part of teaching that I never agreed with that some teachers have. And that’s that, well, I gave it to you. And now it’s your job to regurgitate it back or learn it. I did my part. And I don’t believe that’s what teaching is.”*

Combining both emotions, Teacher 6 commented,

*The pandemic was . . . it was unprecedented, unprecedented, unprecedented. And the people that it hit the hardest, in a weird way, are the people that are most willing to talk about how hard they got hit are students and teachers and doctors, which I think is weird. That we’re on the same level as doctors, you know, all the stress was on teachers and doctors.*

Teacher 8 stated, *“I really feel that the majority of students are more successful in person. I think online only learning is a struggle. It is a struggle to motivate them. It is a I, I’m so grateful to not teach online anymore. Just because that is such a difficult thing.”*

Educators expressed frustration with recording themselves, messing up, and having to record themselves multiple times. Knowing that people were watching these educators was enough to cause emotions and tears. Teacher 6 expressed her frustration experienced during the pandemic, *“Just knowing that people were watching you was just really hard, and nothing happened. Mostly, the kids learn just fine, and everything went fine. But that was hard on me that time.”* The participant continued to share, *“I went in and cried. I said, this is this is hard. Like, I don’t know how to do this. Nobody knows how to do this, I’m doing my best. You know, I was like, ... I can’t make it, you know.”*

Teacher 4 stated, *“I think there were the hindrances all came from me, not outside of me.”* Teacher 6 stated, *“The psychological burden of knowing someone is watching you for six hours a day is, was heavier than I expected.”* Teacher 8 also agreed with watching or replaying the videos you recorded, *“When you’re hearing yourself back as a video, you, you get that feedback from there, I think we’re more critical of ourselves.”* Overall, educators felt emotional stress of never wanting to go through something like this again, *“I’d never want to go through that again,”* stated Teacher 8.

Participants expressed that they struggled with translating classroom reality into virtual because it was exhausting and did not allow them the ability to teach the depth they wanted in subjects. Emergency remote learning is much different from intentional online learning. Educators were in a predicament of trying to figure out emergency remote learning and the most effective ways to communicate with students and families. Seven out of 11 educators expressed that they covered the content as best as possible and that their teaching was often at a surface level. They could only sometimes dive deeper into the curriculum or needed adequate time to teach the subjects. Standards were covered as best as possible, considering the circumstances, and the curriculum was utilized in various ways. Teacher 1 explained, *“I think as far as the content goes, I would say I covered it, I covered all my TEKS that year, but not at the level that I normally insist on, if that makes sense. Okay, so we were able to check all the boxes. But delving deep was very difficult.”* Teacher 8 shared,

*So effectively teaching my content was difficult to say. I mean, I can make a video and put the content in there. But I, for me to be effective, I have to see the feedback from the kids. And so, it’s difficult to see what feedback I would get there. It was non-participatory.*

Teacher 9 commented, *“I think I was able to do it as effectively as I could.”* In conjunction with educators feeling that they taught as effectively as they were able under the circumstances, they also alluded to the fact that if they had been in class, things would have been very different. Teacher 2 stated, *“I thought we did a good job for what, you know, we were faced with, but nothing like what we could have done if they were still in the classrooms.”* COVID 6 also expressed,

*The problem is, I wasn’t actually there. So, you know, what am I going to do? And so, I had to learn to, number one, be organized because I would try and start doing these videos, and I would be like, you know, hey guys, but then, oh shoot, I left my book over there. And well, now we have to start over.*

Themes of resourcefulness, communication, and emotional factors overlapped each other throughout this study. As participants expressed how they used technology tools and programs, forms of communication were evident with administration and families. For example, the participants were very critical of themselves, and the emotional stress from using these programs became apparent. The

overlapping themes provided a way to see how technology implementation played a role in each participant's life. This was determined based on experience, use, and other factors within each participant's private school.

### **Discussion and Implications**

Findings indicated that participants in this study became resourceful with technology during remote learning to meet student needs. They desired communication, and they recalled emotions from their online teaching experiences. Participants were able to expand their understanding of tools and programs utilized as well as skills that they learned throughout the school closures.

Research question one asked, "What perceptions do Central Texas private elementary school teachers have of technology support they received as schools moved to remote learning in the spring of 2020?" Theme one encompassed the support participants received in terms of technology support but highlighted ways teachers and schools had to become resourceful in locating and implementing new tools. Examples of resourcefulness included asking their friends for help with technology when they did not know what to do. Participants were also resourceful in finding programs that were free to educators. Platforms such as YouTube or Zoom provided needed communication and support.

Research question two asked, "What support did teachers desire for remote learning during the onset of the pandemic?" Findings indicated in this study that participants relied on and desired communication in order to stay in touch as best as possible. Communication looked different because teachers were not face-to-face. Theme two encompassed the support participants received in terms of communication, parent appreciation, and professional support. Participants spoke about their perceptions of the forms of communication that were utilized at their private schools. An example of forms of communication included administration being available via email, Zoom, or a phone call or parents requesting one-to-one Zoom calls with the educator and their child. These forms of communication gave educators, families, and administration a chance at normalcy in an unprecedented time.

Teachers desired support related to technology and pedagogy (TPK) but not as much content (CK). Teachers' desire for support with technology and communication aligns with the Technology and Pedagogy Knowledge in the TPACK framework in an online environment. According to the study, and due to the themes overlapping, TPACK is relevant in each theme. In order for educators to deliver instruction, they first needed knowledge of their content, which was already in place prior to the pandemic. Then, due to remote learning, the technology component was utilized to implement their curriculum. As noted in the findings, teachers were resourceful in locating devices and tools to use during the quarantine. However, findings indicate that the pedagogy component of online teaching was a concern for teachers. This made sense because teaching online requires different pedagogical skills than teaching face-to-face. Teachers had to figure out how to use new tools to deliver instruction and how to learn these new tools remotely. For example, technology pedagogy knowledge (TPK) component came in. Learning how to teach remotely required participants to figure out a new way of delivering their instruction using unfamiliar technology tools like Zoom.

Communication and selecting tools to communicate also align with the TPACK framework. For educators to effectively communicate their curriculum to their students, they had first to have knowledge of their content and then utilize technology to communicate the curriculum to their families and administrators. Zoom was the most prominent form of communication. Educators would display a

whiteboard or share their screen to teach the curriculum to their classes. While it was not a traditional in-class teaching style, it was still getting information to their students through the resources that they had to use.

Research question three asked, “What were the experiences of Central Texas private elementary school teachers in implementing new COVID-era teaching strategies?” Theme three ties in components of emotional stress mixed with how they were going to continue supporting their students. For example, educators expressed becoming very stressed about recording themselves multiple times for their students because they would mess up, and they knew the parents would see this.

Teachers conveyed many emotions about implementing new COVID-era teaching strategies related to TPK. Because teachers were confronted with new ways of teaching and communicating, they experienced stress. For example, one participant expressed knowing how to teach on the board in class, but on Zoom, it was different, as sometimes it worked, and sometimes it did not. Participants expressed frustration that there was a possibility that students had parental help on most assignments.

Overall, teachers noted that they felt more confident with online teaching after the pandemic. Therefore, the higher level of TPACK educators have, the more confident they are in remote and in-person classes and experience less stress and emotional drain (Stan, 2022). This is significant for educator preparation because, in an era of ubiquitous technology use, it is important that teachers develop these skills regardless of a pandemic, not in spite of it. Educator preparation must integrate technical skill with pedagogical and content knowledge (McClure & Pilgrim, 2020).

## Conclusions

Technology integration was difficult for teachers in this study as they delivered instruction in remote settings. However, teachers felt more confident in their abilities after the pandemic. We suggest that this increase in self-efficacy relates to the opportunity to practice teaching with technology. Teachers had to locate tools-- in some cases, the tools they needed were actual devices. However, they extended their resourcefulness and desire to improve communication and used tools like document cameras or applications like Zoom. These tools enabled teachers to deliver content remotely. Where many teachers had not experienced learning with Zoom, the remote teaching allowed them to become more confident with tools that many people now use frequently.

The ability to integrate technology into instruction is key. In Texas, technology standards are already a part of educator preparation programs. Technology integration requires skills beyond knowledge of standards and tools. The pedagogical component of teaching with technology requires practice but is beneficial for teachers and students alike, as technology can alleviate barriers to learning (Lisenbee et al., 2020). As teachers have the opportunity to explore and practice technology implementation in their educator preparation programs, they may continue to build confidence in their ability to teach and communicate effectively with technology. For example, preparation programs with reading clinics can have students tutor virtually, online courses in teacher preparation programs can be intentional about modeling effective pedagogy in virtual setting. Global and national education policies promote technology integration in education as a major factor for future economic success (Office of Educational Technology, 2022; UNESCO, 2017).



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### Appendix A

1. How effectively were you able to teach your content?
2. Please share with me some technology skills you had to learn during COVID.
3. Please share with me some pedagogy skills you had to learn or implement during the pandemic.
4. Tell me your feelings about the professional support you received from your administrative team during the COVID-19 pandemic/ Personal support?
5. Do you feel more confident in your technology skills? If so, how do you feel more confident? If not, what are your barriers?
6. How did your administration communicate during the pandemic, and how was this communication helpful or hindering?
7. What type of support would have helped you become a better teacher during COVID?
8. Tell me about your school's technology tools that were accessible by teachers and students and whether they helped you provide instruction successfully.
9. What were the successes and struggles in moving to an online teaching environment?
10. What are the most successful practices your school implemented to support teachers' work amid COVID-19?
11. What resources or applications do you feel worked best to provide quality online instruction during remote learning?

**Appendix B**  
*Overview of Technology Hardware*

Technology Tool(s)	Total # of Teachers Utilized	Participant's Perception
Personal Computer	5/11	"For a private school, like, I just, I just use my own computer at home. So I didn't get any computer or anything like that from school." "So my computer at school was just there."
Personal iPad	2/11	"I had an iPad. I did all this on an iPad, the one I'm using right now, it was super helpful."
School Computer	4/11	"All we have in the elementary school technology wise is our computers. There is one in the classroom. And most of us use our own personal computers. And then, because most people taught from home, that is it."
Personal Student Computer	1/11	"Yeah, it was great. But we are, I will throw this out there. We are a private school. And I don't know how to say this. But most kids had access to computers. Yeah, that wasn't an issue."
Student Issued School Computer	1/11	"If we had students that did not have any kind of technology at all, then you were you contacted the school and the school worked with you in the school." "If they did not have enough devices, or they did not have what they needed, then they contacted the school and the school made sure that they had what they needed. And we were given early on, they had us do a technology."
No School Technology	2/11	"I didn't have any school technology. I think, that's pretty much everyone. Everyone in our school is not high tech. at all, I mean, we have technology, technology class for third through eighth grade, we only got through eighth grade. Maybe I'll have use much technology on my level."
Personal Speaker/iPad Stand	1/11	"I had to buy online things. I had to buy some kind of special speaker so that so that I forget why I guess so I can hear them better. I had to buy an iPad stand that would stand at a specific angle so they could see me really well."
Document Camera	2/11	"I needed something that I could write on, I took my document camera home."
XP Pen/Pad	2/11	"I had to learn how to use an XP pin, it's it is kind of like a, it's like a writing pad that you can write on, and then they can see it."
External Camera for Computer	2/11	"My computer doesn't have a camera. So I had to the school had to get me an external one that hooks into my laptop, and then that required some other device that would be able to take more than one USB port."

**Appendix C**  
*Technology Applications Utilized by Participants*

Technology Application	Total # of Teachers Utilized	Participant's Perception
Zoom	11/11	"I had learned to use Zoom, which I'd never used before. I'm learning to use Zoom. I'm glad that I learned to use Zoom." "Zoom just so we can keep in touch with people zoom."
Google	1/11	"Google and YouTube, were probably the best things."
Google Classroom	7/11	"Not just Google Classroom, like the actual application, but the virtual classrooms on Google Slides and we created that for each grade level." "We created a Google Classroom for each of our each of our kids got a Gmail account schoolwide to use on Google Classroom"
Google Forms	1/11	"Thank God, I discovered Google Forms. That was great."
Google Slides	2/11	"I used Google Slides, and pieces of it. And so, I could create a slideshow, especially for social studies, where you would go from, you know, let's talk about this. Let's look at the images. Let me ask you these questions. Let's watch a 30 second clip, and different things like that."
IXL	3/11	"One of the resources that I really started up utilizing and continue using even more is IXL."
RenWeb/ FACTS	1/11	"For communication with parents, it's called RenWeb. It holds our lesson plans, and it has all the things and they all have access to it." "I did recognize part of that was that our all our administrators had access to RenWeb."
BrainPop/ BrainPop Jr.	2/11	"There were some resources that, that were made free to teachers during COVID. One was BrainPOP."
YouTube	5/11	"I feel like they were supportive in that they were supportive in training us how to make our YouTube videos, how to post them, where to post them. Because we did a huge, we didn't have individual YouTube channels, our school had one YouTube channel."
Renaissance/AR	1/11	"Renaissance, which is reading, AR reading"
Big Blue Button	1/11	"There was a program called Big Blue Button that we used for them to be online watching me teach. If they missed it, there would be a recording. They could go back and watch that entire year. I had kind of a love hate relationship with."
Teachers Pay Teachers (TPT)	1/11	"TPT Teachers Pay Teacher's, that was pretty helpful."
SeeSaw	1/11	"They had different online textbooks that are they had their book online that students could complete their homework and submit it to seesaw without having to print it."
Right Now Media	1/11	"Being a Christian school, we had access to an online version website called right now media that had different resources for us to use to talk through Bible lessons."
Blackbaud	1/11	"The Blackboard platform that we use now basically for like attendance and grades and so had that."
Scholastic	1/11	"Scholastic came out with a bunch of lesson plans that were super helpful for social studies science that we used a good amount as well."
FlipGrid	2/11	"I use the quiz part of Canvas, and Flipgrid a ton."
Canvas		
Get EPIC	1/11	"They had accounts for GetEpic.com, which is the little website they can go to and read books online. I could assign a book and in that, that kind of go along with what we were learning and they could take a quiz. They got interactive, the quiz with that."
Bitmoji	1/11	"Bitmoji is just make it entertaining."
Boom Cards	1/11	
Kahoots	1/11	"Pulling in all the different applications like seesaw, or we used boom cards and Kahoots."

Seesaw	1/11	
GoNoodle	1/11	
Fitness & Fluency	1/11	“We used some more fun ones like go noodle and fitness and fluency.”
Other programs Utilized		Quizlet, Prodigy, QuickTime Video, Studies Weekly

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**Appendix D**  
*Common Forms of Communication Among Participants*

Communication Type	Participant	Participant's Perception
		"It was largely by email. That was sort of communicating with one another."
Emails	8/11	"You can always say there's always too many emails. But an email is something you can choose to open when you want to. And read when you want to. And the emails were helpful, because a lot of times they would have information that sometimes you're hit with so much information, that it's nice."
		"I knew the other teachers, you know, I was able to text them and call them and things like that."
Text/Call	7/11	"We did, of course, email we, and then we would have meetings via zoom."
Zoom Meetings	8/11	"I'm pretty sure it was a weekly faculty meeting over Zoom. I do feel like because of the amount of teachers we have, across our elementary campus, you know, Zoom meetings can be hard, because, you know, some people aren't on aren't muting themselves, and so you're distracted. And that I think, those types of meetings were hard to communicate, but I, I feel like having that go between with my associate head, and my head of school really helps because she was able to take what we needed."
Trainings before COVID	1/11	"It was kind of like during in service before the school year started, they kind of laid everything out and said, Look, this is what we've decided."
Always Available	2/11	"Because she was new. She wasn't super communicative. But she was always available. If I had questions or, and I'm pretty sure that she did deal with the, if I'm remembering correctly, the, like the room moms to find out what was needed or lacking more than with us. Like she will always be available. If you need anything, let me know."
Messages to Community	2/11	"I remember emails, not a ton of emails, I remember our chapel services, where, you know, a video of our Head of School, talking to the camera that everybody watched, it was recorded. And she would make announcements and stuff."
		"Our two principals, elementary and secondary, also would put out recorded messages to the community."
		"I feel like it just kind of helped keep some semblance of a community going."
Wanted more communication	2/11	"We train our people well, and so it was. I mean, we would get updates, but I didn't feel like it was overbearing. There, I would have liked maybe a little bit more communication towards like parents, but for towards our teachers, they kind of, you know, hired us to do a job and trusted us and asked us how we're doing and if we needed something they'd get on it."

## “TEACH YOUR HEART OUT”: PRE-SERVICE TEACHERS PUSHING BACK AGAINST THE ANTI-TEACHER NARRATIVE

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### Abstract

The researchers surveyed fifteen pre-service teachers across two content-area teacher education courses to explore their current perceptions about the teaching profession and their roles as emerging professionals in the field. The guiding research question was: Given the current negative climate around the teaching profession, what causes pre-service teachers to persist with goals of becoming teachers? Through open-ended questions, the pre-service teachers shared their current perceptions of the field of education, what factors impact them to persist, and their plans to affect the larger teaching narrative. The findings examine these pre-service teachers' desire to push back against the anti-teaching narrative, how they view teaching as a noble profession, the pre-service teachers' inclinations toward advocacy, and how they perceive a holistic view of the profession's impact on society. Implications for teacher preparation programs include creating space to foster and grow pre-service teachers' teacher identity. The study also highlights that pre-service teachers have a desire to know more about avenues for leadership and advocacy in their time as early career educators.

**Keywords:** *pre-service teachers, teaching profession, deprofessionalization, perceptions of education, advocacy*

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### Introduction

Society's perception and denigration of the field of education and teachers have increased recently, certainly aggravated by the stark disparities and challenges of the COVID-19 pandemic. Though overall society agrees that teaching is important, the profession is often viewed negatively. This anti-teacher narrative pervades both local communities and the nation through media coverage. Through this intrinsic case study, the researchers focused on pre-service teachers' perception of the profession, with a particular interest in their decision to pursue teaching licensure amid the deprofessionalization of teaching. This study indicates that though these pre-service teachers are aware of society's views about teachers, they feel called to teach and anticipate that their impact on students will enliven them towards being advocates within the profession.

### The Anti-Teacher Narrative: Review of Current Literature

Teachers have long been viewed as technicians rather than professionals (Cochran-Smith, 2001; Giroux, 2011; Ingersoll & Collins, 2017; Milner, 2013), and this deprofessionalization of teachers is also evident in the current media (Bailey, 2023; Missouri State, 2022; Will, 2019). Additionally, there are teacher shortages across the nation (Henebery, 2023). Teachers are leaving the profession in droves due to this deprofessionalization, impacts from COVID-19 (Gillani et al., 2022), budget cuts (Zimmerman &

Amin, 2023), and political policies (Daliri-Ngametua & Hardy, 2022). Many teachers leaving the profession cite that they felt like they were no longer teaching the whole child, but rather teaching for achievement, data, and test scores (Daliri-Ngametua & Hardy, 2022). In short, Berliner (2018) found that educators were saddened and disheartened by their inability to enact change in young lives.

There are a multitude of factors that affect teachers' perceptions of their job and the profession as a whole. Will (2019) states that teachers across the nation continue to feel the effects of the pandemic, coupled with a crisis of waves of educators leaving the classroom due to teaching being deprofessionalized through media, politics, and funding (para.2). Low wages that do not even keep up with inflation and regular budget cuts to school funding are additional factors that weigh on teachers (para.3). Missouri State University notes that the uptick in teachers experiencing burnout is another cause of teachers leaving the profession (MSU, 2022, para.2).

Across the last two decades, there has been a shifting emphasis between comprehensive national policy (NCLB, etc.) geared toward solving the perceived learning and achievement problems of schooling and the issue of teacher education being more about teacher candidates becoming "professionals with appropriate attitudes, beliefs, and values as well as the necessary professional knowledge and skill" (Cochran-Smith, 2023). Through this shift, teacher education programs became more controlled by policymakers who saw the purpose of schooling as to prepare K-12 students to be competitive globally (Cochran-Smith, 2004; Cochran-Smith, 2023). This belief endures today, though more so veiled under curricular reform efforts at the local and state levels. Relative to teachers' perceptions of their jobs, the competing narratives highlight issues related to teacher autonomy and expertise (Cochran-Smith, 2015). These tensions are actualized, particularly contemporarily, as teachers face criticism, pushback, and even censure through the removal of curricular materials and alterations to the curriculum. With in-service teachers leaving the field in large numbers and teacher preparation programs shrinking, what beliefs ground pre-service teachers in their decision to pursue this profession?

