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What matters and for whom? Exploring characteristics of teacher residency programs and their relationship to participant perceptions

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This concurrent mixed methods study descriptively explores teacher residency programs (TRPs) across the nation. We examine program and participant survey data from the National Center for Teacher Residencies (NCTR) to identify important TRP structures for resident support. Latent class analysis of program-level data reveals three types of TRPs (locally-funded low tuition, multi-funded multifaceted, and federally-funded post-residency support), while regression models indicate significant relationships between individual program structures and participant (residents, graduates, mentors, and principals) perceptions. Qualitative analyses of multiple open response items across participants details four salient TRP structures: providing extended clinical experience, localizing individual support, offering programmatic training, and teaching practical professional knowledge. Findings inform policymakers on TRP investment, practitioners about program design, and researchers for continued large-scale evidence.

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What matters and for whom? Exploring characteristics of teacher residency programs and their relationship to participant perceptions

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Abstract

This concurrent mixed methods study descriptively explores teacher residency programs (TRPs) across the nation. We examine program and participant survey data from the National Center for Teacher Residencies (NCTR) to identify important TRP structures for resident support. Latent class analysis of program-level data reveals three types of TRPs (locally-funded low tuition, multi-funded multifaceted, and federally-funded post-residency support), while regression models indicate significant relationships between individual program structures and participant (residents, graduates, mentors, and principals) perceptions. Qualitative analyses of multiple open response items across participants details four salient TRP structures: providing extended clinical experience, localizing individual support, offering programmatic training, and teaching practical professional knowledge. Findings inform policymakers on TRP investment, practitioners about program design, and researchers for continued large-scale evidence.

Keywords: teacher residency programs, teacher preparation, mixed methods, beginning teachers

Introduction

Teacher residency programs (TRPs)—designed to enhance the recruitment, preparation, and retention of teachers for high-needs schools (Silva et al., 2014)—have proliferated throughout the U.S. (Worley & Zerbino, 2023). These programs place diverse teachers in underserved districts and offer a suite of supports for educator success (Azar et al., 2020; Gist, 2019). Preliminary evidence suggests TRPs are positively associated with increased student achievement scores and teacher retention (Papay et al., 2012), alongside decreased long-term district costs (Worley & Zerbino, 2023). These distinct benefits could curb the increased post-pandemic teacher turnover (Goldhaber & Theobald, 2023) and persistent new teacher attrition rates (Papay et al., 2017). Correspondingly, the U.S. Department of Education has invested nearly $350 million in TRPs since 2014.[1]

Given such significant financial investment, interest in and empirical evidence on the effect of TRPs is growing. A great deal of existing research describes the need, theory, and purpose of TRPs (Gist et al., 2021; Solomon, 2009), while other studies have examined various perspectives and experiences within residencies (Kwok et al., 2023; Chu, 2019; 2021; Mitani et al., 2022). However, there is less evidence examining across TRPs, as many prior studies focus on single programs, or particular states and districts. These prior works inform a burgeoning groundwork outlining central components of TRPs but given the variation across programs (Wasburn-Moses, 2017), less is known about peripheral structures that define this heterogeneity.

Our concurrent mixed methods study leverages data from 39 TRPs in the National Center for Teacher Residencies' (NCTR) Network for 2021-2022. We explore program and participant surveys to identify important TRPs structures through latent profile analysis and qualitative

[1] https://oese.ed.gov/offices/office-of-discretionary-grants-support-services/effective-educator-development-programs/teacher-quality-partnership/about-us/

coding of open response items, respectively. We also examine the relationship between program structures and participant experiences to understand the potential effects of TRP design. This study contributes foundational evidence about TRPs and illuminates vital program structures that inform policymakers and program administration. The research questions guiding our work are:

1. What characterizes different types of teacher residency programs?
2. To what extent are programmatic structures associated with participant perceptions?
3. How do participants describe salient structures of their teacher residency programs?

Literature Review

Central Components and Effects of Teacher Residency Programs

Teacher preparation programs and policymakers have pursued assorted approaches to diversify the teacher pipeline and to mitigate teacher attrition. One approach has been through TRPs, which offer prospective teachers increased supports to enhanced training and often are intentionally designed to recruit and prepare teachers of color (Azar et al., 2020). Amidst ranging implementations of TRPs, the Office of Elementary and Secondary Education provides a federal definition: a TRP is "a school-based teacher preparation program in which a prospective teacher:

1. For not less than 1 academic year, teaches alongside an effective teacher, as determined by the State or local educational agency, who is the teacher of record for the classroom,
2. Receives concurrent instruction during the year, through courses that may be taught by local educational agency personnel or by faculty of the teacher preparation program; and in the teaching of the content area in which the teacher will become certified or licensed; and

3. Acquires effective teaching skills, as demonstrated through completion of a residency program, or other measure determined by the State, which may include a teacher performance assessment."[2]

TRPs seek to require more and longer training to sustain beginning teachers. This framework starkly contrasts with the expansion of alternative certification pathways, which reduces training and barriers into the profession. That is, amidst trying to fill large numbers of vacancies by placing many individuals as teachers of record as quickly as possible—often through an emergency credential (Grossman & Loeb, 2008)[3]—TRPs take the opposite approach in enhancing training for fewer individuals to stay longer.

Evidence suggests the advantages of essential design components of TRPs. Most prominently, studies have identified the benefits of prolonged clinical training, where longer clinical teaching affords preservice teachers (PSTs) to "experiment with specific and concrete strategies under realistic conditions" (Pankowski & Walker, 2016, p. 4) and have increased exposure to real-world curriculum and pedagogical development (Klein et al., 2013). Extra time also provides increased opportunities to connect practice to theory through aligning coursework (Dennis, 2016; Guha et al., 2016), allowing residents to directly apply concepts and skills in further depth than in teacher education programs, ultimately enriching residents' learning development (Gatti, 2019). Examining administrators, Berry et al. (2008) finds a stated increase in recruitment of residents of color into hard-to-staff schools, resident retention, and benefits to mentors compared to other first-year teachers. These findings are echoed in other studies

[2] https://oese.ed.gov/offices/office-of-formula-grants/school-support-and-accountability/essa-legislation-table-contents/title-ii-part-a/

[3] Notably, TRPs typically encompass, but can differ from Grow Your Own (GYO) Programs, which are often grassroots programs that focus on academic and professional development of teachers of color within a local community (Edwards & Kraft, 2023; Gist et al., 2019). While there is significant benefit in hiring home grown teachers (Redding, 2022), TRPs is a broader category that can consist of additional measures to support teacher recruitment, preparation, and/or retention that some but not all GYO programs might employ.

