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*

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.

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 the 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 M	Control M	D		Treated M	Control M	D
Ethnicity	2.46	2.27	**0.23**		2.43	2.40	0.04
Certification Level	1.54	1.11	**0.52**		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		N	M	SD	SE
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 α = .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 l*earning environment*. There were no significant differences in *PPR*.

Table 4

Independent Samples T-Test

	T	Df	P	CI	
				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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