### **Theoretical Framework**

For this study, the researchers took up a knowledge-of-practice view on teacher learning that acknowledges the interwoven impacts of both theory and site-based practice as spaces that generate knowledge and inquiry (Cochran-Smith & Lytle, 1999). Additionally, the researchers were informed by a poststructural perspective of teacher identity formation where investigating the emotional components of a teacher identity offer a richer understanding of the teacher self (Zembylas, 2003). The researchers argue that individual identity is continually (re)contextualized in and within the socio-cultural and socio-political contexts. Because identities are being (re)written based on contextual factors, reprofessionalizing teaching can happen through teachers' ability to re-story themselves as professionals, which will foster agency (Tondreau & Johnston, 2022). Various factors shape teachers' professional identities and help them develop a deeper understanding of their roles and responsibilities as educators (Cochran-Smith & Lytle, 1999). Additionally, the researchers argue that a poststructural analysis of teacher identity formation emphasizes teacher agency to contribute to their resilience in the face of challenges and to help them (re)construct resistance to the anti-teaching narrative (Zembylas, 2003).

### **Methodology**

Through an intrinsic case study (Stake, 1995) the researchers sought to uncover pre-service teachers' perceptions of the current teaching climate and their plans to contribute to the field as emerging



professionals. Given the contemporary deprofessionalization of teaching, the rapid changes in the expectations of education, and teachers leaving the profession, the researchers desired to know why these pre-service teachers persist in their teacher preparation program. What is it about these individuals' teacher identity that allowed them to resist the current anti-teaching narrative? Amidst the increasing scrutiny on teachers themselves, in-service teachers also encounter policies directed at restricting curriculum, less preparation time, extensive budget cuts, legislation that undermines education, constant inquiry through digital media, lack of autonomy, and increasing disrespect from students and parents. The researchers surveyed fifteen pre-service teachers who were enrolled in either an elementary literacy content course or a secondary literacy content course. Distributed across their first, second, and third years in the teacher preparation program, most of the students were in their second and third years of study and had taken other education courses in both content areas and methods. The researchers provided basic context ahead of the participants completing the questionnaire, outlining the tensions and challenges that in-service teachers encounter.

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### **Instrument Questions**

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What are your current perceptions about the state of the teaching profession?

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How have your previous teachers/instructors inspired you to take up the call to teach and persist in today's climate?

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What are your plans to positively change the narrative about teachers and education through your work as a pre-service and early career teacher?

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The questionnaire centered on obtaining authentic responses to the guiding research question: Given the current negative climate around the teaching profession, what causes pre-service teachers to persist with goals of becoming teachers? The instrument consisted of three voluntary open-ended questions aimed at understanding the pre-service teachers' background, current perceptions, and future plans. The researchers engaged in constant comparative analysis of the data (Glaser & Strauss, 1967) by first using brief memoing and open-ended coding. Then the researchers developed coding patterns, and then finally, developed recurring themes (Miles et al., 2014).

### **Findings**

Findings indicate that pre-service teachers have strong desires to change the anti-teacher narrative. Despite the national deprofessionalization of teachers and the increasing teacher shortages across districts and states, emerging educators reiterate that they are committed to their chosen profession.

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### **Recurring Themes**

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Teaching as Work Worth Doing

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Preservice Teachers' Desire to Advocate

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Including Perspectives & Voices

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Teaching as a Profession & Its Impact on Society

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First, pre-service teachers feel that the profession of teaching is worth the hard work, and they feel called to teach. Second, the surveyed pre-service teachers desire to advocate for both their profession and their students and to work alongside parents. Third, they also aim to include multiple perspectives and voices in their future conversations with students. Finally, despite all being enrolled in content-specific courses, the pre-service teachers have a holistic view of teaching and their future impact on education and society. As participants in this study, the pre-service teachers examine both their own beliefs about teaching and education in addition to positioning their beliefs contextually with regard to society's perception. The responses of these pre-service teachers exemplify that identity is continuously being (re)contextualized based on their socio-cultural and socio-political lived experiences. Pre-service teachers are beginning to cultivate a professional network among their peers, mentors, professors, and other colleagues. Through these interactions, they may experience shifts in their professional identity, developing a deeper understanding of their roles and responsibilities as educators. Through study of these participants' positionalities, the researchers see that the pre-service teachers' emotions can become spaces of resistance and transformation. As they continue to form and reform their teacher identities, the pre-service teachers already begin to describe their agency as emerging professionals and their desires to both resist the anti-teacher narrative and persist in their chosen profession.

### **Teaching as Work Worth Doing**

The pre-service teachers first and foremost note that though the anti-teacher narrative pervades society, they are not turning away from their teacher preparation program. Despite the challenges and tensions, they feel called to continue their program and enter the profession with open minds and hearts focused on improving education through their work. Upon entering the profession, their perception is that, as teachers, they will give back to communities and work to engage students in meaningful learning experiences.

*Participant #2: I believe teaching is the most essential part of a successful society, but the profession is often undermined and looked down upon. The American public school system is falling apart, and I think we need to change the way we approach certain things in the teaching realm of education... I plan on being the best teacher I can be, and staying positive regardless of the narrative.*

*Participant #15: Due to the large impact made on me by many teachers throughout my life, I feel called to teach and impact the lives of students, especially those at a very impressionable age at the secondary level, to learn about themselves and learn about the world around them from a unique perspective.*

Of consequence is that these pre-service teachers notice and acknowledge the realities of a less-than-ideal educational system, but they are still motivated and hopeful in how they will be able to impact the profession. The pre-service teachers' positive outlook illuminates their underlying belief that teaching is a valuable profession with inherent worth to society. Though society continues to deprofessionalize teaching, these pre-service teachers are not deterred as emerging educators. Because they view teaching as an essential part of a successful and functional society, they are reaffirmed in their choice to pursue teaching.

## Preservice Teachers' Desire to Advocate

The majority of the participants articulated that teaching is a vehicle through which change can be enacted. These pre-service teachers see themselves as advocates who will work to improve the educational system from within; they aim to stand up for themselves and their colleagues as teachers, but they also anticipate standing up for their students against perceived obstacles and challenges.

*Participant #5: I think by impacting my students I will help change their opinions. Working with the parents will help. I also think standing up for oneself and other teachers will be important in my future career.*

*Participant #14: I hope to follow in my previous teachers' footsteps that had beneficial impacts, such as creating a safe, respectful, and productive classroom environment, as well as showing educators, students, and parents why keeping literature, even controversial literature, is important for shaping the future.*

Some of the responses indicated that the participants are already thinking about what types of advocacy roles they may seek out when they enter the profession. This forward-thinking exemplifies their desire to be proponents who will work to reprofessionalize teaching. A well-defined professional identity can lead to increased advocacy for education and oftentimes positions teachers as leaders within their schools or communities. Drawing on their own experiences as students, many recounted impactful teachers whose support and guidance instilled positive schooling experiences that these pre-service teachers want to recreate in their future classrooms. Also evident in the participants' responses is that they view positively impacting their students as a way to improve the anti-teacher narrative. By engaging students in meaningful and enjoyable learning, the pre-service teachers anticipate that their work will speak for itself and positively affect family and community perceptions of teachers.

## Including Perspectives & Voices

A number of the pre-service teachers branched out from the intended scope of the questionnaire to reference how they value including multiple perspectives and voices in their future classrooms. Their belief that an inclusive and diverse curriculum will improve learning for all students stood out as a piece of their emerging ideologies.

*Participant #14: Teachers know what is best for their classrooms and students. I also feel the war on literature and removing books from schools/ classrooms makes for a more ignorant sheltered future generation and that we can talk about touchy subjects in a respectful manner.*

*Participant #8: I think hearing [student] voices and understanding where they are at, it will go a long way and mean a lot to them.*

They resolutely believe that improving education starts at the most local of levels- with their students in their classrooms. By elevating students' voices and experiences, the pre-service teachers anticipate a richer and fuller community of learning that will be of mutual benefit to the students, the teacher, and the school. They intend to create classroom communities where students are empowered and empower each other so that deep learning can occur.

## Teaching as a Profession & Its Impact on Society

Many of the responses indicate that, aligned with their own valuing of education, the pre-service teachers experience positive reinforcement in their choice to become teachers.

*Participant #15: I have had numerous teachers and mentors pour a lot of belief and confidence into me as a student learner. They opened my mind to a lot of opportunities and brought so much value and interest to my life that I wanted to do the same...I perceive teaching to be a really noble profession and vitally important to society in educating the future generations.*

*Participant #10: My teachers have been able to help me through extremely hard times in my life not only academically but also personally and I want to be able to give back to the future generation of students.*

*Participant #5: Some teachers are successful in making a positive impact on their students. Those teachers are the ones I remember. The fact that they care makes a world of difference. The fact that they care is then reflected in their teaching.*

Their families, their professors and instructors, and even their peers are people who speak about the teaching profession as worthwhile and vital. Bolstered by that support, the pre-service teachers are inspired to pour themselves into this work knowing that the relationships they build with students and the growth they cultivate will be worthy endeavors, even amid the challenges they know they will face too. Because the participants value education for themselves and for others, they are invested in rebuilding a profession through their perseverance in the teacher preparation program and their eventual entry into the profession.

## Implications

The findings of this research indicate that, perhaps against all odds, the pre-service teachers in teacher preparation programs are passionate about their emerging professional roles and they are excited to enter the profession. These results, though from a small sample size, have implications for teacher preparation programs, teacher education professors, and the larger teaching profession.

## Focus on Identity & Ideology

Amid the admittedly bleak conditions surrounding education, pre-service teacher preparation programs are an integral place for teacher educators to have conversations about identity with pre-service teachers. Naming socio-cultural and socio-political factors that affect identity development provides pre-service teachers with the language and space to further interrogate and expand how their lived experiences impact their ideology and pedagogy. Even within an imperfect system, the pre-service teachers realize that their professional and local work can be spaces to dismantle the anti-teacher narrative. Many of the participants in this study indicate that teaching is a calling to them, and teacher educators might consider exploring and expanding this teacher identity narrative with their students further as it relates to ideology and pedagogy. Pre-service teachers' evolving professional identities can have a profound influence on their commitment to continuous improvement and the perceived impact of their teaching.

## Focus on Leadership & Advocacy

It is essential to consider the potential benefits of weaving together practical experiences and coursework in teacher preparation programs with a focus on leadership and advocacy. The pre-service teachers in this study articulated their desire to be advocates, but none noted any concrete avenues for doing so. Perhaps incorporating more opportunities to examine what advocacy looks like as early career and in-service teachers would provide pre-service teachers with a space to start imagining how they can be advocates for education and teaching. By offering real-world opportunities to explore leadership roles, pre-service teachers can gain a deeper understanding of the circumstances for advocacy in their classrooms and in the larger education system. Additionally, it is worth exploring the role of mentorship and peer support in fostering the development of advocacy skills among pre-service teachers. Pairing aspiring educators with experienced mentors who actively engage in advocacy work can provide valuable guidance and inspire them to pursue advocacy efforts in their own early career years. Structuring these opportunities for pre-service teachers to collaborate with their peers and emerging colleagues can lead to a richer exchange of ideas in the cultivation of a supportive network that supports initiatives that stem from advocacy work. Teachers who see themselves as advocates and agents of change for students and their profession can have a significant impact on educational practices and policies at their local school and district levels.

## Conclusion

The prevailing negative perceptions of teachers and education have undoubtedly cast a shadow on the teaching profession. However, this study delving into the perceptions of pre-service teachers and their decision to pursue teaching certification amidst these challenges reveals a ray of hope. Despite their awareness of society's often unfavorable views of education, these aspiring teachers remain committed to their calling and hold a steadfast belief in their potential to have a meaningful impact on students. Taking into consideration these findings about pre-service teachers pushing back against the anti-teaching narrative, teacher preparation programs can empower future educators to become more engaged and effective practitioners. Their determination to become advocates within the profession signals a resilience that may play a vital role in reshaping the narrative surrounding teaching, and, ultimately, contribute to the betterment of education. While it is not teachers alone who are responsible for combating the anti-teacher narrative, it gives us hope that pre-service teachers look to enter their classrooms with optimistic attitudes and passionate intentions to positively affect the larger teaching narrative from the very beginning of their professional journey.

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## PREPARING BILINGUAL PRE-SERVICE TEACHERS FOR THE ELEMENTARY SOCIAL STUDIES CLASSROOM: A CROSS-COLLEGE EFFORT

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### Abstract

This paper presents the findings of a grant funded initiative that joined the College of Education and the College of Arts and Sciences at a Hispanic serving institution to address low performing scores on the Social Studies (SS) portion of the EC-6 TExES Content Exam. Sixteen pre-service bilingual teachers participated in the grant initiative. As part of their participation the pre-service teachers were enrolled in a redesigned World Geography course that included National Geographic resources. Participants received training on the content taught in PK-6 grade classrooms, and tested on the state exam, using a technology-enhanced learning approach. Data were collected by providing students with an initial survey containing Likert-scale items. In addition, pre and post tests were given to the participants on the SS topics presented on the state exam for licensure. Participants noted an initial nervousness and ill-preparation toward teaching SS content on surveys. Pre-test scores corroborated this with initial pretest scores averaging 6.14 out of 10. After implementation of the National Geographic resources and structured lessons in the World Geography course post-test scores averaged 8.87 out of 10, indicating a strong preparation for the state exam.

Keywords: *bilingual, TExES exams, pre-service teachers*

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### Introduction

Texas currently has 1.1 million English Learners (ELs) enrolled in their PK-12 system (Tovar, 2019), 88% of that population are Spanish speakers (Texas Education Agency, 2021). Yearly, Texas sees an average of 40,000 teaching positions that go unfilled (KLTV, 2020) because they don't have the certified individuals to fill the positions. Bilingual educators in particular are in dire need. The number of ELs in the state continues to grow, yet the process to become certified and fill the classrooms with highly qualified teachers is a difficult and tedious one.

As part of the process to become a bilingual certified teacher in the state of Texas, candidates need to pass five different state exams focused on: (1) having knowledge in the content areas, (2) effective teaching pedagogy, (3) state policy/laws, (4) plus show proficiency in the Spanish language. One of the tests, the EC-6 Content Areas exam assesses the pre-service teacher's knowledge in the area of Social Studies. This portion of the exam verifies the candidate's knowledge in history, geography, culture, economics, government, and citizenship.



In recent years, the performance of pre-service teachers on the Social Studies portion of the exam that tests geographical knowledge is among the poorest (Texas Education Agency, 2017). Universities across the state are struggling with preparing the pre-service teachers to pass this portion of the content exam with scores that range as low as 40% (Texas Education Agency, 2017). The bilingual pre-service teachers enrolled in our Educator Preparation Program (EPP) were no different and too were performing poorly on this portion of the exam, adding only more of a deficit to the already great teacher shortage in the state.

Recent publications argue that Social Studies is one of the areas with poorest performance because too often students do not learn what they need to learn in the PK-12<sup>th</sup> grade system, leaving them with large gaps of knowledge in the areas of World History, Geography, and other areas of Social Sciences (Wexler, 2017). When reviewing student performance, only 22% usually score proficient on their high school state assessments in History, a trend seen nationally (Wexler, 2017).

This project, titled the Social Studies Scholar (S3) Initiative, was formulated as a way of addressing not just the low testing scores in the EPP at our university, but taking a hands-on approach to helping pre-service teachers in the program seeking bilingual certification by giving them the knowledge they'd need to be able to deliver lessons for this content area in EC-6<sup>th</sup> grade settings. This grant, sponsored by National Geographic, gave the researchers access to online tools and resources developed by the company to help redesign coursework and restructure lessons to assist students in preparation for the state exam (TE<sub>x</sub>ES). In addition, this grant brought together two colleges, joining experts in bilingual education, pedagogy, and geography. The research question this grant project aimed to answer was: What impact, if any, does technology enhanced learning (Brush & Save, 2009) using National Geographic online resources and structured review lessons have on pre-service teachers' preparedness to take the EC-6 Content Social Studies exam?

### **Technology Enhanced Learning**

Educators looking for ways to address knowledge gaps is an all too familiar story. However, most associate it with the PK-12 system. What we equivocate to after school tutoring, Saturday tutoring, and summer school. There is a misconception that students at the university level are expected to be at level academically because they are in an institution of higher learning. It would be ideal for university level students to be focused on expanding their knowledge and developing themselves into experts in their field of choice. However, as professors in a public university, we can attest that remediation rather than acceleration is the norm. According to Chen and Simone (2016), about one-third of undergraduate students need to take a remedial course during their first two years enrolled at a university.

While many approaches can be used to assist students by providing an optimal learning environment, we opted to use technology enhanced learning (TEL) to prepare the pre-service teachers participating in this grant for the state exam. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2023) provide an explanation of TEL and note that it can take many forms. Usually though TEL includes the use of devices and electronic media to deliver content (i.e., internet, videotapes, computer programs) and involves a wide range of applications and processes (i.e., web-based learning, computer-based learning, virtual classrooms). In short, the more access to technological resources a student has the more they can learn and add to their existing knowledge on the topic being studied.

Preparing the students for their state exam through this grant required careful planning to ensure that the TEL was at its optimal so that the educational goals outlined for the pre-service teachers could be met. Especially in the area of Social Studies where exponential gaps of knowledge exist (Wexler, 2019) for the pre-service teachers enrolled in our program. In order to reach these goals, best practices for teaching Social Studies were also imbedded within the pre-service teachers’ online learning. They include, but aren’t limited to: (1) creating a supportive environment, (2) directly introducing and reviewing content vocabulary, and (3) using groups and other technology to reduce the cognitive demand, while still facilitating learning. Table 1 presents a list of activities that were used to address these three components.

**Table 1**

*Best Practices Used in the Grant and Online Social Studies Classroom*

Supportive Environment	Direct Teaching of Content	Group Work and Technology
Regular access to professors via office hours or by appointment	Structured TExES reviews targeting specific content across four sessions	Videos recorded by the instructor presenting content to students and students presenting content to one another
Creating activities during reviews and lessons that allowed for questioning/clarification	Student-centered activities during TExES reviews and during class meetings	Online venue on Blackboard that allowed for discussion, questions, and dialogue
Quick response to students’ email	Exams that corresponded with the content taught in class and reviewed in the TExES sessions.	Group assignments that integrated the use of online programs like Zoom

**Project Overview**

The participants in this study were all juniors formally admitted into the College of Education’s Educator Preparation Program. All seeking to become Bilingual certified teachers, they were in their third of four blocks, meaning they had already taken half of their Education courses prior to beginning their participation in this grant. At this point the pre-service teachers had already taken History I and II, as well as Government I and II, as part of their common core through the College of Arts and Sciences. In addition, they had taken a pedagogy class on how to teach Social Studies in the elementary classroom and had reviewed best practices for that subject area through the College of Education. The only course pending for the pre-service teachers was World Geography, which was taken as a summer elective, per the degree plan.

**Participant Recruitment**

All pre-service teachers currently in their third block were informed of the study and recruited by passing out a flier during one of their Bilingual courses during the spring semester (N=54). The flier informed them of a virtual information session that would be offered via Zoom detailing information on the grant and how they would possibly benefit. The pre-service teachers were reminded a week prior and again on the day of the information session to attend if interested through an email blast sent out by the

course instructor. On the day of the information session a total of 22 potential participants joined the session via Zoom. The information session was offered through Zoom because students were enrolled at the main campus, but also at two extension campuses that were offsite. Zoom and other videoconferencing platforms have grown in popularity because of their ability to reach a wide audience, ease of use, and features for managing data (Archibald et. al, 2018). It is for these reasons that our initial meeting was conducted virtually with the potential participants.