(Roegman et al., 2019) and extended through additional outcomes of reduced deficit thinking (Garza & Harter, 2014), increased sense of preparedness and commitment (Chu & Wang, 2022), and ultimately student achievement (Papay et al., 2012).

Varying Structures of Teacher Residency Programs

However, studies demonstrate variation beyond essential TRP program structures, leading to divergent learning opportunities (Garza et al., 2013). For instance, Wasburn-Moses (2017) examines 37 teacher residency programs across 15 states and DC from publicly available materials and finds that structures substantially differed by program. In particular, the author suggests post-residency induction and the alignment between course and fieldwork vary or may be especially difficult for programs to implement.

Other sources of variation may exist across TRPs, including the strength of district partnerships or the extent to which TRPs and districts work in tandem to ease PSTs into teaching (Kennedy & Hendrickson, 2019), and provide on-site professional development focused on emergent and contextually bound training (Hammerness & Craig, 2015; Miller & Strachan, 2020). Another source is program funding and resident financial support. For example, TRPs can offer residents different monetary incentives often in exchange for commitment to future employment in the sponsoring district (Guha et al., 2017). Lastly, TRPs may adopt different mentor selection and matching processes with variation in the quality of mentoring and instructional coaching provided to residents (Garza et al., 2013; Guha et al., 2017).

Our study aims to further explore potential variation among TRPs and build on existing literature. Chu and Wang (2022) show that the evidence base for TRPs is predominantly qualitative and focused on current residents and call for more research on graduates and other TRP participants, greater use of mixed methodologies and multiple data sources, and

incorporating outcomes that can speak to resident development among other things. Furthermore, the few large-scale, quantitative studies of TRPs that exist provide mixed findings. For example, Silva et al. (2014) examine 30 programs receiving federal Teaching Quality Partnership grants, finding they slightly broaden and increase entry into the profession for individuals who have worked a full-time job prior to teaching, but that other characteristics of TRP teachers, such as race/ethnicity and retention rates, are similar to non-TRP teachers. Our work seeks to expand and address these issues.

Data and Methods

We leverage restricted data from surveys administered by the National Center for Teacher Residencies (NCTR) in 2021-2022. Founded in 2007, NCTR is the "only organization dedicated to developing, supporting, and accelerating the impact of teacher residencies," and is committed to building and developing "teacher residencies as a lever to address the enduring and systemic inequities in school systems facing children of color and children living in low-income communities." NCTR provides programming and consulting to a network of TRPs across the country. The NCTR Network in 2021-2022 included 46 members in 26 states that collectively enrolled over 2,000 teacher residents nationwide, illustrating their overall scope and impact.

The data come from NCTR administered surveys of its 2021-22 members as well as participant surveys of principals, teacher residents, mentor teachers, and graduates. Program surveys provide administration-level information about characteristics of that residency; 39 of 46 programs completed their survey for an 85% response rate. The study utilizes closed-ended items from the participant surveys, including demographic information and Likert-scale measures of participants' satisfaction with their program, and ratings of resident and graduate preparedness. These surveys are voluntary for both programs and their participants, leading to variation in

representation; NCTR estimates that on average, 70% of residents and mentors, 40% of principals, and 30% of graduates across programs completed surveys.

Participant surveys contain open response items utilized for this study. This includes, "How or in what ways has your program supported or prepared you well for being a teacher?" for residents and graduates. Other similar questions are:

- What can your program do to better prepare residents to be teachers? (Residents)
- Please share any additional thoughts you'd like to share about your program. (Residents)
- What can your program do to improve the clinical experience for residents (i.e., the experience of working in a classroom for a year with a mentor teacher)? (Residents)
- What suggestions do you have for how the residency program can improve? (Principal)
- What can the program do to better prepare residents to be teachers? (Mentors)

Though there is some discrepancy across these items, they collectively offer valuable insights into TRP structures. Overall, these data represent the most wide and comprehensive evidence to date on TRP characteristics and participant experiences, enabling us to provide an overview of types of TRPs and their defining characteristics, how program these are associated with participant experiences, and how participants describe the most supportive aspects of their TRPs.

Data Analysis

Given the large amount and disparate types of data, we take a concurrent mixed methods approach (Tashikori & Teddlie, 2021). This approach allows for combining quantitative analysis of program surveys, and quantitative and qualitative analysis of participant surveys. Below, we separately explain each.

Quantitative Analysis

We first explore the extent to which there may be unifying elements across residency programs. We use latent class analysis to examine which typology may exist among residency programs based on observable characteristics. In other words, we classify residency programs into mutually exclusive groups that are similar on some unobserved construct based on their observable patterns and characteristics (Denson & Ing, 2014).[4] Then, we theorize potential factors that may inform how participants view the successes and challenges of residency programs. We employ exploratory factor analysis to identify underlying factors for each participant type (i.e., residents, graduates, mentors, principals).[5]

After characterizing TRPs and the stakeholders within, we investigate the extent to which the type of residency program and the specific programmatic characteristics are associated with these participant factors. Our linear regression model is:

$$Y_{ip} = \beta_0 + \boldsymbol{ProgramChar}_{ip}\boldsymbol{\beta}_1 + \gamma_p + e_{ip} \quad (1)$$

Y represents one of the factors for each of the participant type of resident, graduate, mentor, or principal *i* in resident program *p*. *ProgramChar* is a vector of observable programmatic features of each residency program. γ_p is a residency program type fixed effects that is included to account for unobserved differences among residency programs. e_{ip} is the error term. We use heteroskedastic-robust standard errors in all analyses.

Qualitative Analysis

To cohesively analyze the open response survey items, we create a standard unit of analysis about defined programmatic support (Frey, 2022). This centralizes on what a residency offers, or conversely, what a residency should provide more of or provide altogether. After

[4] LCA is superior to cluster analysis since it allows hypothesis testing for the number of groups (Urick & Bowers, 2014). Moreover, LCA provides categories of residency programs (i.e., group A or B) while factor analysis would provide continuous variable that would not serve in categorizing residency programs.
[5] See Technical Appendix for specifications on latent class analysis and exploratory factor analysis.

establishing our unit of analysis,[6] we open coded a random subset of responses from each survey item. We pull out units (residency structures) and then conduct a process of axial coding (Miles et al., 2021) to group together similar structures. From this, we establish an initial coding scheme. Altogether, we design the scheme from 100 of each of the initial two questions and 50 from the remaining five items for a total of 450 responses.[7] We use constant comparative analysis (Glaser & Strauss, 2017) by reexamining the original data to ensure our interpretations of codes are reliable. From this initial scheme, we analyze all responses and update the scheme as necessary, adjust descriptions, and identify exemplars. Upon coding all data, we finalize our coding scheme, shown in Table 1.