The information session presented the potential participants with information about the grant. In short, the researchers explained that the students would be enrolled in a special section of World Geography that would use the National Geographic resources. The students were also informed that they would be given four extra review sessions by professors with expertise in Geography or classroom pedagogy. Lastly, the students were informed that the grant would reimburse up to two attempts on the EC-6 Content exam. After the information session, students were given the permission slips, approved by the campus Institutional Review Board (IRB), to review and sign. They were instructed to submit the permission slips to an email address the university had established for the grant. This was done to avoid any pressure from professors to participate in the grant. At the end of a two-week window, the researchers accessed the email address and found a total of 16 students had turned in the forms to participate in the grant initiative. A breakdown of the participants demographic data is presented in Table 2 below.

Once the permission slips were reviewed for signatures, the students' academic advisor placed them all in the special World Geography section and dates were set to begin the TExES reviews for the pre-service teachers participating in the grant (n=16).

**Table 2**

*Demographic Data*

Participant Characteristic	Response
Gender	
Male	1
Female	15
Prefer Not to Answer	0
Age (Years)	
18-25	14
26-33	0
34-40	2
Classification	
Underclassman	0
Junior	16
Senior	0
EC-6 Certification Route	
Generalist	0
Bilingual	16
Other	0
Previous Experience in Teaching (Years)	
0-1	16
2-4	0
5 or More	0

## Activities and Projects

Following the suggestion of Brush and Save (2009), all content was delivered online integrating different technology platforms, both in and out of class.

### *State Exam Reviews*

One of the first activities that the pre-service teachers were able to attend were state exam reviews. The state exam reviews were conducted one month prior to beginning their World Geography course. The first workshop helped prepare the pre-service teacher for the SS portion of the EC-6 exam, focusing on potential questions that dealt directly with pedagogical techniques and resources. In addition, best practices tailored to Social Studies were reviewed. A second workshop for participating students was conducted reviewing the remaining portion of second portion of the Social Studies content. In addition, resources from the National Geographic resources that the researchers were given access to were integrated to assist students in preparing for any possible classroom scenario questions that may have been presented on the EC-6 exam. A third review focused on the last portion of the Social Studies content was also conducted. The reviews were conducted one month prior to the students beginning their World Geography course. This was done to present the information in a sequenced manner that also allowed students the opportunity to study and internalize the information presented prior to beginning the second portion of the activities planned out before clearing them to take the state exam.

### *Class Activities*

Once enrolled in the special session of the World Geography course, the pre-service teachers were asked to take a mini course titled “Developing a National Geographic Explorer Mindset with Your Learners” from National Geographic. This short, introductory course provided background information for educators interested in bringing geographic thinking to their SS lessons. The course was self-paced and on average took about 90 minutes to complete. Other resources from National Geographic that contained mini-lessons and resources that focused on academic vocabulary were also embedded in the class because of their potential to be useful for the pre-service teachers academic and test preparation.

The World Geography course also had exercises and assignments related to geographical skills (i.e., map reading exercises). In addition, lesson plans and discussion assignments were also written into the syllabus to provide the pre-service teachers opportunities to use the academic vocabulary they were being exposed and foster their communication skills. The assignments were also written to help students develop critical thinking skills because they had to evaluate their own views and consider other perspectives through the discussion and assignments. Finally, the pre-service teachers’ knowledge was assessed through pre and post tests. All in all, between the external resources and the assignments the pre-service teachers were given the opportunity to immerse themselves in Social Studies and its corresponding pedagogy.

## Instruments

Data for this study was gathered through a survey and the administration of a pre and post tests. Through the survey, participants shared demographic information as well as answered a series of questions and items. The pre and post tests were administrated through the World Geography course as a way to assess students understanding of the content before and after receiving instruction.

## *Survey*

A survey was the first of two instruments used to collect data. This was issued to the participants prior to beginning with the first set of grant activities, the TExES reviews. Surveys are commonly used in research as a means of collecting data and providing a snapshot of the group at that particular time (Kelley et. al, 2003). In this particular case it also allowed us to reach the students, who were at the main and extension campuses easily. The survey was divided into three sections. The first section collected demographic information, including their age, gender, any previous work experience related to education, and their current status at the university. The second section presented Likert scale items that made statements related to Social Studies instruction and pedagogy as well as their preparedness to deliver lessons related to Social Studies in the PK-6<sup>th</sup> grade settings. The last section presented open-ended questions that asked students their opinions on social studies instruction and how what they felt needed to be done to better prepare them to not just pass the state exam, but teach this subject area. Surveys have long been used in research. According to Kelley et. al (2003), surveys allow for a large amount of data to be collected and can be dispersed in a variety of ways, depending on the audience. In our particular case, the survey was given out electronically. While the surveys allowed us to gather data that provided an overview of the participants and their opinions, the other set of instruments we used to collect data were pre and post tests.

## *Pre and Post Tests*

Pre and post tests were given to participating pre-service teachers to assess their academic progress prior to and after enrolling in the World Geography course. Pre and post testing were adopted because it allowed for the evaluation of the project. Pre and post tests were selected to verify student growth because they are easy to score and relatively easy to analyze using statistical procedures (Skidmore College, 2023). Students were given the pre-test upon entry into the class before any substantial instructional intervention occurred. A post-test was then administered using alternate forms, at the end of class to document learning gains. Questions on the pre and post tests were similar to test questions on the Social Studies EC-6 Core Subjects Exam.

## **Results**

Upon reviewing the initial survey, it was noted that 85% of the pre-service teachers noted not feeling prepared to teach the content area of Social Studies. Based off of their open-ended questions some of the factors they attributed to this were: (1) not being taught Social Studies regularly while they were in the PK-12 system and (2) an emphasis on Math and Reading in the curricula, even at the university level. When reviewing the Likert style items on the survey it was found that one (6%) of the pre-service teachers strongly agreed, three (19%) agreed, and eleven (68%) strongly disagreed with the Likert scale item that focused on being knowledgeable in the content needed to deliver quality Social Studies lessons in a PK-6th grade setting. A total of the nine (56%) disagreed with the Likert scale item focused on feeling knowledgeable in the strategies and methods that were appropriate to use in a Social Studies classroom to enhance instruction for English Learners (ELs). The other six pre-service teachers felt neutral about the statement (44%). Lastly, all sixteen (100%) noted that they strongly agreed with Likert scale item focused on their willingness to teach the subject area to the ELs that will be in their charge. A summary of the Likert-scale items is presented below in Table 3.

**Table 3***Summary: Likert-scale Items on Social Studies (SS) Instruction*

Abbreviated Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	%	%	%	%	%
I have knowledge on SS content.	6	19	0	0	68
I am knowledgeable on SS classroom best practices in a bilingual classroom.	0	0	44	56	0
I am comfortable teaching SS in EC-6 settings.	0	19	0	50	31
I am interested in SS professional development.	100	0	0	0	0
I have a positive attitude toward teaching SS.	100	0	0	0	0

A pre-test was given to students during the first day of class and the post test was given the last week of class as a way to track improvement. Upon reviewing the results of the pre and post tests the following was observed: 14 of the 16 students participated in the pretest and 15 participated in the post test. The tests administered to the students had 10 questions total, each question worth one point. The average pre-test score was 6.14 out of 10. The average post test score was 8.87 out of 10. The post test showed greater preparedness on not just content, but on how to teach the content (pedagogy). The standard deviation of the pre-test scores was 2.23. The post test standard deviation was 1.21. A more consistent performance was noted in the post scores, meaning the students had internalized and mastered the content. Over all, pre and post test results show that the pre-service teachers' testing grades were substantially improved and most students would be deemed ready for the Social Studies portion of the EC-6 Core Subjects exam. A summary of the pre-post test is presented below in Table 4.

**Table 4***Summary: Pre and Post Tests*

Statistic	Pre-test	Post-test
Number of Participants (n)	14	15
Minimum Value	2.00	5.00
Maximum Value	10.00	10.00
Range	8.00	5.00
Average	6.14	8.87
Median	6.00	9.00
Standard Deviation	2.23	1.20
Variance	4.98	1.44

**Discussion**

This study provides faculty preparing pre-service teachers in Texas, and in other states that have certification exams, with insight into the effectiveness of taking the time to align classes to state testing standards. While no professor can spend hours on end reviewing for state exams with practice test questions, if the content is taught in the course, then mastery on the state certification exam becomes



attainable. The growth noted by the pre-service teachers on the pre-post tests can also be attributed to the collaboration among the colleges and professors whom worked on this effort. It allowed the preservice teacher to see the interconnectedness between the content and the pedagogy needed for effective instruction in the Social Studies classroom. Additional preparation for the state exam through the World Geography course, as well as the two workshops, provided a positive learning experience with the students and confidence to do better on the Social Studies portion of the exam. While they noted being nervous, ill-prepared, and having a lack of knowledge in methods and strategies specific to Social Studies, they all still looked at teaching the subject in a positive light, which is the most important take away from this grant and speaks highly of the caliber of teachers coming into our Texas classrooms.

While this study only provides a snapshot of a small group of pre-service teachers, it still serves as a reminder that through collaboration much can be accomplished. In addition, there is also a strong reminder that Social Studies needs to be taught in the PK-12<sup>th</sup> grade system. Public educators can help the future generation of teachers by ensuring that they don't focus too much on one subject in their daily lessons and should evenly focus on all subjects so that their students can perform well in each subject area on high school exit exams and once enrolled in college or university. While this grant is in its initial stages, it still provides valuable insight. More than insight it provides steps on how to proceed. While the pre-service teachers have completed their participation in the grant, results are pending from their state examinations. However, once the results do come in for our university it will provide insight and guide our curriculum alignment.

### Recommendations

After completing this research, the following recommendations are asked to be considered by those preparing teacher candidates: (1) reach out across colleges who have experts on the areas of the EC-6 content exam. Their expertise can become a valuable asset once paired with a professor who is an expert in pedagogy. (2) Consider redesigning your coursework to include external sources and content beside test preparation manuals to prepare the preservice teachers for their state exams. The era of drill and kill is over and doesn't provide long term retention of content. (3) Talk to the preservice teachers about their initial anxieties, not just about testing in general, but about the content. Instead of taking a blanket approach, specifically try to pin-point areas of need and address them through the classes.

### Conclusion

Through this study we, as researchers and professors, were able to grow. This research reminded us that at times we may need to ask for help. While we are experts in our field, that does not mean that at times we need to bring in others to help our students meet their educational goals. For the pre-service teachers who participated in this study, it provided them the opportunity to tackle an area that they did not feel strong in, both for testing and teaching. While this study was small, it reinforces that cross-college collaborations can have a big impact. If other universities follow with similar efforts we may be able to collectively address the shortage of teachers in our state by getting all of our teaching candidates certified.

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## TEACHERS' PERCEPTIONS OF A 2+2 TEACHER PREPARATION PROGRAM TRAINING EXPERIENCE

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### Abstract

Teacher training and preparation are important topics to consider in the field of education because of the direct impact quality of instruction and resulting student achievement. Teacher preparation programs and training help teachers develop classroom management skills, learn to lesson plan, and disaggregate data. The purpose of this qualitative study is to analyze the perceptions of teachers who were trained as part of a 2+2 teacher preparation program. Jack Mezirow's transformative learning theory, Vygotsky's social constructivist theory, and Albert Bandura's self-efficacy theory provide the theoretical frameworks for this study. Findings from this study revealed the need to incorporate practical application for teaching skills, provide diverse teaching placements, establish effective communication and advisement systems, promote equal treatment and recognition, and facilitate impactful mentorship.

*Keywords: Teacher Preparation Program, Teacher Preparedness, Teacher Quality, Teacher Education, Education, Self-efficacy, Joint-enrollment agreements or 2+2.*

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### Introduction

High-quality and relevant teacher training is vital to student success. Effective teachers can drastically change the trajectory of a student's educational experience, and teacher quality directly correlates to student achievement (Heck, 2009). As the needs of students and society change, teacher training programs must stay abreast of evidence-based teaching practices and emerging technologies in the classroom (Paolini, 2015), and must have access to and training on the necessary resources to create a more inclusive classroom environment (Darling-Hammond, 2016). Still, Carver-Thomas and Darling-Hammond (2019) noted teachers are leaving the field of education at alarming rates. Many educators that have left the profession cited feeling unprepared and burnt out as a reason for leaving teaching (Kim et al, 2019).

With a combination of high teacher turnover rates and a growing demand for new educators to fill those spots, community college teacher certification programs offer a potential solution and affordable alternative to earning an education (Wignall, 2020; Chen & Xu, 2022). The appeal of 2+2 programs (two years at a community college followed by two years at a bachelor's degree-granting institution) is that it

allows families the option of pursuing a four-year degree that is cost-effective and likely closer to home (Wignall, 2020). Thus, 2+2 teacher preparation programs provide accessibility to education, flexible class scheduling, and recruitment of diverse program participants from varying backgrounds (Labov, 2012; Wignall, 2020). 2+2 teacher preparation programs have come to be known by several names with variations in how they are each implemented: Grow Your Own Teacher (GYO) initiative, 2 + 2 Programs, and joint teacher preparation programs. These types of programs can eliminate some of the common challenges that come with teacher labor shortages, and it does show promise in attempting to train high quality teachers (Sparks, 2022).

Unknown is the effectiveness of 2+2 teacher training programs on preparing teachers for the realities of the classroom. Aspiring teachers must be well prepared for a continually diverse and complex educational landscape. This qualitative study sought to understand the perceptions and experiences of individuals that have completed their 2+2 teacher preparation program.

### **Research Questions**

- RQ1: How do teachers who completed a 2+2 teacher training program perceive that preparation to have influenced their self-efficacy as a teacher?
- RQ2: How do teachers who completed a 2+2 teacher training program perceive that preparation to have influenced their effectiveness as teachers?
- RQ3: How do teachers who completed a 2+2 teacher training program perceive that preparation to have prepared them for classroom teaching?

### **Theoretical Framework**

This study explored the experiences and perceptions of 2+2 teacher preparation program completers, specifically examining how it may have influenced their sense of preparedness and self-efficacy in the classroom as a current practicing teacher. Jack Mezirow 's transformative learning theory, Vygotsky's social constructivist theory, and Albert Bandura self-efficacy theory served as theoretical frameworks for this study. Jack Mezirow's (1997) transformative learning theory is appropriate because it focuses on how people perceive their life experiences and the ways they navigate to best understand these experiences. This aspect of the study will focus on transformation of participants' perspective; the other component to this study is focused on examining how individuals potentially surpass preconceived ideas when it comes to teaching and working with students.

Vygotsky's (1986) social constructivist theory details how people develop their knowledge as they socialize with others. This is crucial in understanding how participants' experiences in their program have helped them socially construct their own understanding of what makes an effective teacher.

Lastly, self-efficacy is best described as an individual's beliefs in their ability to do well and succeed in various situations (Bandura, 1977). This study on individuals that completed a 2+2 teacher preparation program highlighted some of the experiences and changes in perspective, while also examining how participants' perceptions of preparedness and self-efficacy may have changed after teaching.

Mezirow's transformative learning theory, Vygotsky's social constructivist theory, and Bandura's self-efficacy theory help outline and support the design of this study through their focus on perspective

transformation, social interaction and reflection, and an examination of one's beliefs of their ability to be successful.

### **Literature Review**

Numerous studies have been conducted to highlight areas of concern pertinent to the teaching profession, namely about: teacher training, teacher recruitment and retention. Student populations only continue to become more diverse, yet not much is changing in how teacher preparation programs are preparing teachers (Boche et al., 2021). Furthermore, teachers may also feel under prepared in a variety of areas such as technology or classroom management (Livers et al., 2021). Cochran-Smith et al. (2021) highlighted how changing educational reforms have brought added scrutiny to teacher preparation programs from both groups that work in and outside the field of education. Boche et al. (2021) emphasized the importance of also prioritizing quality field experiences for aspiring teachers. Those authentic field experiences are what often contribute to a teacher becoming more effective (Boche et al., 2021).

### **Teacher Quality**

The U.S. Department of Education (2015) found that teacher quality is one of the major factors that can directly impact how well a student succeeds and achieves. This means that for the top 20 percent of teachers that are high performing, they afford students the opportunity to gain five to six more months of learning (U.S. Department of Education, 2015, p. 3). The impact of teacher quality can impact things such as college attrition rates to changing the trajectory of students' test scores (Boche, Bartels, & Wassilak, 2021).

### **Teacher Training**

Whitley (2021) noted that the increased expectations of teacher preparation programs resulted in many pre-service teacher training programs and colleges to reconsider what they are prioritizing in their programs. Althothali (2021) further observed that teacher training programs are tasked with the daunting challenge of teaching aspiring educators the 21st century skills needed to help their students become active learners and students that use creativity and teamwork. Therefore, it is equally important to understand participants' experiences and feedback that have successfully completed teacher training program so that teacher preparation is structured in a way that produces more confident and effective teachers. Things such as student licensure tests and certification exams only reveal so much about the students' experiences in the program, but teachers that have completed training may offer a valuable form of insight. Teachers often leave the field for the following three reasons: compensation, teacher preparedness, and negative working conditions ("Teacher Retention", 2019). The motivation and drive to understand teachers' experiences in their teacher preparation program also comes from teacher educators use self-reflective practices and assessing the effectiveness of their own teaching practices (Darling-Hammond, 2006).

### **Teacher Self-efficacy**

To improve instructional practice, it is imperative teachers develop the ability to meet goals and outcomes in their instructional practices (Jacobs, 2015). Educational research has shown that teacher self-efficacy has provided an increased quality in not only student achievement but teacher performance, well-being, and overall educational quality (Livers et al., 2021). Teachers with high efficacy beliefs have been

known to perform above and beyond district standards in their own classrooms, while teachers who underperform have been found to have low self-efficacy; they are unmotivated to excel and struggle with facing tribulations (Boche et al., 2021). Teacher self-efficacy is affected by factors, such as personal characteristics, experiences, and contextual factors (Livers et al., 2021) and contextual factors like the education's institution the educator works in: school culture, resources provided, and support from administration can affect the educator's beliefs in their effectiveness (Boche et al., 2021; Livers et al., 2021).

### Method

This study employed phenomenological qualitative research to examine and understand the perceptions and experiences of completers of a 2+2 teacher preparation program.

### Population and Sample

The general population is program completers of a teacher preparation program in Texas. The sample was 9 program completers from the designated South Texas teacher preparation program, who have a minimum of two years of experience in teaching. A minimum of two years teaching experience was required so that their experiences, perceptions, and feedback were robust enough to analyze and draw conclusions. Interviews were conducted via Zoom. Demographic information that was collected from the participants included age, sex, level of education, type of district they work in (i.e., public, private, or public charter), grade level taught, subject area taught, and school demographics. All participants had a minimum of two years of teaching experience in education. All participants were female. This was a coincidence and not by design. Table 1 provides descriptive statistics of study participants.

**Table 1**

#### *Descriptive Statistics (Demographics)*

<b>Name</b>	<b>Sex</b>	<b>Years of Experience</b>	<b>Type of School</b>
P1	Female	4	Public
P2	Female	8	Public
P3	Female	8	Public
P4	Female	3	Public
P5	Female	14	Public
P6	Female	4	Public
P7	Female	6	Public
P8	Female	6	Public
P9	Female	11	Public



**Data Analysis**

Braun & Clarke (2006)’s method for thematic analysis was used to analyze the data. The data analysis process involved organizing data, coding, and thematic development using six steps: (1) Familiarize self with data; (2) generate initial codes; (3) search and identify themes; (4) review identified themes; (5) define and name themes; (6) produce report that transforms analysis into writing. At its conclusion, the researchers again reviewed the themes and to ensure they represented the patterns of the data collected, named, and defined the themes emerged from the study.

**Results**

Several themes reflecting the experiences of participants were revealed in transcribing the data. These themes included *practical application of knowledge and skills, diverse and quality teaching sites, effective and consistent communication, reliable and standardized forms of advisement, equal treatment and recognition, and impact of mentor teachers.*

**Table 2**

*Themes Relationships to Research Questions*

<b>Theme</b>	<b>RQ1</b>	<b>RQ2</b>	<b>RQ3</b>
Practical Application of Knowledge and Skills		X	X
Diverse and Quality Teaching Placement Sites		X	X
Effective and Consistent Communication	X		
Reliable and Standardized Forms of Advisement	X		
Equal Treatment and Recognition		X	X
Impact of Mentor Teachers		X	X

***Effective and Consistent Communication-RQ1***

Citing things from schedule conflicts to issues with support services, a handful of participants that had participated in the program often pinpointed some issues within the program to communication and the impact it had on their development and self-efficacy as a teacher. For Participant Two, it was stating their observations and saying, *“Honestly, my communication was very minimal. It was very much at the beginning of the semester.”* When discussing how both their communication and overall preparedness impacted their self-efficacy as a teacher they stated,

*if I had to, like, let's say, rate it from one to ten, one being the worst and ten being the greatest, I would say two. Honestly, I think it just helped me to get my degree so that I can apply to a job and say, ‘hey, I'm certified, graduated.’ They told me what I needed to do, but that was it.*



They went on to explain that their experiences in the program ranging from communication to teaching experiences did not give them a level of self-efficacy they were entirely confident in. On the other hand, Participant Eight did not see a drastic impact on their self-efficacy as teacher despite their slightly more positive experiences with communication in the program.

*It was good. They were always ready to help when I did email them or how to speak with them. Overall, it was like a neutral experience. It just kind of came with as you got more experience as a teacher after graduating, that's when you started seeing, like, a change in your self-efficacy.*

### **Reliable and Standardized Forms of Advisement**

Perhaps one of the more detailed topics covered were participants' feelings of not being treated the same as other groups of teacher candidates when it came to advisement. Considering that these were groups of individuals that were part of the 2+2 program model, some participants saw notable differences in the information the program participants that did not commute versus those that attended at a satellite campus received for advisement. Overall, program participants wanted improved and consistent advisement on coursework. Participant Six had a hard time citing entirely positive communication experiences, *"I had trouble sometimes because the advisor at the time, it was a male, I forgot his name. I'm not sure that he's still there, but he wasn't really good at guiding me or letting me know."*

The lack of a uniformed and consistent approach to advisement also added unnecessary stress towards students. Because they either completed incorrect or additional classes, some participants felt either overwhelmed or underprepared. Participants often found themselves missing required classes from one semester to the next. They struggled to gather all pertinent information when it came knowing which classes they were actually going to need, and which classes would impact their development and confidence as teachers. When discussing the overall role of the teacher preparation program and the impact it had on their self-efficacy they said, *"it played a big role, especially my last semester when it was student teaching, because it gave me pretty much like the backbone of it even if it took me a little longer because I took the wrong classes."*

### **Diverse and Quality Teaching Placement Sites**

While not necessarily linked to effectiveness, many program participants cited having experience in different levels as something that improved their confidence in the classroom. Program participants also emphasized the importance and benefit from working in diverse and quality placement sites. As Participant Two stated:

*One of the things I did like was that he (professor) encouraged me. I already knew I wanted high school English, but he encouraged us to try all grade levels. When you're doing your field experiences, go and try different levels and don't limit yourself to one grade level, to one class. And I did take it to heart.*

Participant Nine echoed a similar sentiment in that,

*And my experiences were also very varied. So, for example, throughout the program, I was able to do some student observations in what I think was kinder all the way through fifth grade, and it allowed me to see the difference between the age groups and the difference between the student abilities and their needs in the classroom. Then, when I did my student teaching, I want to say I also got to experience different levels in the elementary setting, and that was really nice.*

### ***Equal Treatment and Recognition***

The structure of the 2+2 program model works both for and against in that it allows program participants the flexibility to receive quality instruction from a university that may be too far to drive to for some. However, in having two cohort models that attend two different locations for the same program, differences in treatment of those groups are bound to occur. The lack of equal treatment and recognition also impacted how confident participants were in their own abilities. Program participants want both equal treatment and recognition for their effort in the program. Participant Nine also encountered similar issues in going to her advisor for input and later stating,

*She was a really good to reach out to, but it was kind of hard getting through to other people. Remember I had to go up there and was a little upset when I found out that we weren't going to graduate with honors? We're like what? Oh my God. We had credits up the wazoo. But just because we didn't take enough credit hours with -----, we weren't going to graduate Cum laude or Suma cum laude or whatever. That was really disappointing.*

One participant discussed what that imbalance of attention created:

*It felt like in my first year, my experiences for the first time really settled in, I'm freaking out inside but trying to not show it. I don't know. I mean, I was able to navigate it, thank God, but I would have preferred if they would have helped you a lot more. I guess I just wanted more confidence, because once you're up there helping and teaching, you're able to see like, oh, I did this wrong but the people in the program don't always tell you. It's more just like 'oh, good job'. So, it's just more your own self-reflection at the end of a lesson that helps.*

### ***Practical Application of Knowledge and Skills***

One of the themes that emerged was the sentiment among program participants the value of having opportunities to apply what they learned to feel better prepared. A majority of the participants mentioned the need to have more opportunities to learn content beyond what is necessary on certification exams, so they are able to bring theory and practice together once they are in the classroom. Some of the participants expressed an interest in having the professors prioritize their focus from just discussion of theory to more effective ways of teaching. Participant Two stated,

*But when I finished that experience, I was glad because, again, it was that life application where you're doing this theory. Okay, then this week when you go and volunteer...we had to do it every week and apply it. I guess the point I'm trying to say is it depends on the professors. If the professor just sticks to lectures but doesn't ask the student to apply it, then it's horrible for the student. And I think that was my experience when I had those professors that made me get out of my comfort zone in those education classes. I think those were the ones that truly prepared me for now, especially this last year that I was on an ESL assignment.*

Participant three noted a similar sentiment in stating, *"it's one thing to read about it and study it in class, and then another thing to see it and apply it in an actual classroom setting, and that was great."*

### ***Impact of Mentor Teachers***

One of the most consistent items that participants cited as impactful for their teacher preparation program was the positive role of their mentoring teacher and the level of preparedness they felt. Six participants cited remaining in close contact or in constant communication on social media with their mentoring teacher as they grew and developed as a teacher. Participant One recalled how much they enjoyed learning from their mentor teacher by stating, *"taking over my mentor teachers lessons is what I*

*love the most.”* When talking about what helped participant one feel most prepared, she stated *“I feel like I was prepared because I got to see real experiences with students and interactions with teachers.”*

Participant Three shared similar experiences in highlighting the impact of their mentor teacher,

*She was very supportive and motivating. She just made me feel like I could do it. When it came to the evaluations and all of that, everyone would get really nervous. Like, oh, man, what if I don't do good? She was just so great with the praise and making you feel like, no, you've got this. 'You're going to be a great teacher'. And I think that's really important because teaching is kind of nerve wracking. You're almost putting on a show. And that's what helped, I think, build my confidence also going into teaching.*

Participant Seven said the mentor teacher interactions proved to be most impactful of their teacher training experience.

*The most significant, I think it would be the mentor I was assigned to. It was a young English teacher as well. She was really helpful. Not only was she a good mentor, but she turned into a great friend. Although way that she would do her things in her classroom, it inspired me to do the same things in mine. I saw that in her classroom, she would not only teach the teach, but she would also involve life lessons into them. That's something I wanted to do as well.*

### **Interpretation of Findings**

Practical application allows student teachers to apply the theories, concepts, and strategies they learn in their teacher education programs to real-life classroom situations. It helps them understand how to effectively translate the theories they learn in class into practical actions and make informed instructional decisions. Through hands-on experiences, they can develop their teaching expertise and gain a deeper understanding of what works best in the classroom. Classroom management is also a critical skill for teachers as it involves establishing a positive and productive learning environment, managing student behavior, and creating a safe and inclusive space for all learners. By engaging in practical experiences, student teachers can learn how to manage various situations, address challenges, and promote a conducive learning atmosphere. Heikkila et al. (2020) stress the importance of not separating theory from practice. In keeping the two together, teachers are able to develop their professional agency as educators. Additionally, through actual teaching experiences, they can observe the impact of their instructional strategies, assess student engagement and learning outcomes, and identify areas for improvement. Reflective practice helps student teachers refine their teaching approaches, adjust based on feedback, and continuously grow as educators.

Exposing student teachers to a range of teaching environments and contexts is crucial for their professional growth and development. Diverse placement sites provide opportunities to work with students from various backgrounds, cultures, and abilities, preparing student teachers to meet the needs of a diverse student population. By experiencing different teaching settings, such as elementary vs. secondary or suburban vs. rural schools, student teachers gain a broader perspective on the challenges and opportunities present in different educational contexts. Quality placement sites also ensure that student teachers have access to experienced mentor teachers who can provide guidance, support, and valuable insights. In fact, Bastian et al. (2023) documented the notion that varied, high quality learning environments in student teaching placements do further the development of teacher training candidates. Moreover, exposure to high-quality teaching placement sites enables student teachers to observe effective instructional strategies, classroom management techniques, and assessment practices, which they can later incorporate into their own teaching. Ultimately, diverse and quality teaching placement sites enhance the

overall readiness and effectiveness of student teachers, equipping them with the skills, knowledge, and cultural competence necessary to excel in their future classrooms.

Effective and consistent communication between students in teacher training programs and program staff is necessary. Clear and timely communication ensures that students receive the required information, guidance, and support throughout their teacher preparation journey. By maintaining an open line of communication, program staff can address any concerns or questions that students may have, providing them with the resources and assistance they need to succeed. Regular communication also allows program staff to share updates, announcements, and important deadlines, keeping students informed and engaged in the program. In light of the recent pandemic, Özyildirim and Jomaa (2023) also emphasized the importance of enabling the highest forms of communication between students and higher education institutions to increase student achievement. Furthermore, effective communication fosters a sense of belonging and connection among students, creating a supportive learning community. Students who feel heard and supported are more likely to have a positive experience in their teacher training program and feel confident in their ability to navigate the challenges of the classroom. Ultimately, by prioritizing effective and consistent communication, teacher training programs can enhance student satisfaction, promote student success, and contribute to the development of well-prepared and confident future educators.

Reliable and standardized advisement ensures that students receive consistent and accurate guidance throughout their academic journey. Reliable advisement can help students avoid unnecessary delays, confusion, or errors in their academic planning. Moreover, standardized forms of advisement ensure fairness and equity in the support provided to all students, minimizing potential biases or inconsistencies. Shunner (2023) identified the importance of advisors using both effective tools and record keeping methods to help inform their decision-making process as they work with students. This not only allows them to develop a degree plan more effectively with students but also take appropriate steps to refer students to other departments for specialized services (Shunner, 2023). A reliable and standardized advisement system also promotes accountability, as both students and program staff have clear expectations and responsibilities. By establishing a strong advisement framework, teacher training programs can enhance student satisfaction, retention, and overall success, ultimately producing highly competent and well-prepared teachers.

It is crucial for teacher preparation programs to provide an inclusive and supportive environment where all program participants are treated fairly and with respect. Equal treatment ensures that students have access to the same opportunities, resources, and support throughout their program, regardless of their background, race, gender, or any other characteristic. Recognizing the value and contributions of each student cultivates a sense of belonging, motivation, and self-worth. When students feel valued and acknowledged, they are more likely to actively engage in their studies, participate in discussions, and contribute to the learning community. Furthermore, equal treatment and recognition foster a positive and collaborative learning environment, where students can learn from each other's diverse perspectives and experiences. When discussing the development of equitable program design, Jotia et al. (2023) found that prioritizing capacity building and sustainable program development can help programs ensure their participants are getting fair treatment. By prioritizing equal treatment and recognition, teacher training programs promote equity, diversity, and inclusion, which are essential values in the education field and contribute to the development of well-rounded and culturally competent future educators.

Mentor teachers serve as experienced guides and role models, providing invaluable support, guidance, and expertise to aspiring teachers. They offer real-world insights into the complexities of the classroom, sharing practical strategies, pedagogical approaches, and effective instructional techniques (Goldhaber et al., 2020a). Mentor teachers also provide constructive feedback and help student teachers reflect on their teaching practices, fostering professional growth and continuous improvement. The mentor-mentee relationship allows student teachers to observe and learn from experienced educators, gaining firsthand knowledge of best practices and classroom management skills. Mentor teachers offer a safe space for student teachers to ask questions, seek advice, and explore different teaching approaches. Additionally, Goldhaber et al. (2020a) found that their mentorship not only enhances the confidence and competence of student teachers but also facilitates the successful transition from theory to practice. The impact of mentor teachers extends beyond the teacher preparation program, as their guidance shapes the future teaching careers of aspiring educators, ultimately influencing the learning experiences and outcomes of countless students.

### **Implications of Findings**

These findings shed light on areas of improvement that have the potential to enhance the effectiveness of teacher training programs and better prepare future teachers for the realities of the classroom.

### **Practical Application is Imperative**

Firstly, the finding that program participants value having opportunities for practical application of knowledge highlights the importance of incorporating hands-on experiences into teacher preparation programs. Teacher preparation programs would benefit from exploring the specific types of practical application that are most beneficial and effective in bridging the gap between theory and practice. Incorporating more realistic and immersive teaching experiences will better equip future teachers with the skills and confidence needed to succeed in the classroom. The fact that teachers want diverse and quality teaching sites emphasizes the need for teacher training programs to provide placements in a variety of educational settings. At the policy making level, they should work towards getting more information to understand the impact of exposure to diverse teaching environments on teacher preparation and cultural competence. By offering diverse teaching placements, programs can prepare teachers to effectively address the needs of a wide variety of students, foster inclusivity, and promote equitable education.

### **Communication is Key**

As teacher preparation programs consider the role of clear and timely communication channels between students and program staff, program staff should focus on identifying effective communication strategies and technological tools that can facilitate efficient information sharing and support. Ensuring that students have access to accurate and up-to-date information will enhance their experience and success in the program. Furthermore, when considering the role of having reliable forms of advisement, it demonstrates the need to establish standardized and trustworthy advisement systems. The outcomes of this research reveal that more information is needed to explore the development and implementation of comprehensive advisement frameworks that provide students with consistent guidance, support, and clarity regarding program requirements, course selection, and career pathways. Higher Education institutions should also investigate strategies for promoting equal treatment and recognizing the diverse backgrounds and contributions of all students. Creating an inclusive learning environment where students



feel valued and acknowledged will create a positive learning experience and promote the development of culturally competent teachers.

### **Good Mentorship is Needed**

Lastly, policy makers and teacher preparation programs should delve into the characteristics and strategies employed by impactful mentor teachers, as well as the processes for selecting, training, and supporting mentors. Understanding the mentorship dynamics and best practices will facilitate the development of effective mentorship programs.

### **Recommendations for Practice**

The findings of this study have important implications for both future research and practice in teacher training programs. These findings emphasize the need to incorporate practical application, provide diverse teaching placements, establish effective communication and advisement systems, promote equal treatment and recognition, and facilitate impactful mentorship. By addressing these areas, teacher training programs can better prepare students for the complex nature of the classroom and create a supportive environment that prioritizes the growth and success of future educators.

#### **Recommendation 1: Begin fieldwork experiences much earlier.**

Early fieldwork experiences provide aspiring teachers with invaluable opportunities to observe and learn from experienced educators in real classroom settings. By immersing themselves in the teaching profession from the beginning, student teachers can develop a deeper understanding of the realities and challenges of the classroom environment (Wong et al., 2019). They can witness firsthand how theory translates into practice and gain practical skills that are essential for effective teaching. Additionally, early fieldwork experiences allow student teachers to establish meaningful relationships with mentor teachers, receive personalized guidance and feedback, and gradually assume more responsibilities as they progress through their program (Goldhaber et al., 2020b). Starting fieldwork early not only enhances the overall quality of teacher preparation but also instills a sense of professionalism and confidence in future educators, preparing them to hit the ground running when they enter the workforce.

#### **Recommendation 2: Focus on a select group of schools to build meaningful partnerships and provide quality placement sites.**

Establishing strong partnerships with a select group of schools allows teacher training programs to ensure that their student teachers have access to high-quality and diverse teaching environments (Laboskey & Richert, 2002; Österling & Christiansen, 2022). This targeted approach allows for deeper collaboration and communication between program staff and school personnel, fostering a shared understanding of program goals and objectives. Concentrating efforts on a select group of schools also enables program staff to develop long-term relationships with mentor teachers, who can provide consistent guidance, support, and mentorship to student teachers. Moreover, by working closely with a select group of schools, program staff can tailor the fieldwork experiences to align with the program's objectives, ensuring that student teachers receive the necessary support and opportunities for growth. These meaningful partnerships not only benefit student teachers but also contribute to the professional development and capacity-building of the schools involved, fostering a positive relationship between teacher training programs and the education community.



**Recommendation 3: Consistently and frequently offer advisement sessions to both colleges participating in the partnership.**

Regular advisement sessions serve as a crucial means of support and guidance for students in the teacher training program, ensuring that they receive the necessary information and resources to progress successfully. By offering consistent and frequent advisement sessions, colleges can address any questions, concerns, or challenges that students may face throughout their academic journey. These sessions provide opportunities for students to receive personalized guidance regarding course selection, program requirements, and career pathways (Shunner, 20223). Moreover, consistent advisement sessions promote accountability and help students stay on track with their academic goals. Additionally, regular advisement sessions foster collaboration and communication between the colleges, enabling them to align their approaches, share best practices, and ensure a cohesive and comprehensive teacher training experience for students. Ultimately, by prioritizing consistent and frequent advisement sessions, colleges can enhance student success, retention, and satisfaction.

**Recommendation 4: Have advisors regularly attend professional development together at each partnering institution to advise from a common professional development background.**

Consistent professional development sessions allow advisors to stay updated with the latest research, best practices, and trends in teacher education. By attending these sessions together, advisors from different partnering institutions can foster a shared understanding and knowledge base. Lynch et al. (2022) observed that this shared professional development background ensures consistency and coherence in the guidance and support provided to student teachers. It promotes a common language and approach among advisors, enabling them to effectively address the needs and concerns of student teachers across institutions. Furthermore, attending professional development together facilitates networking and collaboration among advisors, creating a supportive community of practice. In continuously enhancing their professional knowledge and skills, advisors can better serve student teachers and contribute to the overall quality and effectiveness of the teacher training program partnership.

**Recommendation 5: Establish policies that will be uniformly implemented at both universities to both recognize and convey the same information.**

Uniform policies ensure equity, transparency, and a cohesive experience for student teachers across institutions. When both universities adhere to the same policies, it eliminates confusion and disparities in recognizing the achievements and progress of student teachers. It also ensures that essential information, such as program requirements, course offerings, and academic standards, is consistently conveyed to student teachers, regardless of their university affiliation. Grace-Odeleye and Santiago (2019) highlighted the importance prioritizing uniform program design and incorporating appropriate planning and assessment strategies when creating program partnerships. This uniformity establishes a sense of fairness and provides a level playing field for all student teachers, regardless of the university they attend. Additionally, having standardized policies promotes collaboration and communication between the universities, enabling smoother coordination and the exchange of best practices in teacher preparation. Ultimately, establishing uniformly implemented policies benefits student teachers by ensuring a consistent and high-quality learning experience throughout their teacher preparation journey.

### **Recommendation 6: Recruit high-quality mentor teachers and pair them with students earlier in the program.**

In recruiting high-quality mentor teachers and initiating the mentorship process early, student teachers can benefit from their extensive experience and wisdom from the outset. Matching a student teacher to a mentor teacher earlier allows for longer-term relationships to develop, fosters deeper trust, understanding, and continuity in mentorship (Goldhaber et al., 2020b). Student teachers can observe effective instructional practices, receive timely feedback, and engage in reflective discussions, which accelerates their professional growth and development. Furthermore, early exposure to high-quality mentor teachers enables students to witness the daily realities of the classroom and gradually assume scaffolded teaching responsibilities under their guidance. Brown et al. (2019) also found that pre-service teachers' ability to learn from experienced mentor teachers had a positive impact on their perceptions of preparedness and self-efficacy. This hands-on experience helps student teachers apply what they are learning from their teacher preparation programs. Overall, recruiting high-quality mentor teachers and establishing early partnerships positively impact the quality of teacher preparation and the future success of student teachers.