[Insert Table 1 here]

We test the validity of our analyses in several ways. First, we conduct interrater reliability tests at two different points: establishing our unit of analysis and applying our initial coding scheme. We assess ten random data pieces, achieving 80% or greater in similarity; otherwise, we discuss and test again until we meet the mark. We also seek disconfirmatory evidence, which are self-reported negative structures and experiences. While we focus on structures regardless of sentiment, this verifies the same TRP codes throughout analysis.

Results

Quantitative Analysis

RQ1: What characterizes different types of teacher residency programs?

TRP latent classes. Latent class analysis and corresponding fit indices statistically categorize program variables into separate latent classes (Appendix A). Overall, the results

[6] See Technical Appendix for the process, inclusion, and exclusion criteria of the unit of analysis.
[7] We purposely prioritize residents' (current and graduate) responses through the greater number of codes that we analyzed. Residents were examined first and there is more of their data available; we want to centralize our interpretation through the ones most directly impacted by residency programs.

indicate three latent classes for the residency programs as the p-value for the fourth class is insignificant and the decreases in AIC, BIC, and log likelihood are much smaller relative to the change from two to three latent classes. We use these fit indices to guide our decision—given our exploratory nature with relatively small sample size—alongside our professional judgment to suggest three distinct classes. Conceptually, we label classes as locally-funded low tuition; multi-funded, multifaceted; and federally-funded post-residency support programs. Importantly, these labels provide generalizations in helping to define programs and is not meant to be universally distinct in description. We highlight salient differences below by class, shown in Figure 1.

[Insert Figure 1 here]

Locally-funded low tuition TRPs often have the greatest number of accepted applications and highest number of applicants of color and residents. The average resident stipend, tuition paid, and non-stipend spending are lowest among the three types; relatedly, most of these programs receive some support from local and state but no support from the federal government. Moreover, only 20% of programs provide post-residency in-person coaching, and 30% provide post-residency professional development. These types of TRPs likely highlight cost-efficient TRPs to address larger numbers of vacancies.

In comparison, *multi-funded, multifaceted* TRPs receive fewer applications and enroll fewer residents. Simultaneously, the average resident stipend, tuition paid, and non-stipend spending are higher than the previous programs with an average of $21,000 for resident stipend and $15,000 for average tuition paid. These are financed through the multiple funding sources where almost all receive local and state funding, and most receive federal funding. The *multifaceted* component refers to how 85% of these programs provide licensure and have higher percentages of a GYO focus, pre-K focus, and/or incorporating special education. About 45%

and 70% of programs offer post-residency in-person coaching and professional development, respectively. These *multi-funded multifaceted* TRPs represent over 50% of the sampled programs, indicating the most common structural design of TRPs.

Lastly, *federally-funded post-residency support* TRPs have, on average, a similar resident stipend of $21,000 but with residents only paying $7,000 in tuition. These programs all receive federal money and the vast majority also receive local and state funding. These funds likely account for the stark differences to the other two types of programs, where 89% of these programs provide licensure, and all provide both post-residency in-person coaching and post-residency professional development. In sum, these descriptive results suggest important variation in structural characteristics among residency programs, with the full set of descriptive variables of each type shown in Appendix B.

Factor analysis of participants' responses. Throughout the four separate participant surveys (residents, graduates, mentors, principals), we seek to reduce items into coherent constructs about participant TRP experiences. We employ factor analysis in which Scree plot and eigenvalues (Appendix C) strongly suggest the following constructs:

1. Resident factors
    a. Support, feedback and coursework received in the TRP
    b. Self-reflections of pedagogical self-efficacy
    c. Perceptions of hosting school community
    d. Evaluation of mentor teacher
2. Graduate factors
    a. Pedagogical self-evaluation
    b. Reflections of TRP preparation

3. Mentor factors
    a. Informal evaluation of resident effectiveness
    b. Perceptions of TRP programmatic support
4. Principal factors
    a. Informal evaluation of TRP graduate effectiveness
    b. Informal evaluation of resident effectiveness
    c. Perceptions of TRP effectiveness
    d. Perceptions of TRP programmatic support

Factor loadings, Cronbach alphas, and factor score indeterminacy results (Appendix D) suggest the validity of these factors (Beauducel, 2011; Tavakol & Dennick, 2011), where higher scores indicate stronger agreement that these factors are more effective. These factors also have high face validity, as the questions under each factor are generally about the same or highly related topic. For instance, the residents' pedagogical self-efficacy factor includes questions such as whether the residents felt they were prepared to teach the subject matter or to use student data. Altogether, there is substantial statistical and conceptual evidence for these factors.

RQ2: To what extent are programmatic structures associated with participant perceptions? Upon establishing constructs of participant experiences and types of TRPs, we probe whether there is a relationship between the two. In Appendix E, we examine whether participant experiences are a function of TRP class and surprisingly do not find any significant relationships.[8] While program types by themselves may not explain participants' perceptions, the specific programmatic features may, which we examine next.

[8] The exceptions include *multi-funded multifaceted* and *federally-funded post-residency* programs, relative to locally-funded low tuition programs, are negatively associated with TRP programmatic support for principals.

In Table 2, the observable programmatic features explain residents' perceptions of the TRP's support, feedback, and coursework, but little to none of the other factors (Models 1-4). For instance, in Model 1, residents from TRPs that receive federal funding (0.656 SD), focus on Pre-K (0.439 SD), provide licensure/teacher certification (0.763 SD), and offer post-residency virtual coaching (0.333 SD) are more positive about their programs' ability to provide support, feedback, and coursework than their peers. Conversely, programs with post-residency professional development or coursework, or are part of a GYO program are rated more negatively than those without these features. These programmatic features are mostly not significantly associated with the residents' pedagogical self-efficacy, school community, and mentor teacher factors.

[Insert Table 2 here]

This changes, however, for graduates of residency programs (Models 5 and 6). Similar to residents, graduates rate their pedagogy and TRP preparation higher in programs with post-residency virtual coaching and other post-residency support than those without these features. Graduates of GYO programs also view their pedagogy and TRP preparation about one standard deviation less positively and more than half a standard deviation less positively with those offering post-residency professional development or coursework.