#### **Limitations**

This study was delimited to include only Texas teachers that were former program students enrolled in an HSI (Hispanic serving institution) in South Texas. This study was delimited to a 2+2 Teacher Preparation program and only included participants that successfully completed their 2+2 teacher preparation program. This study was limited in that the study may be difficult to generalize amongst other populations since it was conducted with participants from Texas that attended a Hispanic Serving Institution. Furthermore, there was no way to control how vague or detailed participants were in their responses to interview questions.

#### **Conclusion**

In order to design teacher preparation programs in such a way that participants are well positioned to positively affect student achievement and to facilitate growth in student learning, there is great value in understanding the experiences of teacher preparation program participants; to know and understand, and then to allow those perspectives to inform teacher preparation program improvement. It begins with understanding the perceptions and experiences of teacher candidates. These findings are significant to both future research and practice. To prepare more effective teachers, teacher preparation programs must design and deliver training that meets future teachers' needs.

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# CHATGPT IS HERE TO STAY: USING CHATGPT WITH STUDENT TEACHERS FOR LESSON PLANNING

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## Abstract

ChatGPT, the latest iteration of AI, is impacting education. Some concerns about what students can do with ChatGPT to get around learning have caused some pushback against its use. However the authors propose the necessity of developing ways for student teachers to practice using ChatGPT. This article describes an exploratory qualitative study that analyzes student teachers' interactions with ChatGPT and draws conclusions on how it could help student teachers work smarter and become critical consumers of AI responses. Student teachers need to know how to curate what is accurate and pedagogically sound whether they use Google/Safari (or other browsers) to look up activities or use chatbots to write full lessons. This study presents the case that student teachers should practice with ChatGPT in two major ways. First, they need practice writing prompts to both direct and redirect ChatGPT toward revising lessons that align more effectively with their students' needs, interests, and cultural backgrounds. Second, they need to practice evaluating the lessons created by ChatGPT.

Keywords: *AI, ChatGPT, student teaching, teacher preparation, lesson planning, pedagogy*

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## Introduction

At the time of this study, March-May, 2023, ChatGPT 3.5, an artificial intelligence (AI) chatbot that came out in November 2022, became very popular with college students for writing papers and essays. In layman's terms, ChatGPT is a chatbot that can be prompted to search the internet using complex algorithms and compile information in prescribed ways aligned to the prompt given. For students, this means they can write a prompt to the chatbot for answers to questions, solve equations with explanations, and write and check code. ChatGPT can create full papers from multiple sources making plagiarism hard to detect (Cotton et al., 2023). Despite ChatGPT's limitations like bias and incorrect or fake information, it seems that it is here to stay (Whalen & Mouza, 2023).

Since ChatGPT is a recent development, there are limited studies exploring its use with student teachers. However, we theorize that these new technologies should be evaluated and used in authentic ways that encourage students to work smarter and spend more time revising or fine-tuning their teaching. We hoped to find that using ChatGPT would save student teachers time and mental energy by generating ideas and afford them time for revision and differentiation of lessons specifically for their unique students.

In our setting, student teachers are in the field teaching or co-teaching lessons daily, and their mentor teachers create lessons from a variety of sources. From our observations as field supervisors, we noted many were using school materials and curriculums provided by their campuses and districts (textbooks and district-vetted websites). Consistent with current studies (Sawyer et al., 2020; Schroeder, & Curcio, 2022) many also used lessons or support for lessons from the internet (TeacherspayTeachers, Twinkle and Pinterest). As part of our instruction on curriculum literacy, we require student teachers to critically evaluate curriculum and instructional materials. This semester, we asked them to incorporate ChatGPT as a new potential tool. Our goal was to have our student teachers use



ChatGPT for two lessons that would be taught and evaluated in person by university faculty. We acknowledge that there was little to use as a template except our own limited experience with ChatGPT and our teaching programs' use of Understanding by Design. Though we provided a structured approach for these plans, we expected varied results in the use and impact on the student teachers' lessons. In this article, we briefly describe the instructions we gave our student teachers regarding their use of ChatGPT, what they did and did not do when they used Chat GPT, and the lessons we learned about how to support student teachers in creating effective lesson plans using ChatGPT.

### **The Assignment: Use ChatGPT to Design an Effective Lesson for Implementation**

Eight student teachers who are also paraprofessionals in their classrooms were assigned the task of creating two rounds of lessons for evaluation with ChatGPT. The student teachers in this study were all working on prek-6<sup>th</sup> grade certification except for one student seeking a secondary English certification. All were female of different ethnicities: 2 Hispanic, 3 White, 2 African American, and 1 Middle Eastern. Their ages varied from young twenties to middle fifties.

Students were given a quick tutorial on how to access and use ChatGPT with a model that included prompting, evaluating, and reprompting. Students were also given a template (the Dialogue Lesson Guide) to follow step-by-step to guide them in prompting and revising their prompt and the lesson given from ChatGPT (see appendix). Then they could choose how to use their results for implementation: use it as is, modify it or reject it and create or find their own. Student teachers turned in three parts to get full credit for the assignment: A completed Dialogue Lesson Guide, the ChatGPT Dialogue screenshot or PDF (instructions for this were in a recorded video), and the final lesson plans they implemented.

### **The Completed Dialogue Lesson Guides**

The Dialogue Lesson Guide had three phases with seven steps. Students turned in their completed assignment electronically. As researchers we were bound by IRB not to view these until grades were finalized. Only seven templates were completed out of a possible 14 that should have been done. One additional one was partially completed. This greatly impacted the pool of data but left us with the question of why the template was left incomplete. Did the students not want to use ChatGPT? Was the template confusing? (We surveyed students after the study to ask these questions, and these results are discussed below in the survey section).

The seven completed guides and prompts were evaluated, and the decisions made by the students on whether to use their results from ChatGPT were recorded. All students wrote at least one prompt for ChatGPT to create a lesson. All were specifically aligned to their state standards. Only one was simplistic, "Create a lesson plan for theme for 8<sup>th</sup> graders." The rest were more complex, including the lesson format and specifics they wanted included in the lesson. This was the initial prompt of a second-grade student teacher, "Create a 5R [sic] lesson plan for second grade. The students will recognize characteristics of persuasive text. Also, include questions or activity to assess the objective. Provide a hook and use a fairytale book." Some were very complex as evidenced by this student teacher.

Create an understanding by design lesson plan for prekindergarten using the text Please Mr. Panda, with the objective: Students will retell or re-enact a story with a clear beginning, middle, and end using dramatic representations. The students will be retelling and reenacting the story using puppets. Be sure there is vocabulary support for the terms retell, re-enact, beginning, middle, and end. Also, include questions that deepen student understanding of retelling a story. Assessment evidence: Students will be able to clearly retell or re-enact a story with clear beginning, middle and end.

Six of the seven student teachers who completed the guide evaluated the lesson created by ChatGPT and typed in another prompt to revise the lesson. These six also used the lesson guide to make a list of things they still wanted to add or change and gave ChatGPT a third prompt. The changes will be discussed below under "Interacting At the



with ChatGPT”. Their final step was to use an evaluation form to check the elements of the final ChatGPT plan. Students’ checklist results are in the next section.

**Interacting with ChatGPT: Students’ Screenshot Data**

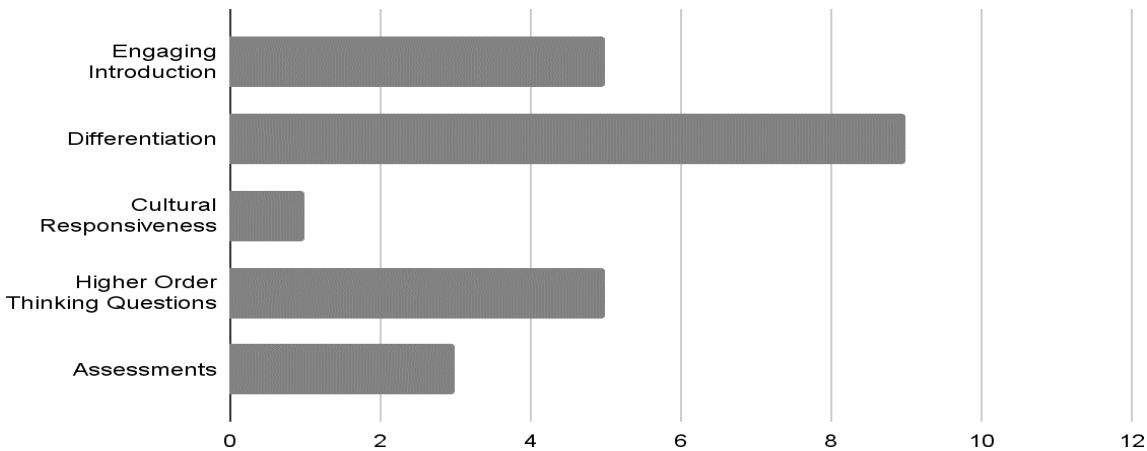
Twelve students uploaded screenshots of their interactions with ChatGPT. As mentioned above, their initial prompt was to request a lesson based on their standard(s) or specific objective(s). Additional promptings were used to revise their lessons. In the last step of the Dialogue Lesson Guide, evaluation criteria were given to evaluate the ChatGPT lesson. The items listed for the students to check included: standards, objective(s) in ABCD structure, engaging introduction, connections to prior knowledge, cultural/personal connections, differentiation for Individual Education Plans, differentiation for 504 accommodations, differentiation for gifted and talented, differentiation for emergent bilinguals, and cultural responsiveness (connected directly to students’ context for learning).

Using the guide, only two students were able to check off all areas. Even though all students did not complete the guide or this section, we still identified prompting that aligned with items on this evaluation. One student using the prompt “Create an engaging hook to introduce the frog life cycle to first graders” received this ChatGPT response: An engaging hook to introduce the frog life cycle to first graders could be to bring in live tadpoles or pictures of tadpoles and ask the students if they know what they are. You could then explain that they are baby frogs and ask the students if they know how they grow and change to become adults. This will capture their attention and spark their curiosity about the life cycle of frogs. You could also show a video or a book that explains the life cycle of frogs in an age-appropriate manner.

Students requested revision for engaging introductions (hooks), differentiation, and cultural responsiveness. See Figure 1 below for the breakdown of students’ screenshots of interactions with ChatGPT. We also found prompts requesting higher-level thinking questions and assessments, even though they were not on the evaluation list.

**Figure 1**

*Frequency of Prompt to ChatGPT by Student Teachers*



A closer analysis of the differentiation prompts revealed one for gifted and talented, four for ability (special education or possibly 504), and four that were specifically for emergent bilinguals.

## Survey about Using ChatGPT for Lesson Planning

As previously stated, the IRB prevented us from opening the uploads of the ChatGPT assignment before grades were finalized. When we opened the files, we found that only one of the eight students did the full assignment with all of the required documentation for both lessons. Additionally, when reviewing the screenshots, we realized that only half used the ChatGPT for both lessons. Two of these students did not use ChatGPT for both lessons because they had already taught lesson two before the assignment was created, but they also chose to not use ChatGPT for their final lesson as well. We wondered what they thought of the interaction with ChatGPT. To better understand their decisions, we sent a four-question Google form as a follow-up to our eight participants (now graduates). The survey questions included: *Did you use the information from ChatGPT for your actual lesson plan(s)? Check ALL that apply, If you made changes to what ChatGPT gave you, what were the changes about? Will you use ChatGPT in your lesson planning this coming semester? Why or why not?* There was an optional question at the end to help us better design this assignment: *How could we make the experience with ChatGPT better or more clear?* The request to take the survey was sent by email and then via text two days later. Five of the eight students completed the Google form.

For the first question about how they used ChatGPT, four graduates (80%) checked, “Yes, I used what it gave me, but I asked it to adjust it for my learners.” Four (80%) checked, “Yes, I used what it gave me, but I changed some of it on my own.” And three (60%) checked both choices. No one agreed that they used all or rejected all that ChatGPT gave them. When asked about how they used their revision prompts, there were four answer choices: rigor (making it involve deeper thinking or more thinking), engagement (hook, hands-on, active, multi-model), cultural connection (to your community, the race/ethnicity represented in the class), differentiation for ability (GT or SPED). Two graduates (40%) chose rigor, three (60%) chose engagement, and two (40%) chose cultural connections as the reason for their revision prompts. One (20%) chose all three as her reasons for revision, and one (20%) chose both rigor and engagement. Survey questions three and four results are represented in Table 1 below.

**Table 1**

### Survey Results

Respondent	Question: Will you use ChatGPT in your lesson planning this coming semester? Why or why not?
1	I think it is something I might use when I do not like what my district provides but I don't think it is something I will use very often
2	I might use it while working as a teacher. I found it to be quite helpful and easy to use.
3	Yes I will use ChatGPT, I am looking forward to seeing how it could help me in creating lesson plans.
4	Maybe.
5	Yes, it provides meaningful and detailed lesson plans.
Respondent	Question: How Could We Make the Experience with ChatGPT Better or More Clear?
1	The ChatGPT lesson plan template was confusing for me, I think maybe a different template that is a little more organized.
2	I think the instructions you gave us were sufficient.
3	Advanced lesson plans
4	I like it the way it is. It organizes itself, I can copy and paste the lesson plan to another platform, and I can regenerate answers numerous times.

### Lessons Learned

This early study was exploratory and experimental. Our goal was to support student teachers' authentic use of AI in lesson planning, specifically using ChatGPT. We hoped to see three rounds of revision and evaluation of key areas of the lessons given in the Dialogue Lesson Guide. As stated in the introduction, we had scarce literature

to support our use of ChatGPT to support student teachers. The lessons we learn from this first round of lesson plans inform us for instructing student teachers this fall. As we asked our students, we too will revise our plans in response to our analysis of student interactions and results.

We want to point out that these student teachers had background knowledge for evaluating and revising lessons. In the first semester of student teaching, they completed a module on curriculum literacy. Students learned what “high quality instructional materials” means and what to look for when evaluating lessons. We stressed alignment to standards, rigor or deep thinking, and cultural or personal connections to their unique students. We had hoped residents would use these previously learned skills with the AI prompts to cover these three areas needed for revision. We did see alignment in all lessons between the objectives and assessments. Also, we recognized some prompts for deeper questioning, several for differentiation for specific student groups in the classroom (special needs, gifted and talented, and emergent bilinguals), and one for cultural responsiveness. However, this does not mean that the lesson(s) were missing these components. Only two student teachers finished the final evaluation check, but we can see in the final lessons that the components were present.

Additionally, these student teachers evaluated their first lesson with this same evaluation tool at the beginning of the semester, so it was familiar to them. They also evaluated a model lesson for extra practice during the fall seminar. So one lesson we have learned is to specifically stress the need for doing all three prompts for revision and the final evaluation check to ensure a full evaluation of the product produced by ChatGPT. We also need to ask them to highlight the parts of the ChatGPT lesson they will keep for use. We suspect that most student teachers changed large parts of the lesson because they only used one prompt to get the basic plan. In future studies, we will find out if student teachers are creating their own modifications for their students instead of prompting ChatGPT for this purpose. Also, we will intentionally discuss this in our pre-conference stage of the lesson cycle.

We were astonished and disappointed that so few of our students did the entire assignment. Since all students did the ChatGPT once and no one responded negatively to using it in their fall teaching (question 3 on the Google form), we can conclude that they found it useful. From the responses to question 4, we do not believe it was the Dialogue Lesson Guide that inhibited them from doing the assignment. We surmise students were overwhelmed (which is a continuous theme for our paraprofessional students) and did not want to spend or have the time to complete the guide. So a possible lesson we can take from this is to require the Dialogue-Lesson Guide for just their first ChatGPT lesson, and for the second ChatGPT lesson, just require the evaluation checklist. For both lessons, the instructor will need to address how they use ChatGPT in the pre-conference stage and ask how they modify the lesson for their students before the lesson is taught.

### **Implications**

So how does this impact our teaching? We concluded that we wanted to do this assignment again with some changes. None of our graduates said they would not use it, so we want to support our current students in their ability to use it critically. As ChatGPT gets smarter and more popular, we believe teachers are going to expect to use ChatGPT to create lesson plans. We want to sharpen our student teachers' ability to evaluate what ChatGPT gives them. Additionally, we propose some pre-work with residents (clinical student teachers) to build their knowledge of and comfort with writing prompts for ChatGPT before introducing the assignment. We also want to explicitly demonstrate the limitations of ChatGPT including bias and misinformation. Next semester, we will assign more than one practice evaluation of a lesson using the criteria and then conference with small groups to let students compare their evaluations and discuss the purpose and outcomes of evaluating these lessons. We will seek ways to encourage accountability for the assignment and focus on evaluating and revising the lesson outputs given by ChatGPT as an authentic skill for lesson planning.

We hope to expand this exploratory research to all residents in our growing program (about 60-80 student teachers) and examine their final evaluation and revision to reveal patterns and issues we need to understand to better use ChatGPT with student teachers.

### Recommendations

Technology is always expanding, and as teacher educators, we recommend learning about ChatGPT by testing teaching strategies that embrace AI for teacher preparation through lesson planning. We also recommend that teacher educators expand their use of ChatGPT to support student teachers in other teacher duties: creating assignments and assessments and learning new teaching strategies or content similar to the content in professional development (Kasneci et al., 2023). Although the literature is brief, we see how ChatGPT could be used to increase understanding for educators on personal trouble spots (like supporting positive behaviors while reducing negative behaviors) or deficits in their understanding of teaching strategies for particular standards.

### Conclusions

ChatGPT can potentially make information students need easily accessible. However, student teachers need guidance. They need to know how to use it effectively, critically, and ethically. But this is something teacher educators can accomplish. Student teachers can be successful when we model effective planning using this tool. Through carefully worded prompts, evaluation, revision prompts, and further evaluation, student teachers can reliably and effectively use ChatGPT to save time creating lesson plans and focus more on creating equitable opportunities for the unique learners in their classrooms.

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### Appendix A - ChatGPT Lesson Plan – Dialogue Guide

Instructions: Turn in this completed Dialogue Guide, your ChatGPT Dialogue PDF, and your final lesson plan together to the Dropbox in D2L and to your Field Supervisor before your next observation.

#### Step One - Prepare

Before starting your dialogue with ChatGPT consider what you need to ask for... Here are some items you need to prepare before you start.

#### Stage One

- Content:
- Grade Level:
- TEKS:
- ELPS:
- Prewritten Objective:
- Academic Vocabulary:

#### Stage Two Assessment Evidence:

#### Stage Two

Assessment Evidence: What evidence will you need to assure the objective will be met.

What type of lesson plan do you need? Direct Instruction, 5E, Understanding by Design (UbD), etc.

#### Step Two – Synthesize

Synthesize the information above to create a request for a lesson plan.

NOW OPEN ChatGPT – Here’s the link: <https://chat.openai.com/chat>

Synthesis – First dialogue for ChatGPT

*“Add your ChatGPT request here”*

#### Step Three – Review Lesson

Review the lesson produced by ChatGPT. Does it have the information you need based on your pre-identified criteria?

If no – Make a list of the things it needs to adapt.

#### LIST

Check the materials list on the plan. Make notes.

#### NOTES

Check the accuracy of the model of the lesson plan – Does it accurately represent the lesson plan model you selected?

## NOTES

Assessment: Does the assessments align with the objective(s)? Is it something you can do, or does it need modification?

## NOTES

Check the questions: Are they at different levels from understanding to evaluate?

## NOTES

Step Four – Add Differentiation Stage3– Differentiation

Provide the modifications required for your IEPS, 504, and GT students: IEP: Provide the supports needed for EB students:

Synthesize the items that need attention from the last revision and add the items needed for differentiation in your next dialogue.

Synthesize the changes that need to be made into a dialogue for CHAT GPT.

*“Write your next ChatGPT request here”*

Step Five Final Revisions

Make a list of things you still want improved. LIST

*“ Write your next ChatGPT request here.”*

Step Six - Evaluation Criteria (From the Lesson Plan Scavenger Hunt)

\_\_\_\_\_ Includes the TEKS

\_\_\_\_\_ Objective in ABCD structure

\_\_\_\_\_ Engaging Introduction

\_\_\_\_\_ Connects to Prior Knowledge

\_\_\_\_\_ Cultural/Personal Connections

\_\_\_\_\_ Differentiation for IEP

\_\_\_\_\_ Differentiation for 504

\_\_\_\_\_ Differentiation for GT



\_\_\_\_\_ Differentiation for EB

\_\_\_\_\_ Culturally Responsive (Connects directly to context for learning) Lesson Structures – Choose just ONE

Independent Practice (Madeline Hunter, or I DO, WE DO, YOU DO)	5 E	Understanding by Design (UbD)
_____ Hook	_____ Engage	Stage One – Identify desired results  Stage Two – Determine acceptable evidence  Stage Three – Plan learning experiences and instruction.
_____ Modeling	_____ Explore	
_____ Guided Practice	_____ Explain	
_____ Independent Practice	_____ Elaborate	
	_____ Evaluation	
_____ Closure		
_____ Checks for Understanding		

Step Seven FINAL INSTRUCTIONS – Turn in your plans – both parts:

You will need to turn in your ChatGPT dialogue. To make a copy – highlight the text of the ENTIRE conversation. Then you will right click and choose print. Select PDF, and then scroll to make sure it captured the entire dialogue. Save it as a PDF in your files. DO NOT CLOSE ChatGPT until you double check that your PDF captured your entire conversation.

Turn in this completed Dialogue Guide, your ChatGPT Dialogue PDF, and your final lesson plan together to the Dropbox in D2L and to your Field Supervisor before your next observation.

## PHYSICAL EDUCATION AND ITS INFLUENCE ON STUDENT MENTAL HEALTH

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### Abstract

Many children and adolescents are in poor physical and mental health due to their sedentary behaviors. The COVID-19 pandemic which resulted in school closures and compounded by social and economic issues at home, have contributed to an increase in mental health issues in children and adolescents. Many studies show a positive relationship between increased physical activity and improved mental health. In 2021, 80.4% of Texas youth failed to meet the recommended amount of physical activity of 60 minutes per day which has led to an increase of mental health issues. Physical education (PE) in schools are well positioned to provide the physical activity that students require as well as help students develop personal, behavioral and social skills. These skills will assist students in developing a sense of personal belonging, which counteracts the feelings of anxiety and depression, and help to create and maintain positive relationships. The primary focus on aiding students in learning and preserving their mental well-being lies in providing comprehensive training and support for PE teachers, alongside integrating mental health literacy throughout the PE curriculum. Equally crucial is the incorporation of mental health literacy education for pre-service physical education teachers, empowering them to identify and assist with mental health concerns within educational settings.

*Keywords: adolescents, COVID-19, mental health, physical activity, physical education, pre-service teachers*

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### Introduction

Physical education (PE) is positioned as the ideal discipline for addressing the numerous health issues affecting adolescents today. Physical inactivity is globally recognized as one of the primary risk factors for death, increasing the incidence of cardiovascular disease, cancer, and diabetes (World Health Organization, 2018). Ensuring students receive quality physical activity often falls on the shoulders of physical educators. Research shows that PE, as a subject area, can have a positive impact on a student's mental health as well. Children and adolescents are increasingly experiencing poor physical and mental health because of their current lifestyles, characterized by an increase in sedentary behaviors (Triaca et al., 2019). In a study supported by the U.S. Department of Health and Human Services, it was reported that between 2016 and 2020, cases of anxiety for children aged 3-17 increased by 29%, along with a 27% increase in cases of depression (Lebrun-Harris et al., 2022). In Canada, a 2020 study conducted at SickKids Hospital in Toronto concluded that as many as 70.2% of students aged 2-18 experienced a

deterioration in their mental health, with symptoms of depression and anxiety being most prominent (Cost et al., 2021). With the rise of student mental health issues, it is important to implement interventions to mitigate the additional mental health effects caused by the COVID-19 pandemic. Schools connect with all children over a long period of time making them a perfect site for long-term interventions to develop and strengthen student mental health (Ryan, 2020). One approach could involve introducing mental health education in the PE curriculum. Furthermore, it will be vital to equip pre-service teachers (PSTs) with knowledge of mental health literacy, enabling them to recognize and effectively manage mental health issues as they embark on their teaching careers.

### **Physical Activity and its Impact on Mental Health**

Physical activity plays a major role in maintaining positive mental health. Mental health is defined as an “individual’s emotional, cognitive, and social health, including the way an individual develops and maintains relationships and their capacity to cope with life’s stressors” (Olive et al., 2019, p. 1332). Adolescence is typically the time when mental health issues develop, with “the average age of onset for anxiety disorders being 11 years and 11-13 years for depressive disorders” (Andermo et al., 2020, p. 23). There is research that participating in regular physical activity in adolescence reduces the probability of presenting episodes of depression and anxiety. In a study conducted with adolescent girls aged 12-13, it was found that students who were physically active for more minutes per week than sedentary students, were 4.5 times less likely to report depressive symptoms compared to their less active counterparts (Cecchini et al., 2020). The results of the Cecchini et al. (2020) study *did not* vary between male and female students pointing to physical activities’ importance in depressive symptom reduction, as well as a reduction in anxiety, loneliness, anti-social behavior, emotional problems, and hyperactivity (Triaca et al., 2019). Research shows that mental health issues in students are lowest when individuals engage in a minimum of 45 minutes of moderate to vigorous exercise three to five days a week (Elbe et al., 2019) which is in line with the recommendations made by the World Health Organization (WHO). The U.S Department of Health and Human Services recommends that youth between 6-17 years of age get 60 minutes of physical activity every day for optimal health and fitness. In 2021, 80.4% of Texas youth failed to meet this recommended amount of physical activity (Michael & Susan Dell Center for Healthy Living, 2021). It has been shown that physically active students have higher self-esteem, a more positive body image, and better cognitive functioning (Olive et al., 2019). Andermo et al. (2019) also noted higher feelings of self-worth and the effect was stronger when the participation in physical activity took place in a school-based setting.

For many students, physical education class is the time where they receive most, if not all, of their physical activity (Bailey, 2006). This makes PE the ideal venue within schools to address the issue of student mental health. Increasing student access to quality PE programs is a low-cost public health measure that will increase youth participation in physical activity (Triaca et al., 2019), as well as reduce some of the negative effects left behind from the COVID-19 pandemic on student mental health.

Physical educators are tasked with ensuring that they teach their students the cognitive and physical skills needed to lead a healthy, active lifestyle. Unfortunately, due to increasingly sedentary lifestyles paired with the social isolation caused by the COVID-19 pandemic, the mental health of adolescents around the world has been negatively impacted. The health behaviors practiced in adolescents have a direct effect on mental and physical health into adulthood and beyond. A study conducted by Wu et al. (2017) showed the number of students between the ages of 10 to 18 diagnosed with a mental health

disorder was significantly higher among students with less variety in their diets, and among students who reported less physical activity and more time using computers and video games. These findings suggest that proper diet and an active lifestyle in adolescents can positively influence mental health and implies that successful school health programs targeting adolescents' diets and physical activity will contribute to the reduction of mental health disorders later in life. Without a change to the current curriculum and instruction practices in school based physical education programs, adolescents will not have the requisite skills to live healthy and active lives into adulthood. Elgaddal et al. (2022) notes that only 24.2% of adults over the age of 18 in the U.S. are currently meeting the physical activity guidelines for aerobic and muscle-strengthening activities. By shifting the PE curriculum towards young people's future health and well-being, more specifically, towards their current and future participation in physical activity, we will not only see more physically active adults, but an increase in positive mental health development (Penney & Jess, 2004).

### **Findings Ways to Engage Youth in Physical Activity**

As adolescents are spending more time on computers and mobile devices and placing less emphasis on their personal physical activity, how can physical educators increase student engagement, make learning more meaningful and relevant, and give adolescents the skills to be active into adulthood? Some adults believe that they lack the basic confidence and skills needed to walk into a gym or fitness class without feeling inadequate or self-conscious, further limiting their access to physical activity opportunities (Penney & Jess, 2004) and the subsequent positive effect on their personal mental health. Physical educators can reduce this feeling by including activities and preparing engaging lessons that focus on the development of motor skill competence in their students. Ennis (2011) states that, "skillful individuals are more likely to participate in more diverse forms of physical activity, persist longer, and engage in higher levels of moderate to vigorous physical activity" (p. 7). Participation in activities at the moderate to vigorous level has shown to reduce depressive symptoms at a higher rate than lower-intensity activities (Cecchini et al., 2020). If students do not reach a critical threshold of motor skill competence, they could drop out of participating in physical activities, and be unwilling to participate in physically active pursuits later on in life (Ennis, 2011). Increased student skillfulness can also lead to more positive perceived competence with one's own ability. If an individual does not feel competent in a movement skill or specific physical activity, they are less likely to try and therefore, will not feel success (Ennis). Students in PE classes that emphasized self-improvement, rather than winning or outperforming others, have higher levels of perceived competence (Ennis). By creating a PE program that contributes to the development of *all* students' motor competence, promotes individual success, and fosters positive experiences, students will be more likely to lead physically active lifestyles after they have left their formal education within the public school system.

### **The Real Mental Health Challenges of Youth Today**

Because of the ongoing mental health crisis, and the related social and economic issues that are present, more students are facing adverse childhood experiences in their home lives than at any other time previously. Adverse childhood experiences include physical or emotional abuse and neglect, sexual abuse, domestic abuse, exposure to household substance issues, mental illness, and parental separation (Easterlin et al., 2019). Students with adverse childhood experiences are more likely to have physical and mental health problems (Easterlin) and the number of students facing these issues continues to rise. Prior to the pandemic, roughly one quarter of students experienced two or more adverse childhood experiences. This

number has risen due to the increase in parental mental health challenges and substance use problems and because of school closures, social isolation, and income insecurity (Bryant, Oo & Damien, 2020). Despite the increased risk of anxiety and depression associated with adverse childhood experiences, physical activity within a school setting was *significantly* associated with school connectedness, positive self-esteem, feelings of social acceptance, and improved adult mental health (Easterlin et al., 2019).

Physical Education class is more than just a space for students to be physically active. PE helps children develop respect for their bodies, develop an understanding of the role that physical activity plays in their health, positively enhances self-esteem, increases social interactions, and cognitive development is heightened (Bailey, 2006). A further goal of PE is to help students develop the personal, behavioral, and social skills needed to promote a sense of personal belonging (Olive et al., 2019). Mental health is more than just the absence of anxiety and depression, it also encompasses one's social health and ability to create and maintain positive relationships (Olive et al.). Numerous studies have shown that appropriately structured activities in PE classes contribute to the development of appropriate social behaviors, and can combat anti-social behaviors in youth (Bailey, 2006). These factors can play an important role in the prevention of loneliness and decrease instances of social isolation (Triaca et al., 2019). For some students, the social environment created in PE classes contributes to a feeling of exclusion. When taught by a trained specialist, PE has the potential to be more inclusive, as a variety of students from different social and economic backgrounds come together, offering a sense of belonging, and community (Bailey, 2006).

While increased access to physical education is important for all students, these programs need to be led by qualified PE specialists. Generalist teachers tasked with teaching PE face many barriers when it comes to offering quality programming. These teachers can lack confidence, motivation, and are unlikely to be skilled in quality physical activity instruction (Olive et al., 2019). PE can have the potential to negatively impact a student's mental health when taught by a generalist (Smith, 2020). Generalists tend to use fitness testing or performative-based activities can be embarrassing and shaming for young people and can be detrimental to the confidence of students (Smith, 2020). When PE is taught by a trained specialist who do not focus on increasing fitness or reducing obesity, research shows a reduction in body dissatisfaction in girls, and a decrease in depressive symptoms in boys (Olive et al., 2019).

### **Rethinking Curriculum and its Potential Influence on Students**

As the percentage of students dealing with negative mental health issues increases, more responsibility has been placed on physical educators. While physical educators are being tasked with more responsibility when it comes to mental health education, few have the subject knowledge or confidence to teach this sensitive yet important topic. Morrison (2013) states that the role of the school has been regarded as an important environment for promoting the psychological wellness and resilience of children and youth, yet the majority of teachers have received little to no training in how to discuss such important and sensitive topics. Graham et al. (2011) noted that only 34% of teachers report possessing the skills to discuss mental health, while the majority of educators had received no mental health training or professional development (Ryan, 2020). For mental health education to improve there needs to be a change at both the school, and curricular levels and potentially at the level of teacher training in post-secondary environments.

Regarding the curriculum, there needs to be more of a focus placed on integrating "Mental Health Literacy" (MHL) within all PE curricula. As schools are seen as the environment where literacy and

numeracy are naturally taught, the integration of MHL into school-based health and PE curriculum seems fitting. MHL is described as a state of wellbeing in which the individual realizes his or her potential, can cope with the normal stresses of life, can work productively and fruitfully, and can positively contribute to their community (Ryan, 2020). Currently, many adults and youth misunderstand mental health and mental illness. By integrating MHL into school curricula, both students and teachers can better identify, understand, and respond to mental illnesses, while lessening stigma and increasing help-seeking behaviors (Ryan). MHL is a basis for the prevention of mental health issues in students and supports the identification, management, and prevention of mental health issues (Ryan). Physical educators are well positioned to help in the monitoring and identification of students' mental well-being since they work with students in many challenging situations and environments. Supporting and identifying students' mental health poses a significant challenge. Numerous resources have been developed to assist PE teachers in integrating MHL into their programming, including online resources available at SHAPE America, Substance Abuse and Mental Health Services Administration and PHE Canada. However, without proper professional development, many of these valuable resources remain underutilized. At the school level, additional resources need to be given to teachers and administrators for professional development for mental health as it is shown that increasing educator understanding of MHL lessens stigma and creates a more caring school environment (Ryan).

### **Mental Health Literacy for Pre-service Teachers**

Texas is one of the seven states in the U.S. that require pre-service teachers to acquire skills for conducting strategic mental health intervention with students (Brown et al., 2019). This requirement is evident in the Texas Educator Certification Examination Framework for Physical Education, which assesses PSTs on this competence through the EC-12 exam (Texas Education Agency, 2021). It is crucial to prioritize mental health literacy among PSTs to ensure their readiness in handling mental health situations during their field placements or the early stages of their careers. Subramaniam and Wuest (2021) emphasize the necessity for a paradigm shift within Physical Education Teacher Education (PETE) programs, particularly in the post-COVID-19 era, as these programs are perceived as inadequately equipped to address the prevalent mental health challenges in schools.

The way MHL material is disseminated as part of the PETE program is equally vital when considering how this information may be retained by PSTs. The traditional lecture method is not the ideal way to teach MHL as it is teacher-centered and a passive teaching method. Active learning pedagogies such as flipped learning, blended learning and simulation are instrumental in enabling students to construct knowledge actively, fostering connections to real-life experiences (Calderón et al. 2020).

Flipped learning (FL) is a teaching approach where students learn the foundational content outside of class, usually through videos or online resources, and then engage in active learning activities during class time. These activities are designed to be student-centered, encouraging students to apply and reflect on the knowledge they acquire outside of class. Østerlie et al. (2023) reviewed 16 studies on the use of FL in physical education (PE) and found that FL offers several benefits over the traditional lecture method such as better student interactions and increasing student motivation for learning. A MHL course applying a FL course structure would allow the instructor to use in-class time to foster critical thinking, exploring practical applications and promoting discussions on mental health topics in class. However, it is important to note that Østerlie et al. (2023) did not review any studies on the use of FL in courses on MHL.



Blended learning also allows for students to shape their own learning and differs slightly from flipped learning in that it combines traditional in-person lectures with the integration of online learning activities, creating a hybrid learning model. Calderón et al. (2021) examined the implementation of a blended learning approach in a 12-week PE course on philosophy, advocacy and sociological concepts in PE. The course was divided into four blocks of three weeks each and incorporated various components such as in-person lectures, live online discussions, recorded lectures, debates, and blogs. Physical education teacher educators who participated in the course expressed appreciation for its structured nature, despite initial apprehension about using a blended learning method. One challenge encountered by educators was establishing strong relationships with the PSTs in this format. However, PSTs found the blended learning format easy to engage with and appreciated the flexibility it provided for completing offline activities at their own pace.

Simulations can be a valuable tool that allows students to engage in safe, real-life situations enabling PSTs to practice and apply the skills they have learned. They also provide an opportunity for students to experience how they would react in actual situations (Ade-Ojo et al., 2021). Educational simulations encompass various methods such as role-playing, virtual reality (VR), and augmented reality (AR). VR immerses students in a simulated environment where they can interact with their surroundings, while AR enhances the environment by overlaying virtual objects onto actual objects. When utilizing simulations, it is essential for physical education teacher educators to facilitate follow-up reflective discussions with students following their engagement with the simulation. This approach allows for a more comprehensive learning experience (Ade-Ojo et al., 2021). Wahl-Alexander and Brezwyn (2021) introduced an example of a VR simulation used in a physical education context. They created a virtual gym space within a local elementary school, allowing PSTs to familiarize themselves with the physical layout before entering the actual space. PSTs used the VR simulation to develop and set up lessons as if they were in the actual gymnasium. Wahl-Alexander and Brezwyn concluded that the VR simulation greatly enhanced the field experience, but noted that setting up the VR environment was time-consuming.

PETE programs that are considering the incorporation of MHL courses should consider recommendations by Atkins and Rodger (2016). They propose five essential elements for PST courses on MHL including understanding of the mental health issues commonly experienced by teachers, providing insight about the context for students who are at risk or experiencing mental distress, equipping PSTs with evidence-informed strategies for addressing students' mental health needs, emphasizing the importance of teacher self-care and how to ask for help when needed and offering opportunities for self-reflection.

Active learning courses offer an effective way for PSTs to make sense and retain the information about mental health. The quality of student-student and teacher-student interaction plays a crucial role in the success of any active learning pedagogy (Calderón et al., 2020). Introducing one or multiple courses on MHL using an active learning strategy can greatly contribute to preparing PSTs to effectively address the mental health issues they are likely to encounter in schools. While active learning pedagogies have demonstrated benefits in various educational contexts for PSTs, further investigation and research are still required to determine their effectiveness in teaching MHL.

## Conclusion

While the recent pandemics' effect on adolescent mental health is still ongoing, research shows that PE, when taught correctly, can have a positive effect on the development of student mental health.

Researchers have determined that physical activity is consistent with improved mental health in students by reducing anxiety, stress and depression, as well as increasing self-esteem (Bailey, 2006). When physical education is taught holistically, by a trained physical educator, the stigma associated with mental illness is reduced, and increases help-seeking behaviors in adolescents (Ryan, 2020).

As we transition towards resuming pre-pandemic routines, it is important that policy makers and educational leaders look at PE as an effective mental health intervention. By dedicating more instructional time to MHL, providing professional development opportunities and equipping PSTs with MHL knowledge and practical skills, physical education can be utilized as a powerful venue to address the growing mental health crisis adolescents are facing today.

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## CULTIVATING LANGUAGE PROFICIENCY AND INTERCULTURAL COMPETENCE AMONG EDUCATORS THROUGH SOCIAL BOOK CLUB INTERACTIONS

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### Abstract

The high demands of the Bilingual Target Language Proficiency Test (BTLPT) have affected passing rates and bilingual teacher shortages. In this paper, we present an exploratory study that delves into the experiences of bilingual teacher candidates after participating in Club Leo, a book club designed to enhance academic Spanish proficiency to help them succeed in the BTLPT state exam. Through qualitative phenomenological analysis of teacher candidates' experiences, this research uncovers bilingual teacher candidates' experiences from Club Leo on their Spanish language proficiency. Results from an open-ended questionnaire revealed that participants had positive experiences and perceived improvements in their academic Spanish proficiency. We concluded that book clubs could serve as an avenue for supporting bilingual teacher candidates' academic Spanish proficiency.