This theme of post-residency programming is echoed for mentors and to a lesser extent, principals, shown in Table 3. Mentors for GYO programs, on average, rate programs with required post residency coursework worse than those without (Model 1 and 2). Mentors evaluate GYO programs worse than non-GYO programs as well as report worse program support as the number of residents increases, but better program support for residency programs receiving federal support (Model 2). Interestingly, none of the observable programmatic features of

residency programs explain how mentors view residents' effectiveness. For principals (Models 3-6), they tend to view programs receiving federal funding more positively than those without, potentially speaking to the question of available resources and how they are used. Principals also view programs with local and state funding much more positively than those without. Little else is significant across principal factors.

[Insert Table 3 here]

Qualitative Analysis

RQ3: How do participants describe salient structures of their teacher residency programs? We simultaneously explore TRP structures through participant voices. We describe each of the four structure below through illustrative quotes across participants.

Providing extended clinical experience. Participants express the benefits of having classroom experience of a year or longer to help them learn, develop, and scaffold teaching responsibilities. Residents consistently appreciate "residency in which [they] teach in actual schools for the year" before independently entering the field (G1553[9]). Not only did this give them "a great way to experience teaching in a low-risk setting and gain more confidence in front of the classroom" (G1557), but it also provides residents with a full year "to see how expectations are set, how students develop over the course of a year academically, and how relationships are built over time" (R33). These lengthy periods in the classroom allow for "the total immersion in a classroom from the first day to the last day" (R220).

With extensive periods of time in the classroom, residents could slowly transition into teaching responsibilities. Multiple residents explain the benefits of "having a year-long student teaching experience with a gradual release model" (G1817), which means a "release of

[9] Prefix R=Resident, G=Graduate, M=Mentor Teacher, A=Administrator. Numbers are deidentified participant IDs.

responsibilities, coupled with the multitude of opportunities to try new techniques related to management, instruction, or assessment/grading" (R548). Rather than thrusting novices into professional responsibilities too quickly, "scaffolding release of responsibilities and allowing [them] space to practice planning and teaching" promoted steady development" (R320). Then, through these frequent and realistic opportunities to "practice and reflect with over the course of the school year" (R7), residents can confidently implement acquired knowledge and experiences into their teaching. As best illustrated by one resident:

> The hands-on experience of being inside the classroom almost every day and leading content blocks has left me feeling very prepared to lead my own classroom. I've had plenty of "at bats" throughout the year in addition to the takeover days/weeks; these have allowed me to become more comfortable leading solo and implement more teaching strategies as this comfort grew. R272

Localizing individual support. Various personnel guide resident development including mentor teachers, coaches, and peers. The most consistently stated individual is the mentor teacher who would direct the resident in professional learning, such as the "process in preparing, handling meetings with parents, contacting parents, grading, etc." (R44), and "develop great transparency with the residents so they can express difficulties or challenges within the classroom" (M1441). Mentor teachers could also provide candid feedback to "improve [resident] teaching practices" and "allowed me to grow and adopt effective [t]eaching strategies" (R577), creating "opportunities for us to engage in rich conversations related to instructional practices while providing feedback when needed in order to implement them in the classroom" (R3). Ultimately, these mentors enable residents to "walk away feeling completely confident in me abilities to be the best, most effective teacher that I can be" (R288).

There are other individuals who supported residents, oftentimes initiated by the TRP. Residents would state that their program "has created a network of educators that can lean on each other for support to move forward" (R485) by building a community, offering "many opportunities to collaborate with fellow peers" or making sure someone is "available to assist us in any way possible when needed" (R275). There are program coaches who "made a really big impact on why and how I would be able to help in the classroom" (R1886), who are "always available and willing to help navigate any questions or situations" (R612). Altogether, there are "professionals within my program have, on many occasions, given me feedback that was encouraging and supportive of my continued professional development" (R417), ensuring a network of individuals to help the resident succeed.

Offering programmatic training. Educators state the benefits of required coursework and professional development opportunities. This includes "professional learning days and pipeline workshops [that] have provided numerous opportunities for growth as an educator" (R79). Programs offer "seminars to educate further on how to provide an equitable education to students and to promote change, among various other pedagogical skills" (R65). Students even highlight their opportunities to participate in a "break out group where [they] practice how to teach a lesson and write a lesson plan" (G1827), providing authentic practice.

Beyond professional development, "the coursework and placement experiences have aligned throughout the year to reinforce knowledge and skills learned" (R100). Residents express that the "assignments and projects from the courses have allowed me to really reflect and analyze the way I plan and teach students" (R166), through "engaging instruction, assessment, lesson differentiation, and how to emphasize a safe learning environment" (R593). One graduate states

that they “still utilize many of the STEM challenges, ice breakers, and workshop models to prep lessons for my class” (G1800), indicating the longevity of this learning.

Teaching practical professional knowledge. Participants describe types of knowledge gained throughout residency, such as content, pedagogical, and general professional knowledge.[10] Most prominent is lesson planning. TRPs have “prepared me to be an educator by giving me the responsibility of creating and teaching lesson plans” (R29), largely because they “have gained a lot of experience working in teams to create and modify lessons for all students based on their learning needs” (R562). Residents feel that "the combination of learning how to work well with the curriculum and focusing [on] how to effectively deliver it” (R450) make them well prepared for their full-time responsibility.

There is also a range of other pedagogical topics stated across participants. Residents “learned to build positive relationships with staff and students" (R562), alongside skills to "establish norms and procedures that better prepared [them] for classroom management” (G1788)," and how "to create a positive, nurturing, rigorous, and loving classroom environment…by providing me with tools and examples to implement these expectations and scaffolds in [their] own classroom" (R298). Instructionally, there is mention of “implementing high quality instructional material, and professionalism among students and peers” (R215) in conjunction with "developing professionalism, effective communication, facilitating assessments, analyzing data, planning for instruction, and writing lesson plans” (G1870).

There are also related personal skills taught through TRPs. Residents learn the importance of “self-awareness as well as how to advocate for my mental health needs” (R518), where they said that “the program has taught me the importance of support and asking for help

[10] What separates this code is often the specificity of the type of knowledge gained without being attributable to where it was gained.

when I need to. They also have helped me see the importance of reflection and looking at the growth that I've made over the last year" (R328). This introspection is reiterated in other ways, such as "the importance of self-reflection to address my positionality and biases and how they could impact my students" (R209) and "incessantly reflective and evaluate my own biases as well as to challenge the biases of others who will serve students that are marginalized and disenfranchised" (R486).

Discussion

Our concurrent mixed methods study illuminates a snapshot of the variation between and associations with TRP structures and experiences. We analyze program-level surveys to categorize TRPs and participant-level surveys to understand structures among TRPs, and identify relationships between program characteristics and participant experiences. Our results suggest several important findings.