*Keywords: bilingual teacher candidates, BTLPT, academic Spanish proficiency, pre-service bilingual teachers, book club*

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In 2020 the National Center for Education Statistics (NCES, 2023) reported that emergent bilinguals (EBs) or also known as English learners (ELs), referring to students who are non-native English speakers and are in the process of acquiring proficiency in the English language, represented 5 million of the student population in the United States public schools. In the U.S. Texas has the largest percentage of EBs (20%) representing 1 million EBs (NCES, 2023). Of the 5 million EBs about 3.7 million have Spanish as their home language (NCES, 2023). Unfortunately, for decades, Texas has experienced teacher shortages in various areas, including English as a Second Language and bilingual education (Bland et al., 2023). As a result, a significant number of EBs have not had the opportunity to receive instruction from highly qualified, bilingual, and biliterate teachers. This deficit in specialized teaching resources has implications for the quality of education EBs can access, potentially impacting their language development and academic success.

In Texas, highly qualified bilingual and biliterate teachers must take two additional professional examinations to become eligible to teach in a bilingual classroom. The first exam, TExES Bilingual Education Supplemental, assesses pedagogical knowledge related to bilingual education. The second exam, the TExES Bilingual Target Language Proficiency Test (BTLPT), assesses an individual's Spanish

proficiency in an educational setting across four domains: listening, speaking, reading, and writing (Bland et al., 2023). The high demands of these exams, specifically the BTLPT, have affected the shortage of bilingual teachers. According to TEA (2022), the number and passing rates of individuals taking the BTLPT have dropped. In the 2020-2021 year of the 2,161 test takers, 62% passed, and in the 2021-2022 year of the 1,818 test takers, 53% passed the exam. One of the most significant challenges is supporting bilingual teacher candidates in academic Spanish proficiency to pass the BTLPT. Therefore, the purpose of this exploratory study was to: support bilingual teacher candidates, also known as pre-service bilingual teachers, in enhancing their academic Spanish proficiency in speaking, listening, and reading through book clubs to support teachers in passing their BTLPT.

### **Literature Review**

The theory and concepts underlying this study focus on the interconnectedness between a theory (social interaction) and several concepts (reading experiences via book clubs within pedagogical content knowledge) to support bilingual teacher candidates' Spanish language proficiency. Book clubs were used to encourage social interactions to improve students' Spanish language skills. Furthermore, the book club discussions touched on the relevance of the book's content to the bilingual teacher candidates' lives and their future EBs, with the intent of increasing their Spanish language proficiency. Therefore, this study presents how the social interaction theory proposed by Lev Vygotsky in 1978 supports our book club reading experiences and language development.

### **Sociocultural Theory**

The sociocultural theory, presented by Vygotsky (1978), allows for a deeper understanding of social interactions' role in language development. According to Vygotsky, social interactions serve as a source of learning, allowing individuals to engage with more knowledgeable peers or those with higher language proficiency to enhance their language skills. It is through dialogue, collaboration, and shared experiences that individuals actively support their language acquisition (McCaughey, 2017; Ro, 2021; Sert, 2017). Moreover, Vygotsky acknowledges the influence of cultural and social contexts on language development within a sociocultural frame. Consequently, in the following section, we explore how book clubs, approached from a sociocultural theoretical lens, promote language and cultural development among bilingual teacher candidates.

### **Reading Book Clubs**

Reading book clubs has emerged as a promising approach to enhancing language skills (McCaughey, 2017; Ro, 2021; Sert, 2017) and fostering cultural competence among students (Ro, 2021; Sert, 2017). According to Coldwell et al. (2018) and McCaughey (2017), reading clubs provide a safe and inclusive space for learners, heritage speakers, and native speakers to come together and engage in language practice. In McCaughey's (2017) study, the researcher created a safe learning environment in her book club that was "explicitly informal and 'not a class'" to create a group of readers versus the instructor taking over the conversations. Moreover, McCaughey (2017) realized that students improved their conversational skills and cultural values. McCaughey (2017) concluded that facilitators should work hard "at creating a community in which participants feel respected and empowered to speak and even argue" (p. 25).



Reading clubs hold promise for teacher candidates in Spanish language education, facilitating the improvement of language skills while fostering cultural competence. Through engagement with literature and culture from Spanish-speaking countries, students can enhance their analytical and interpretive abilities, gain a nuanced understanding of the social and historical contexts associated with the language, and develop a deeper appreciation for diverse cultural perspectives, thus supporting language and cultural competence (Pandey et al., 2023). In a study conducted by Pandey et al. (2023), the researchers found that individuals participating in a Spanish club improved their Spanish language proficiency through meaningful interactions and discussions. Implementing reading clubs to support language proficiency can be a valuable pedagogical approach to cultivating interculturality and enhancing students' overall language learning experience (Pandey et al., 2023; Ro, 2021, 2023). Collaborative social interactions, such as book clubs, enhance linguistic skills and intercultural understanding (Coldwell et al., 2018). Participants negotiate meanings, discuss diverse topics, and engage in language discourse, ultimately improving the learning experience (Pandey et al., 2023; Ro, 2021, 2023).

There is a relatively small body of literature on book clubs in higher education to support students' language proficiency and even non-existent literature on book clubs in teaching education programs to support bilingual teacher candidates' Spanish language proficiency. Nonetheless, these studies collectively suggest the benefits of book clubs in developing language skills, indicating that reading clubs can offer a practical avenue for students to engage with different cultural perspectives while simultaneously improving their language skills (Ro, 2021; Sert, 2017).

### **Method**

The purpose of this exploratory research was to pilot a book club with a small group of bilingual teacher candidates to enhance their academic Spanish proficiency in listening, speaking, and reading.

### **Research Design and Questions**

We utilized a qualitative phenomenological research design (Groenewald, 2004) to explore the participants' experiences in the book study to understand their motives in joining the book club and the benefits to their academic Spanish language proficiency. The phenomenological research approach further helped the authors understand what participants gained from the setting Club Leo provided for them to practice their academic Spanish proficiency and areas of improvement for Club Leo based on their experiences. Therefore, we proposed the following research question:

1. How did bilingual teacher candidates perceive Club Leo on their academic Spanish proficiency?

### ***Context of the Study***

The researchers, professors at a regional university in the southwestern U.S., developed Club Leo to support bilingual teacher candidates in preparing for the BTLPT Spanish proficiency exam. The book club focused on enhancing participants' academic Spanish proficiency across listening, speaking, and reading, as many were struggling to pass the BTLPT state exam required to become certified as a bilingual teacher in Texas. Therefore, in mid-Spring 2023 the researchers recruited bilingual teacher candidates interested in improving their academic Spanish proficiency via a book club community.



### *Sample*

A voluntary response sampling method was used to recruit bilingual teacher candidates. The researchers emailed all students classified as bilingual teacher candidates and held an online informational meeting for those interested in joining. These teacher candidates were at different stages in their degree plans, but all shared the goal of improving their academic Spanish proficiency. There were thirteen participants in this pilot study consisting of 91% female. We sent out an open-ended questionnaire via email twice to all thirteen participants; however, we only received seven.

### *Club Leo*

Three different genres were selected for the book club: fiction, memoir, and a self-help book. This provided students with various books that could align with their reading interests. The three books were *Grit* by Angela Duckworth, *No somos de aquí* by Jenny Torres-Sanchez, and *Solito: Memoir* by Javier Zamora. In addition to selecting different genres, these books were purposely selected because of their academic Spanish and relevance to cultural identity. During the registration, participants ranked their top three choices, one meaning their first choice. Participants were then assigned to a book based on their ranking, with priority given to their first choice.

The book club was conducted via videoconference, with one professor assigned to one book to guide the book club sessions. Five to six sessions of 30 minutes each were held at a time convenient for all. During these sessions, the assigned readings were discussed, and emphasis was placed on sharing their diverse perspectives and relevance to bilingual classrooms.

### **Data Collection**

Data was collected from a professor-developed five open-ended questionnaire. We administered the questionnaire to all participants after the last Club Leo reading session.

### *Instrument*

The instrument was a five open-ended questionnaire. The goal of the questionnaire was to analyze participants' experiences of Club Leo so that the researchers could make any needed adjustments for future book clubs. The questionnaire consisted of five questions about the participants' experience and included no identifying information. The following were the questions:

1. What was your goal when joining Club Leo? Did you accomplish this goal? Please explain.
2. Was joining Club Leo beneficial to your Spanish proficiency? If so, how?
3. What do you wish would have been done differently to help you improve your Spanish proficiency?
4. What did you enjoy about Club Leo?
5. Describe the structure of the sessions. Did you enjoy this structure or would you have liked a different type of structure?

## Data Analysis

Participants voluntarily completed the anonymous questionnaire via Google Forms. The researchers analyzed the data separately, examining recurring themes or topics related to the participants' perceptions of the book club (Krippendorff, 2018). After the initial analysis, the researchers met to corroborate the initial codings and develop final interpretations.

## Trustworthiness and Credibility

Trustworthiness is an essential element of qualitative research (Lincoln & Guba, 1985). Therefore, in our study, low inference descriptors (verbatim comments), peer coder, and member checks helped increase credibility, contributing to our study's trustworthiness. Verbatim comments from the collected data were used to describe the participants' experiences more accurately to increase the interpretive validity (Johnson, 1997). As mentioned, the researchers conducted an independent analysis and corroborated to refine and define themes. Lastly, the third component used to establish trustworthiness occurred when the researchers presented the participants with a thematic summary for member checking. All participants were asked to read the thematic summary and comment on whether they wanted to make any changes to help complete the analysis to develop interpretations.

## Results

Two themes emerged from the data: (1) participants were self-motivated to improve their academic Spanish proficiency, and (2) participants enjoyed exploring diverse perspectives in authentic Spanish conversations.

Reviewing preliminary data, the researchers noticed that all participants volunteered to be a part of Club Leo to help them improve their academic Spanish proficiency. Participants were asked, What was your goal when joining Club Leo? Did you accomplish this goal? Please explain. Responses included, *"To improve my overall Spanish comprehension"* and *"To become more comfortable talking Spanish. I did enjoy logging in and being able to talk the best that I could."* Another participant wrote, *"To practice reading in Spanish."* Overall, participants wanted additional opportunities to practice and improve their academic Spanish to help them better prepare for their future careers as bilingual teachers.

The second question asked, Was joining Club Leo beneficial to your Spanish proficiency? If so, how? All participants wrote that being part of Club Leo was beneficial. One participant stated, *"Yes, I was able to feel more comfortable talking in Spanish as well as learning new words in Spanish."* Another wrote, *"Yes, I read aloud in Spanish and I frequently came across tier 3 vocabulary that I wouldn't normally come across."* A third participant wrote, *"Yes because I learned to read unknown words and their meanings. I would also read it out loud to hear myself."* Participants gained more confidence when reading and discussing in Spanish and acquired new vocabulary words through Club Leo.

The third question asked, What do you wish would have been done differently to help you improve your Spanish proficiency? Participants suggested adding a writing component to help them practice this skill in addition to the other language domains. Participants wrote, *"A written response would have helped me. And answer prompts to help me discuss what I want to talk about. The response would not be for a grade, but a jumping off point to start a better dialogue."* Another participant wrote, *"Maybe take notes (personally) so I can practice writing."* Although the participants were continuously practicing their

reading, speaking, and listening skills in Spanish, writing was not practiced during the pilot study of Club Leo.

The second theme from the preliminary data was how participants enjoyed authentic Spanish conversations unrelated to their coursework. In the fourth question, What did you enjoy about Club Leo? Some responses included, “*I enjoyed reading something else other than are assignments for class*” and “*Learning different culture and diversity. Discussing our perspective in the reading.*” As participants were grouped according to their number one book choice, they were grouped with others with similar interests and motivations to share about this book. Moreover, as commented by one participant, “*The book and the club was friendly as well as welcoming*” which allowed them to take risks and make mistakes while learning about the book and practicing their academic Spanish proficiency.

The fifth question asked, Describe the structure of the sessions. Did you enjoy this structure or would you have liked a different type of structure? All participants liked the structure of their book club as they expressed satisfaction with the flexibility. Two participants wrote, “*I enjoy having it on Saturday due to our crazy schedule,*” and “*We had Saturday meeting I like it because I was unable on the week.*” As this book club was optional, participants had to balance their schedules with school and work. Allowing some flexibility in the schedule allowed some of these participants to attend the book club meetings.

## Discussion

We were interested in analyzing the overall arching research question of how bilingual teacher candidates perceive Club Leo on their academic Spanish proficiency. The following discussion is based on our findings of bilingual teacher candidates' experiences of the book club.

### Teachers' Experiences

Researchers have found that book clubs effectively support individuals' language proficiency (McCaughy, 2017; Pandey et al., 2023). For example, Pandey et al. (2023), found that participants had positive experiences and improved their academic language proficiency after participating in a book club. Similarly, in our study, we found that participants were self-motivated to join a book club to improve their academic Spanish proficiency. According to their experiences, many perceived they improved their academic Spanish proficiency. Based on participants' experiences and perceptions, it can be assumed that Club Leo allowed them the opportunity to improve their academic Spanish proficiency in a safe and welcoming environment. However, it is essential to note that although participants shared positive comments about the structure of the sessions when asked about structure, some pointed out in a different question related to suggestions for improvements that more writing practices would have supported them in improving their Spanish writing skills.

## Conclusions and Implications

In this exploratory study, the goal was to explore bilingual teacher candidates' experiences participating in a Spanish book club intended to improve their academic Spanish proficiency in listening, speaking, and reading. Based on these qualitative findings, the participants' experiences confirmed participants' perceived improvements in academic Spanish proficiency; therefore, one can conclude that participants had positive experiences from Club Leo regarding perceived improved academic Spanish

proficiency and exploring diverse perspectives within authentic Spanish conversations. Despite the exploratory nature of this study, the insights gained from this study may assist education preparation programs for bilingual teacher candidates to implement a book club community to support students' academic Spanish proficiency in preparation for the BTLPT. The evidence from this study suggests that bilingual teacher candidates are interested in joining Spanish book clubs intended to support their academic Spanish language proficiency in efforts to support their BTLPT preparation. Therefore, institutions preparing bilingual teacher candidates should implement Spanish book clubs outside of formal school work to support teacher candidates' academic Spanish proficiency and BTLPT preparation. Further research could be conducted to determine the impact of a Spanish book club on teachers' listening, speaking, reading, and writing abilities and their cultural competence. Overall, this study strengthens the idea that book clubs can be valuable in supporting bilingual teacher candidates' academic Spanish proficiency.

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## THE JOURNEY OF A STEM UNDERGRADUATE TO A SUCCESSFUL RURAL MATHEMATICS EDUCATOR AND THE IMPACT OF THE ROBERT NOYCE SCHOLARSHIP PROGRAM

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### Abstract

The transition from an undergraduate STEM student to a successful STEM teacher who persists for more than 5 years teaching in a high needs school is a tenuous journey. Only one third of STEM teachers persist in teaching for more than 5 years, and in rural areas the number of STEM teachers who leave each year is even higher. The goal of the Noyce Scholarship program is to increase the number of effective STEM teachers in the public-school classroom. For most undergraduate STEM majors, their challenges in coursework, certification, and personal issues are highly individualized and need specific intervention. This qualitative case study examines the journey of one STEM undergraduate, how the Noyce program responded to the participant's individual challenges, and the success and persistence of that Noyce recipient in the STEM classroom. Case studies such as this can provide critical information to EPP's and STEM scholarship programs about the challenges and needs of STEM undergraduates and teachers, so that key changes can be made in those programs to better support and increase the number of effective STEM teachers who will stay in the classroom.

*Keywords: STEM, educator preparation programs, mathematics educator, rural public schools, early field experiences*

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### Introduction

In 2012, Stephen F. Austin State University started its first cohort of Noyce scholars. This inaugural group of nine scholars would all go on to certify to teach mathematics or science in the state of Texas. All but two of the group are still in the classroom. This group is unique among undergrad STEM majors because the majority persisted to finish their degree and certify, they have stayed in the field for more than a year, and they have continued to stay in the field for more than 5 years. Because this group of STEM teachers has been extremely successful, the more research that we have produced, the more focus groups and reflections we have done, the more surveys and interview transcripts we have analyzed, we have realized that the best way to document and share our students' success is through the stories of the teachers we have impacted through the Noyce program. While the Noyce scholarship provided a baseline of support through the undergraduate program and four years after graduation, each scholar had unique needs and the Noyce program mentors were able to make individual decisions for each scholar to design a personalized support system based upon those needs. That individualized support system has shown



tremendous success for our students and our program, and we will share how that system worked on an individual basis, through this intrinsic qualitative case study. The research question framing this study is: How did the Noyce program influence the preparation, persistence, induction and retention of Mr. Adams, a Noyce scholarship recipient?

### **Literature Review**

Nationwide STEM teachers are in high demand and often hard to find, especially in rural schools (NAS, 2010; Milgrom-Elcott, 2019; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). The STEM teacher preparation pipeline for our own regional comprehensive university, Stephen F. Austin State University (SFASU), situated in a remote rural location, is less of a pipeline and more of a sieve. Outside of the Noyce program only 25% of science teaching majors and 17% of mathematics teaching majors persisted to graduation with a teaching certificate between 2007-2018. For the Deep East Texas area that includes 12 counties, 36 cities, and 40 school districts, this means that the university's traditional undergraduate certification program has produced only 25 mathematics teachers, and only 22 science teachers between 2007 to 2018 to meet the STEM education needs of the Deep East Texas region. This institutional information does not include the success of the Noyce scholarship program which is also at the same university. At SFASU, the Noyce program is called Talented Teachers in Training for Texas (T4) and has a 100% retention rate. T4 has graduated 93% of the participants in the program with a STEM teaching certificates and the remaining 7% remain in the program, on track to graduate in December 2020. Of the 41 current program graduates, 100% have either already begun teaching in a high need school or have accepted a position to teach beginning in Fall 2020. Only 2 of the 41 graduates have defaulted on their Noyce teaching commitment, which corresponds to two years of teaching STEM in a high-need school for each year of receiving the scholarship. Of the nine participants in the first cohort, of which the subject for our case study was a member, 6 completed their high-need STEM teaching commitment and continue to teach in a high-need STEM school even after that commitment. One participant deferred her commitment to teach high-need STEM but is currently in the classroom teaching high-need STEM. Another completed her four-year high-need commitment and is now no longer in the teaching profession. The last of the nine left secondary teaching in the first year of his teaching commitment, and is now pursuing work in research chemistry. According to the Houston Chronicle, in 2019, 1 in 3 teachers quit in Texas before their sixth year (Zelinkski, 2019). According to Carver-Thomas and Darling-Hammond (2017) there is higher STEM teacher turnover in schools that are Title 1 or rural. Most of the schools in the Deep East Texas area are rural and almost all of them qualify for Title 1 funds. The SFASU T4 program seeks to well prepare high quality STEM teachers to teach in Title 1, rural and urban school districts. While the rest of Texas has a 25-30% STEM teacher turnover rate, in the T4 program at SFASU, 85% of STEM teachers graduated from the SFASU T4 Program are still in the classroom.

Carver-Thomas and Darling Hammond's (2017) research findings indicate that teacher preparation programs can mediate the increasing national teacher turnover problem by creating teacher residency programs, and providing high quality mentoring and induction programs. These key elements allow teachers to experience a high number of practice teaching experiences under the careful eye of training mentor teachers and university mentors, and critical reflection within and after those experiences helps the pre-service teacher be prepared for challenges in the teaching field.

Darling-Hammond (2010) indicated that good teacher preparation programs are intentional about field experiences, that field experiences begin early in the Educator Preparation Program (EPP), and are intensive, meaning, not just an hour or two here or there. They include long days observing, helping,



teaching beside experienced teachers, and then being given the opportunity to critically reflect on those experiences. They also include specific content area tools/components, opportunity to evaluate state/local curriculums that can then be applied within the field experiences. These carefully crafted and deconstructed field experiences allow teachers to see examples and non-examples of classroom management, rapport, curriculum, instructional methods, in class procedures that are combined to create a vision of what kind of teacher the pre-service teacher candidate sees in themselves. These types of field experiences produce high quality teachers (Darling-Hammond, 2010).

### **Significance**

This study and similar studies are significant because high quality STEM teachers who stay in the classroom are needed across the US (Carver-Thomas & Darling-Hammond, 2017), the journey from STEM major to STEM teacher is not well documented or understood and is treacherous, particularly because the supports and resources that worked for one particular student may not work for other students. Detailed investigation into what assists STEM teachers in persisting to graduation, certification, and then to become effective teachers is necessary to improve the current STEM major to STEM teacher pipelines at all public universities. The Noyce program, funded by the NSF, is key in the capability of universities, especially such as the one in this case, to produce high quality STEM teachers. This case study is significant to the NSF, policymakers and legislators designing budgets for national and state support for mentoring programs for STEM teachers, and also university personnel involved STEM teacher preparation. STEM teachers are key to the success of our nation in its ability to value science and mathematics as a society, and to be competitive and innovative on a global level in STEM fields. Though STEM teacher attrition is an extremely costly challenge, the value of quality STEM education far exceeds simple monetary terms. In times when leaders and influencers debate the accurate use of science and data, equipping the next generation with STEM literacy is paramount.

### **Context of the Study**

The culture and demographics of Deep East Texas reflect the culture and demographics of the Southern United States. Race and gender are systemically and socially the key to available STEM career pathways that students are presented with from elementary to high school (Catalyst, 2019). The individual in this case study is a white male from a low socioeconomic status home in a rural and remote location. While we acknowledge the privilege due to race and gender of our participant, we acknowledge and lament the countless PK-12 student that were never presented STEM teaching as a viable pathway because of their race and gender. While our student did face hardships in his past, his race and gender were not one of the things that was a challenge. However, his low socioeconomic background is indicated by research findings to decrease the likelihood of high achievement in high school STEM classes and also decreases the likelihood of successful attainment of a STEM college degree (Rozek, Ramirez Fine & Beilock, 2019).

### **University EPP, Induction and Novice Teacher Support**

During the traditional EPP at this university in Deep East Texas, there is no formal EPP mentoring program, which is not uncommon across the EPP's in the US. The Noyce scholarship program provides each participant with a high quality and long-term mentoring network consisting of an experienced mentor teacher, and a group of faculty mentors that also function as undergraduate advocates for each participant.

The Noyce program also provided each participant with an early intense field experience combined with opportunity for critical reflection, bi-weekly meetings consisting of mentoring and education curriculum and instruction, funding to travel to attend teaching conferences, and community building meetings twice per semester, as well as regular one-on-one check ins from various people in the mentoring network. After graduation, participants are invited to induction workshops that are also certified as professional development, mentor teacher observations, and frequent check ins by Noyce faculty and staff. The Noyce grant also periodically provides teachers with classroom supplies of the teacher's personal choosing. Many of the Noyce scholars work in rural districts that do not have items such as mathematics manipulatives, or easy access to consumable items, so the Noyce staff have asked for "wish list" items and supply them. This constant support from the beginning of the participants' involvement in the program creates a community not only with the Noyce faculty and staff but also among the participants. They often contact each other informally to exchange ideas about curriculum, information about job opportunities, and opportunities to attend conferences together. Each Noyce participant experiences the program differently based upon their specific needs. The Noyce faculty meet on a biweekly basis to discuss individual and group Noyce participant needs/supports to implement. This allows the participants to get individualized support as they need it.

### **Methodology**

A qualitative case study research methodology was chosen for this project because this research is an exploration and in-depth analysis of a variety of data sources collected over a period of 8 years for one student as they completed their undergraduate STEM degree and transitioned to the career of STEM teacher. Creswell stated, "case study research is a qualitative approach in which the investigator explores a bounded system (a case) ...over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations interviews, audiovisual material, and documents and reports), and reports a case description and case-based themes (2007, p. 73). Case study was appropriate for this research because enabled focus to center on one teacher candidate's experience in the Noyce scholarship program and provide thick description of that experience. Stake (1995) recommends case study for documenting the intricacies of the subject of the study and the environment and influences on that subject. Stake stated that case qualitative case study research is "naturalistic, holistic, ethnographic, phenomenological, and biographic" (Stake, 1995, pp. xi-xii). The "thick description" element of a case study is "necessary for judgments of transferability" and "raise[s] the reader's level of understanding of the focus of the study" (Erlandson, et. al., 1993, p. 164).

The underlying framework for this case study is twofold: to document key themes captured in the journey of an undergraduate STEM major to STEM teacher, and to examine how those ideas were influenced by the subject's participation in the Noyce program. Stake (2005) recommends intrinsic case studies as forms of program evaluation. According to Merriam (2009) and Lincoln and Guba (1981) case studies are an effective method of evaluation reports. According to Merriam (2009) case studies as program evaluations can be persuasive because of the thick description, naturalistic context, and simplified data that can "illuminate meaning, and can communicate tacit knowledge" (p. 49).

### **Data Sources**

The data artifacts were collected over a period of 8 years, between 2012 through 2020. They include: participant interviews, participant surveys, participant reflection artifacts and emails; mentor

teacher surveys, observations, and interviews; principal surveys, observations, appraisals and emails; Noyce faculty mentor interviews, surveys, and observations, and emails; graduate student researcher observations, analysis of videos, and interviews; archival data from participant experiences such as reflections on conference attendance, master teacher job shadow, and mentoring reflections. The great variety of data sources from a period of 8 years and from a variety of different roles, interactions, and viewpoints is key to creating an accurate portrayal of the participant, and ensures theoretical saturation for the themes.

### **Data Analysis**

The data analysis is framed in grounded theory (Glaser and Strauss, 1967). Within this intrinsic case, each data source was evaluated using open coding for codes and emergent themes using the constant comparative method. After themes were identified and coding was completed, the data analysis and codes were evaluated by a critical friend who also analyzed the data sources, codes, and emergent themes to increase integrity and also provide a unique view on the data analysis (Appleton, 2011). Within case study research, it can be difficult for a researcher to navigate the gray areas between theoretical sensitivity and implicit bias, the addition of a critical friend who was not affiliated with the Noyce scholarship program, data collection, and had no knowledge of the participant was used as a second set of eyes to examine the data analysis, identified codes and themes. However, the critical friend was an experienced qualitative researcher, who is also a PhD in Curriculum and Instruction, experienced teacher, and also an asst. professor teaching in an EPP. This critical friend allowed the researcher to help support integrity and trustworthiness within the research (Appleton, 2011).

### **Results**

Within the data analysis four primary themes emerged. The results are sorted by themes with corresponding evidence for those themes.

***Theme 1: The Noyce program provided Mr. Adams with the early intense field experiences and feedback necessary to help him take his previously formed altruistic motivation for teaching and create a firm student-centered vision of himself as a teacher. The Noyce program supported him as he created a classroom environment facilitating excellent student rapport.***

The participant began his undergraduate journey as a STEM major with evidence of an internal altruistic motivation to be a STEM teacher in order to connect with students and be a positive influence in their lives. This altruistic motivation was regularly reinforced by the experiences and mentoring provided by the participants involvement in the Noyce scholarship grant. In his first early intense field experience, a job shadow in which he shadowed a mathematics teacher in a local public school for a week, he stated in a reflection about the experience,

“I want to do that on a daily basis, it is not about the money. Honestly, if it were I wouldn't be interested in teaching. I wanted to help them not only succeed in life, but help build their foundation of core values such as honesty, integrity, and respect, by being a positive role model in and out of the classroom. These core values help prepare students for their choice of the work force, military, or even to get to a higher education.”

This statement from the first field experienced that Mr. Adams ever had indicates that from the beginning he was driven by altruistic motivations to teach. In another field experience Mr. Adams observed of the teacher, “He also didn’t respect them. He just acted like they were good for nothing and couldn’t learn.” While Mr. Adams had positive examples of teaching during field experience, it seemed that he was equally impacted by the negative experience of watching a teacher who had no respect for the students. These early field experiences seem to have facilitated Mr. Adams’ mental construction of who he wanted to be as a teacher. He stated in another reflection, “I plan on making the classroom as relaxing and creative as I can. With this in mind it all starts with attitude, hopefully if I come in with a positive attitude the students will feed off that then the environment will be a positive one.” This indicates that these early field experiences combined with critical reflection facilitated Mr. Adams as a future STEM teacher in constructing an internal framework for what kind of teacher he wanted to be. Early intentional and intensive field experiences combined with critical reflection are keys to quality teacher education programs (Darling-Hammond, 2010).

Mr. Adams clearly began his STEM undergrad to STEM teacher journey with the idea that he wanted to make a difference in the lives of his students. He persisted in achieving that goal and maintains that reputation within his school district. The Noyce program allowed him the early intense field experiences needed to develop the framework for his teaching philosophy and then the Noyce mentors provided consistent positive feedback to provide the impetus for him to make his philosophy a reality. Positive rapport with students is indicated by research findings to be key in the academic success of students (Frisby, Slone, & Bengu, 2017), but Mr. Adams’ intent to connect and help students seems to go far beyond just the academic success of his students, as he stated in an interview in Spring 2016, where he shared a story about one of his students, “I actually had a kid call me, and thank me for saving his life! He said, ‘*I have (added by researcher for clarity) been messed up for a really long time, and I was going to commit suicide but because of you I didn’t!*’. I got the kid help and he is doing better now!”. The Noyce program not only allowed Mr. Adams to create a clear picture of himself being able to create authentic relationships with students, but it also gave him the reinforcement and positive feedback that helped him mature that viewpoint as he grew as a teacher.

***Theme 2: The early field experiences allowed Mr. Adams to form an accurate perception of STEM teaching and prepared the participant for challenges of teaching.***

The participant was able to develop an accurate perception of STEM teaching through his involvement in the Noyce scholarship grant and the increased number of field experience hours provided to him, this early intense field experience prepared him to be ready for the demands of STEM teaching. After the Master Teacher Job Shadow, in which the participants spend a week shadowing a STEM teacher before they begin their teacher certification coursework, Mr. Adams stated in his reflection, “It did give me a heads up of what I’m getting into.” In 2016, when he was interviewed about his choices of instructional methods, he stated,

“I thought along with the T4 program and the SFA teaching program they did a great job of showing me what teaching really is. Showed kind of lesson plans, planning and the time it takes. They did their best to put you in the classroom and show you what it looks like. With T4, every other week we were meeting new people, principals, teachers, etc. Gave a lot of experiences and the more experience you have the more you learn.”

Some of the difficulties with traditional approaches to professional experience programs may relate to the fragmentation of coursework and classroom practice (Eames & Coll, 2010). Consequently, many pre-service teachers do not find it easy to integrate what they are learning at university with what they are experiencing at the school. In addition, the nature of the mentoring from professional experience supervisors available to pre-service teachers can be inconsistent (Atputhasamy, 2005). As noted by Sim (2006, p.78) traditionally-oriented supervisory practices may provide only limited support for preservice teachers to “explore, discuss, and reflect on their developing understandings.” The challenge for teacher educators is to devise new kinds of professional experience programs that help pre-service teachers integrate theory and practice (Eames & Coll, 2010), which the Noyce program was able to do through biweekly meetings to critically reflect on field experiences, give Mr. Adams support in forming an accurate perception of STEM teaching, and help him envision ways to create a student centered classroom environment, while encouraging him to be cognizant and prepared for the challenges of STEM teaching. In the same interview from 2016, Mr. Adams stated, “Through the T4 program, I immediately entered the classroom with several internships working with experienced and inexperienced teacher - each offering their own advice.” One crucial element in helping prospective teachers to identify some of the shortcomings in traditional teaching practices and encourage them to broaden their range of pedagogical approaches is by engaging in critical reflection on the lessons they observe and teach (Chamoso, Cáceres, & Azcárate, 2012). The Noyce program facilitated regular opportunities for not only observation, but encouraged critical reflection on those observations. It is also important that pre-service teachers are given multiple opportunities to experiment with novel teaching approaches that are perhaps quite different from those they experienced when they were students themselves. In doing so, pre-service teachers will be better able to appreciate the importance of a variety of mathematic pedagogies and reframe their ideas about what constitutes quality learning and teaching (Star & Strickland, 2008). In 2019, Mr. Adams reflected after a conference, “As teachers you will have your ups and downs. Anyone can handle the good times, but the bad time you need a little extra. It is more helpful if that extra push is coming from people who you trust and have been tested with you.” He knew from his experiences in the early field experiences that he was going to face a variety of challenges, but he also knew that he had the support of the Noyce faculty and staff, and that he was capable of weathering the challenges he would face. Marder, Brown, and Plisch (2018) found that most STEM majors had inaccurate perceptions of the aspects of teaching as a career, and those inaccurate perceptions were part of their choice to NOT to pursue teaching as a career. Early field experiences are the antidote to inaccurate perceptions of STEM teaching.

***Theme 3: Early on, Mr. Adams rejected the traditional hierarchical view of teacher/student relationship, and the Noyce grant gave him the positive feedback he needed to preserve that transgressive perspective in mathematics education.***

Within secondary mathematics education, many pre-service teachers have a firm hierarchical traditional viewpoint placing the value of the teacher’s knowledge above the value of the student’s knowledge. Many times, those teachers are unfamiliar with any alternative pedagogical approaches and often create lessons that are teacher centered (Ebby, 2000). The participant entered into the Noyce scholarship believing he should learn equally from his students, a transgressive viewpoint from traditional mathematics teaching (Ebby, 2000). Mr. Adams’ student-centered growth mindset allowed him to be reflexive in his instructional and classroom management choices and make changes based on what his students needed. Within the participants initial interview for the Noyce program in 2012 he stated, “They say teachers are supposed to teach the students, but the students, they teach the teachers too.” This same idea was reiterated in a survey in 2016, after his first semester of teaching, when asked about his choices



for instructional methods, he said, “However, the people I give the most credit to are my students. I have to understand my students and how they learn. If I can relate the mathematics to them using something they enjoy, I will succeed in teaching them mathematics. Each of my students have different likes and interests, so I get to explore and discover new ways to teach the same concepts to each individualized needs.” And again, in an interview, when asked about how he chooses instructional strategies for his classroom, his response was, “It depends on the kids and their personalities”. Again, he reflected on his choice to cue in to student needs to make classroom decisions in 2018 when he had to respond to a death within the school community by changing his instructional plans to meet student needs, he said, “Today, mathematics didn’t matter.” His instructional choices and lessons are created with the student individual and group needs in mind. Throughout the data, it was evident that he viewed his students as people to learn from, not in a hierarchy, where his role as a teacher was superior to them. Evidence of this was also observed on separate in class observations by a variety of people, his choices of instructional methods based on his students was observed in his class by the school principal during his student teaching semester, his cooperating teacher for his student teaching, the Noyce mentor teacher, a classroom video analysis by an outside observer. In 2016, after Mr. Adams’ first year of teaching, his principal stated, “[Mr. Adams] identifies with his students and works proactively to establish positive relationships with them. In doing so, he is also able to find what instructional strategies work best with them.” The Noyce program mentoring encouraged Mr. Adams to preserve his transgressive non-hierarchical viewpoint of the student-teacher dynamic in the mathematics classroom throughout his undergraduate experiences and as he transitioned to novice teacher and then as he became an experienced teacher.

***Theme 4: The Noyce program removed key barriers for Mr. Adams to achieve certification in a timely manner and without increased financial burden.***

The Noyce program was able to break significant barriers in Mr. Adams undergraduate teacher certification process that might have prevented his persistence to teaching certification. Mr. Adams was initially denied admission to the semester of clinical teaching, because his content test results would not have posted before the deadline required by the College of Education. A faculty advocate reached out to the dean of that office and was able to get an exception for him so that he was able to student teach. Had this not occurred he would have had to either sit out for a semester and then reapply to clinical teach, or skip clinical teaching entirely and enter the classroom before beginning alternate certification. Because of the advocacy for Mr. Adams, he did his clinical teaching in the small rural school district where he is still employed at today. This type of barrier is common in EPP’s within Texas because of the many laws surrounding educator preparation that often are not based upon current research, but are based on the current political agendas of legislators.

Finally, the Noyce scholarship money is key in the ability of students from low-income backgrounds to successfully achieve teacher certification and also choose to stay as a teacher in rural areas. The beginning salary for a STEM teacher at Mr. Adams’ district is around \$34,000 per year. This \$2833 per month paycheck before taxes, mandatory retirement contributions, and health insurance, is low not only compared to the nationwide average, but about \$10,000 lower than the average salary of a teacher in the state of Texas. For many, working as a teacher for a rural district is a significant detractor to rural districts being able to retain teachers (Swaby, 2019) and 39% of Texas teachers work a second job to help pay their bills according to a volunteer survey from the Texas State Teachers Association in 2018 (Robison, 2018). Mr. Adams will begin his 5<sup>th</sup> year as a mathematics teacher of record at his small rural district in the fall, and will finally be quitting one of his two secondary jobs (as a driver for a mortuary).



## Findings

While it is absolutely possible and probable that Mr. Adams could have become a STEM teacher without his participation in the Noyce program, he would have spent extended time in his undergraduate time due to the denial of his clinical teaching application, and would have incurred an increased amount of debt to finish his teacher certification. Based upon the themes evident in this case, the Noyce program not only supported Mr. Adams during his undergraduate experience, but influenced and supported his own personal framework and vision for what kind of teacher he wanted to be and he has indeed achieved his own personal teaching goals. The scholarship support, early field experiences, the sustained support from faculty and staff mentors, the bi-weekly meetings and community building activities, and the special advocacy for him as an undergraduate were key to him being able to successfully transition from STEM undergraduate to STEM teacher. After he began his job as a STEM teacher, our research findings indicate that the support from the Noyce program continued to provide consistent reinforcement and support for his growth in the classroom not only within his instructional methods, but his weathering challenges and pursuing positive connections with his students. The combination of the training, mentoring, and financial support from the Noyce program has assisted Mr. Adams in becoming a successful and high-quality STEM teacher who has chosen to stay in a Title 1 rural school for 5 years.

## Implications for Educator Preparation Programs in Texas

The findings of this study indicate that educator preparation programs in Texas should allow pre-service teachers time and space to reflect on their own strengths as they move through the undergraduate program. Those strengths should be acknowledged by pre-service teacher education faculty and the pre-service teachers should be encouraged to build on those strengths as they gain knowledge and experience throughout the EPP. Additionally, the power of personal and individualized attention to pre-service teacher educators cannot be underemphasized from the findings of this study. When Mr. Adams was faced with barriers during the EPP, faculty advocates who had taken the time and effort to get to know him personally were able to intervene and help him overcome those barriers. It is recommended based on the findings of this study, that EPP's across Texas create small groups of students within EPP's that can be mentored by multiple faculty members in both content areas and in teacher education fields, so that adequate support is provided to pre-service teachers. This is especially critical in STEM fields, where content requirements are stringent and the teacher certification process in STEM fields often requires specialized mentoring to provide adequate support for persistence to certification. Finally, the state of Texas should consider investing in a financially supported novice teacher resource infrastructure through EPP's that allows EPP faculty and staff to provide substantial time and energy supporting novice teachers in their first two years of teaching. For Mr. Adams, this provided needed encouragement, resources, and also validation for his individualized strengths developed within his experiences in the EPP and Noyce program.

## Conclusion

Carver-Thomas and Darling-Hammond (2017) recommend that in order to decrease teacher turnover specifically in STEM teaching fields, teachers need to be able to be prepared in programs that provide high quality mentoring and induction, and they need to be offered scholarships that reduce the debt burden of teaching. Marder, Brown, and Plish (2018) state that financial incentives would increase the interest in teaching for 80% of STEM majors and that most STEM majors have inaccurate perceptions

of teaching and compensation for choosing teaching as a career. The Noyce program provides financial support, high quality long-term mentoring, and critical reflection combined with early intensive field experiences. The findings from this study indicate that the Noyce program indeed works to prepare high quality STEM teachers in a profoundly individualized way, gives them a longitudinal mentoring support system from undergraduate experiences to years after graduation, and removes key barriers to persist to teacher certification and stay in high-needs areas such as Title 1 and rural schools. The case study of Mr. Adams can serve as an example of how programs can structure and facilitate critical reflection, long term mentoring, and after-graduation support in combination with systemic institutional and financial supports to prepare and retain high quality STEM teachers in rural areas.

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