Essential TRP structures are salient across participants. Surveys of residents, graduates, mentors, and administrators collectively reveal the importance of TRPs providing extended clinical experience, localizing individual support, offering programmatic training, and teaching practical professional knowledge. These results illuminate necessary perspective across TRP roles (Wang & Chu, 2022) and confirms evidence of relevant coursework and rigorous yearlong placement as critical to resident success (Chu, 2021; Mourlam et al., 2019). Increased clinical teaching (Pankowski & Walker, 2016), training (Miller & Strachan, 2020), professional knowledge (Hammerness & Craig, 2015), and mentorship (Guha et al., 2017) are all also mentioned, extending these descriptions across multiple perspectives throughout TRPs. This highlights how particular TRP structures are central to participant experiences.

Meaningful variation exists across TRPs. Statistically, programs group together based on funding, focus, and type of support, with three types of TRPs emerging: 1) locally-funded low tuition, 2) multi-funding multifaceted, and 3) federally-funded post-residency support programs. These results suggest important categorization across programs and the potential for more apt comparisons across programs. However, little to no associations exist between the program types identified here and participant experiences, possible hinting at the relatively high NCTR standards for accepting TRPs into their network (i.e., only exhibiting central components of a residency). While program funding, foci, and post-residency support are important for differentiating programs, they may not directly influence participant experiences.

Rather, variation in participant experiences could be explained instead by more specific TRP characteristics. This includes the positive association between residents and graduates' feelings of support and post-residency virtual coaching. This reiterates the importance of coaching (Hobson et al., 2009), particularly in the virtual format (e.g., to accommodate educator schedules, normalization since the pandemic), though could be explained by the desire of reducing professional responsibilities after residency. Additionally, mentor and principal factors are largely significant with how the TRP received funding. This could be related to whether these participants receive compensation for their work or in seeing that their residents and graduates receive adequate financial and professional support, which echoes our qualitative findings and prior works (e.g., Yun & DeMoss, 2020). This also could be on account of observed resident time spent on program responsibilities as opposed to experiences or effort invested in the classroom. Finally, TRPs part of a GYO are negatively associated with resident and graduate experiences. We have little explanation beyond hypothesizing GYOs offering less overall support for residents because of the assumption that they were already familiar with the local

context, or potentially, the wide variation in definitions or how programs define themselves as a GYO (Edwards & Kraft, 2023).

Limitations

There are several limitations bounding our findings. First, data come from NCTR Network member programs and are not representative of all residency programs. There is a financial cost to participate and receive NCTR support. More importantly, NCTR intentionally works with only TRPs that align with their organizational values and exhibit essential components of an equitable, effective TRP. This potentially limits and restricts the variation that might exist across programs in the data. In addition, while this ensures the authenticity and quality of the programs, the data may not represent the universe and wider variation among TRPs that might exist. Federal data or other national databases are needed to better understand the broader range of TRPs.

Second, program and participant survey data are self-reported. While our mixed methods approach of multiple data types and sources helps ensure the validity of the findings, we cannot rule out potential biases. Access to administrative records and more precise data collection across programs (e.g., triangulating results with interviews and observations) could strengthen findings.

Third, some quantitative analyses rely on small, potentially unrepresentative samples. Participant surveys had less than full response rates which vary by program, so the data may not be representative of all program participants. For sample sizes, specifically, principal factors were substantially smaller than for other groups, which decreased the power to detect significant relationships among these programmatic features and principals' perceptions. Given similarities in factors across participants, we feel confident in these results, but additional data are needed.

Implications

We believe our findings have important implications for research, practice, and policy. Policymakers should ensure that all TRPs are unified in embodying a greater number of essential program characteristics. Particularly when state and federal funds are involved, TRPs need to centralize on elongated clinical training, quality mentorship, and aligned coursework. But even more so, TRPs could be further specified through an expectation of training that is context-specific and that builds practical, professional knowledge.

Practitioners also need to consider localized structures in building or adjusting TRPs. Programs should consider how funds are best utilized and to what extent they would want to offer various post-residency supports and lean into certain focal areas (e.g., Pre-K, SPED). Much of this should derive from thoughtful collaboration between districts, teacher preparation programs, and TRPs to design a residency program according to contextual and historical needs and available funding sources. Afterwards, though, participant experiences should be weighed relative to what the program offers.

For researchers, there remains a need to analyze TRPs from a large-scale perspective. With continued evidence examining the effect of TRPs beyond singular programs and geographies, the impacts of financial investment can be enhanced. Broader perspectives and examinations into important student and teacher outcomes, and the resources and capability to analyze and make connections across differing data and measurement systems are vital. This needs to be prioritized within and across TRPs, focusing on connecting student, resident, and program-level data to make important connections to extend the value of TRPs.

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Figure 1

Program Characteristics by Residency Type

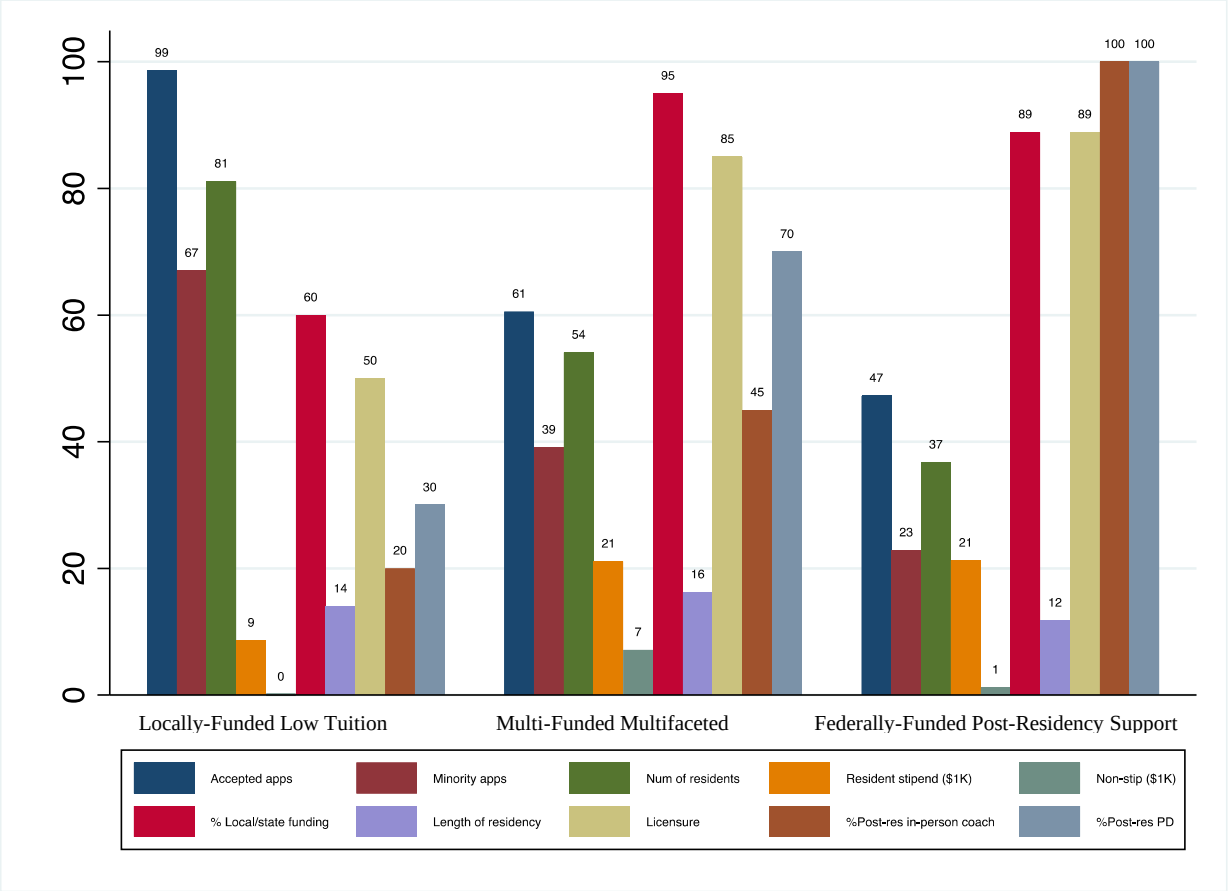


Table 1

Coding Scheme for NCTR Open Response Items about Residency Program Structures

Code	Description	Key Words	Examples
Providing Extended Clinical Experience	Classroom experience that is generally a year or longer scaffolding teaching responsibilities.	Classroom experience; yearlong; exposure; placement; observation; practice; residency; authentic; gradual release	• "The program has provided a gradual release model that has helped in providing me with additional responsibilities as a teacher during my residency" (Resident, 181) • "Working in the same classroom all year getting to see the growth of your students from beginning to end allows you to full grasp and understand the curriculum of the classroom you are in. It allows you to fully foster relationships not only with the students but with families as well" (Resident, 63).
Teaching Practical Professional Knowledge	Professional, content, or pedagogical knowledge	Classroom management; building relationships; content; curriculum; differentiation; safe environment; knowledge; social emotional learning; textbooks; student assessment; standards; lesson planning	• "I have learned a lot about the importance of intentional planning and modifying curriculum to fit the needs of our students" (Resident, 186). • "The program helped me with basic classroom management skills, implementing classroom norms and systems, and a basic awareness/understanding of EL, IEP, and other differentiation needs" (Graduate, 1731).
Localizing Individual Support	Mentor teachers, coaches, peers, and other personnel that guide the resident at the individual level	Mentor teacher; coach; collaboration; feedback; peers; supervisors; professors; cohort	• "Weekly observations and debriefs, alongside seminars and regular talks with my mentors and coaches and prepared me well this residency year in cultivating my skills" (Resident, 541). • "Resident Seminar has truly allowed for practicing teaching techniques in the moment and implementing them within the classroom, discussing what works and what doesn't work, and having support from other cohort residents" (Resident, 90).
Offering Programmatic Training	Coursework and professional development opportunities, often required, that extends resident knowledge	Coursework; professional development; workshops; seminars; assignments; supporting college/teacher certification exams	• "My residency program prepared me for my role as a teacher by setting up mock interviews, resume/cover letter workshops, demo lesson practice, and summer residency academy where we got to teach students" (Graduate, 1673). • "The intentionality of the coursework helped support the types of activities and practice in school placement" (Resident, 201).

Table 2

The Association of Program Characteristics and Preparation Factors for Residents and Graduates

	Residents				Graduates	
	(1) Support, Feedback, & Coursework	**(2) Pedagogical Self-Efficacy**	**(3) School community**	**(4) Mentor Teacher**	**(1) Pedagogy self-evaluation**	**(2) TRP preparation**
Number of residents	-0.002	-0.001	-0.001	-0.002^{+}	-0.004	-0.003
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Avg tuition paid ($1K)	-0.012	-0.004	0.002	0.004	-0.016	-0.021
	(0.010)	(0.011)	(0.009)	(0.009)	(0.015)	(0.014)
Receive local/ state funding	0.656**	0.344	0.322	0.116	-0.274	-0.866**
	(0.251)	(0.260)	(0.265)	(0.245)	(0.294)	(0.286)
Receives any federal support	-0.019	0.162	0.330	0.064	0.065	0.262
	(0.206)	(0.211)	(0.208)	(0.201)	(0.218)	(0.262)
Length of clinical exp	-0.000	0.000^{+}	0.000	0.000	0.001**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Part of Grow Your Own	-0.365**	-0.154	0.130	-0.083	-0.953**	-1.011**
	(0.125)	(0.145)	(0.130)	(0.126)	(0.209)	(0.236)
Designed for Pre-K	0.439**	0.155	0.139	-0.076	0.690**	0.658**
	(0.133)	(0.145)	(0.135)	(0.138)	(0.183)	(0.192)
Prov licensure/teacher cert	0.763**	0.162	0.105	0.063	0.143	0.263
	(0.192)	(0.221)	(0.201)	(0.190)	(0.282)	(0.303)
Prepared for SPED	0.303^{+}	-0.133	-0.215	-0.057	0.226	-0.092
	(0.182)	(0.188)	(0.173)	(0.167)	(0.179)	(0.216)
Post residency virtual coach	0.333**	0.315*	0.037	-0.008	0.498**	0.583**
	(0.127)	(0.128)	(0.139)	(0.142)	(0.161)	(0.178)
Post residency PD/coursework	-0.557**	-0.334	-0.265	-0.253	-0.571**	-0.628**
	(0.183)	(0.212)	(0.171)	(0.165)	(0.179)	(0.195)
Other post res support	0.313*	0.200	0.068	0.058	0.582**	0.356*
	(0.134)	(0.142)	(0.131)	(0.130)	(0.166)	(0.175)
Constant	-0.844**	-0.727*	-0.626^{+}	0.004	-0.330	0.878^{+}
	(0.324)	(0.332)	(0.326)	(0.321)	(0.557)	(0.514)
R^2	0.101	0.052	0.032	0.014	0.124	0.122
N	497	497	497	497	372	372

Note. Heteroskedastic-robust standard errors are in parentheses. All models employ program fixed effects. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 3

The Association of Program Characteristics and Preparation Factors for Mentors and Principals

	Mentors		Principals			
	(1) Resident effectiveness	(2) Program support	(1) Graduate effectiveness	(2) Resident effectiveness	(3) TRP effectiveness	(4) TRP support
Number of residents	-0.001	-0.003**	0.001	-0.001	-0.001	-0.003*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Avg tuition paid ($1K)	0.005	-0.018+	-0.069**	-0.035*	-0.037+	-0.017
	(0.009)	(0.009)	(0.020)	(0.016)	(0.022)	(0.021)
Receive local/ state funding	0.116	0.447	1.370**	0.208	0.365	0.137
	(0.277)	(0.296)	(0.518)	(0.454)	(0.509)	(0.463)
Receives any federal support	0.308	0.654**	1.353**	0.925*	0.924*	0.638
	(0.252)	(0.243)	(0.334)	(0.423)	(0.421)	(0.402)
Length of clinical exp	0.000	0.000	-0.001	-0.001	-0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Part of Grow Your Own	-0.054	-0.326*	0.262	0.001	0.105	-0.297
	(0.166)	(0.158)	(0.261)	(0.254)	(0.258)	(0.235)
Designed for Pre-K	-0.204	-0.116	-0.785*	-0.123	-0.402	0.077
	(0.143)	(0.143)	(0.302)	(0.245)	(0.273)	(0.243)
Prov licensure/teacher cert	-0.434+	0.010	-0.482	0.252	-0.106	0.231
	(0.221)	(0.223)	(0.336)	(0.352)	(0.344)	(0.354)
Prepared for SPED	0.082	0.373+	-0.561+	0.005	-0.269	0.086
	(0.209)	(0.212)	(0.289)	(0.315)	(0.267)	(0.301)
Post residency virtual coach	-0.144	-0.226+	0.019	0.099	-0.192	-0.171
	(0.144)	(0.136)	(0.192)	(0.207)	(0.208)	(0.196)
Post residency PD/coursework	0.079	-0.416*	0.016	-0.470+	-0.510+	-0.407
	(0.190)	(0.176)	(0.230)	(0.267)	(0.282)	(0.251)
Other post res support	-0.150	0.191	-0.619*	-0.093	-0.172	0.035
	(0.143)	(0.145)	(0.247)	(0.218)	(0.219)	(0.201)
Constant	-0.037	-0.560	0.165	0.248	0.623	-0.171
	(0.383)	(0.408)	(0.848)	(0.772)	(0.819)	(0.710)
R^2	0.049	0.071	0.104	0.076	0.096	0.091
N	485	485	188	216	216	246

Note. Heteroskedastic-robust standard errors are in parentheses. All models employ program fixed effects. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Appendix A

Latent Class Analysis and Fit Indices

Model	AIC	BIC	-Log likelihood (-LL)	% decrease in -LL	LMR *p*-value
One class	10091.38	10172.67	-5026.69	.	.
Two class	9661.163	9810.912	-4795.582	4.60	0.0001
Three class	8476.318	8703.079	-4185.159	16.74	0.0002
Four class	8199.187	8494.405	-4030.594	19.82	0.3888

Note. AIC= Akaike information criterion; BIC= Bayesian information criterion. LMR=Lo-Mendell-Rubin.

Appendix B

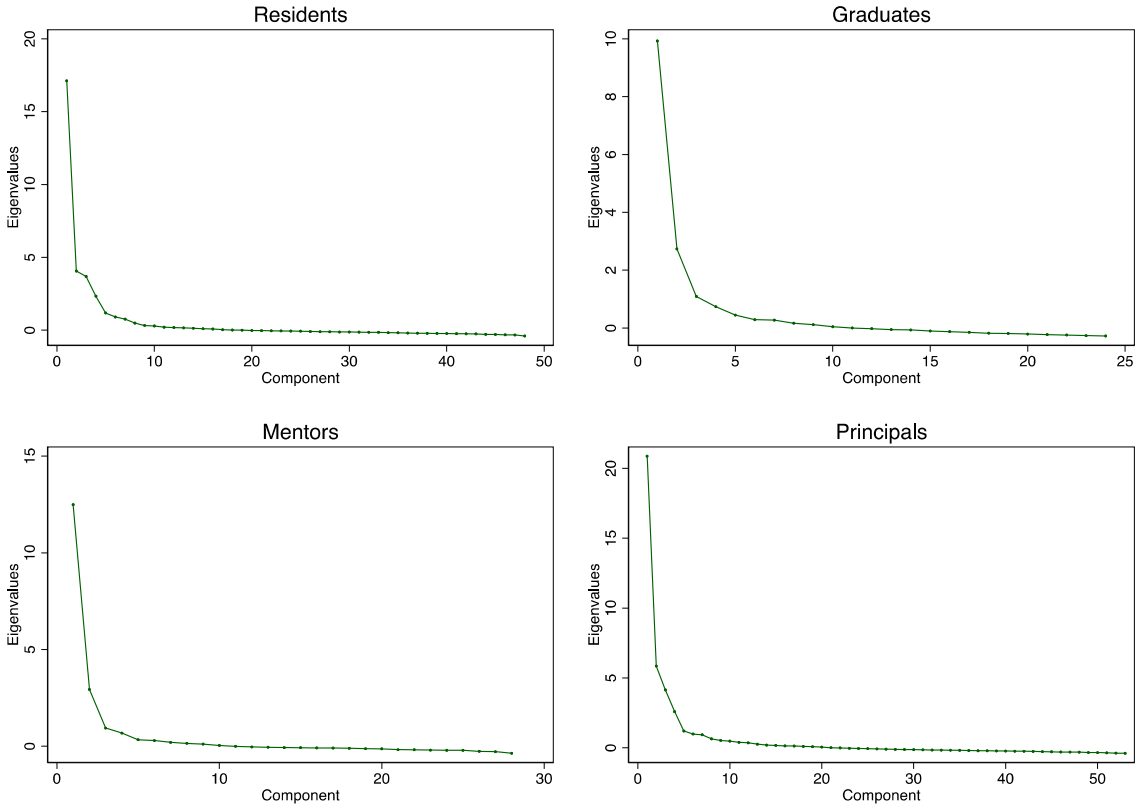
Descriptive Statistics of Program Characteristics

	Locally-Funded Low Tuition Programs	Multi-Funded Multifaceted Programs	Federally-Funded Post-Residency Support Programs
Enrollment			
Number of app	98.62	60.55	47.25
	(244.7)	(77.71)	(35.33)
Number of app of color	67	39.10	22.88
	(174.3)	(53.54)	(11.23)
Number of residents	81.12	54.10	36.75
	(200.1)	(64.02)	(25.45)
Number of mentors	10.29	50.85	33.12
	(7.410)	(61.47)	(26.08)
Number of partners	2.333	9.050	6.222
	(2.958)	(9.495)	(6.280)
Financials			
Amt of resident stipend	8625	21100.3	21238.9
	(10822.4)	(10624.3)	(8624.1)
Average tuition paid	10442.4	14562.8	6877.5
	(8508.6)	(10727.8)	(9407.8)
Mentor stipend	1271.4	2772.5	2487.5
	(1161.5)	(1554.7)	(1195.8)
Non-stipend benefits	100	7113.8	1200
	(282.8)	(5550.3)	(2683.3)
Local/state funding	0.600	0.950	0.889
Federal support	0	0.600	1
Length of Program			
Length of residency	14	16.25	11.78
	(6.761)	(6.632)	(1.481)
Length of clinical exp	888.4	1054.2	1055.9
	(651.1)	(303.4)	(315.6)
Credit hours required	58.12	47.34	39.14
	(40.22)	(24.73)	(14.08)
Program Features			
Part of GYO	0.400	0.600	0.444
Designed for Pre-K	0.200	0.250	0.222
Provides certification	0.500	0.850	0.889
Has a para. GYO focus	0.200	0.850	0.667
Prepared for SPED	0.300	0.800	0
Rural locale	0.100	0.150	0.333
Post-Residency Support			
PR in-person coaching	0.200	0.450	1
PR virtual coaching	0.100	0.250	0.556
PR PD or coursework	0.300	0.700	1
Other PR support	0.400	0.500	0.222
Number of programs	10	20	9

Note. Standard deviations in parentheses. App = applications; GYO = Grow your own program; SPED = special education; PD = professional development; para = paraprofessional; PR = post-residency.

Appendix C

Scree plots of Program Survey Data by Participant Type



Appendix D

Factor loadings, Cronbach's alphas, factor indeterminancy for resident, graduate, mentor, and principal factors and underlying variables

Panel A: Residents

Support, Feedback, & Coursework		*Pedagogical Self-Efficacy*		*School community*		*Mentor Teacher*	
Component	Loading	Component	Loading	Component	Loading	Component	Loading
Program match expectation	0.595	Prepared to teach subject matter	0.631	School makes me feel valued	0.890	Mentor is a good match	0.860
Supported by my program	0.753	Prepared to use student data	0.611	Sch has pos influence on me	0.863	Mentor makes me feel valued	0.765
Program committed for all	0.700	Prepared to nurture relationships	0.654	School is commit to MS	0.844	Mentor commit to MS	0.780
Program prepared teachers for MS	0.592	Prepared to establish class routines	0.677	School comm affirms MS	0.892	Mentor paces teaching resp	0.841
Feedback that improves practice	0.750	Prep to develop beh & acad expt	0.721	School provides opp to collab	0.752	Mentor provides good feedback	0.860
Staff makes me feel valued	0.763	Prep to create affirming classrooms	0.685	Res exp matches prog desc	0.652	Mentor models teaching practices	0.858
Coursework relevant to school	0.710	Prepared to engage in self-reflection	0.705	Able to engage in prof resp	0.582		
Coursework improves my practice	0.689	Plan for students' opp beyond sch	0.784	Shared vision of teaching	0.771		
Coursework aligned to instruc practice	0.669	Adapt curriculum for students' opportunity beyond school	0.794				
Coursework- oppor for practice	0.668	Plan for curr reflecting students' asset	0.813				
Coursework- oppor to reflect	0.631	Adapt curr reflecting students' asset	0.844				
Instructors provided feedback	0.632	Prepared to differentiate instruction	0.695				
Instructors make me feel valued	0.557	Prepared to collaborate w/ teachers	0.629				
Program clear about success	0.784						
Program accurately assesses perform	0.796						
Program is clear about assessment	0.786						
Prog assment improves my practice	0.823						
Cronbach alpha	0.946	Cronbach alpha	0.936	Cronbach alpha	0.941	Cronbach alpha	0.937
Factor determinancy	0.988	Factor determinancy	0.958	Factor determinancy	0.948	Factor determinancy	0.944

Panel B: Graduates				**Panel C: Mentors**			
Pedagogy self-evaluation		*TRP preparation*		*Resident effectiveness*		*Programmatic support*	
Component	Loading	Component	Loading	Component	Loading	Component	Loading
Content knowledge effectiveness	0.531	Balanced theory and practice	0.653	Res prep to teach next year	0.792	Program support effectiveness	0.749
Using student data effectiveness	0.674	Coursework relevant to current class	0.772	Res prep to teach subject	0.705	Program support modeling practices	0.657
Nurturing student effectiveness	0.693	Program prepared me to be effective	0.787	Using data effectiveness	0.763	Program support pacing	0.557
Classroom procedure effectiveness	0.759	Prepared to meet ELL needs	0.711	Nurturing student effect	0.708	Program support feedback	0.644
Behavior expectation effectiveness	0.735	Prepared to meet SPED needs	0.748	Classroom procedure effect	0.793	Feel supported to succeed	0.737
Create affirming classroom	0.784	Prepared to ask for guidance	0.592	Behavior expectation effect	0.803	Program match expectation	0.820
Critical reflection effectiveness	0.670	Feedback improve my practice	0.595	Create affirming classroom	0.732	Feedback to improve mentoring	0.769
Plan for curriculum opp effect	0.722	PD improve my practice	0.692	Critical reflection effect	0.784	Stipend appropriate for my effort	0.521
Adapt curriculum opp effectiveness	0.727			Plan for curriculum opp effect	0.815	Sufficient time provided to mentor	0.553
Plan for asset effectiveness	0.762			Adapt curriculum opp effect	0.835	School leader support mentoring	0.518
Adapt for asset effectiveness	0.731			Plan for asset effectiveness	0.876	Being a mentor makes me more effective	0.685
Prepared to differentiate eff	0.753			Adapt for asset effectiveness	0.875	Being a mentor improves my leadership ability	0.717
Prepared to collaborate effectiveness	0.653			Prepared to differentiate effect	0.799	Positions me as a leader	0.548
				Prepared to collaborate effect	0.704		

Cronbach alpha	0.907	Cronbach alpha	0.935	Cronbach alpha	0.960	Cronbach alpha	0.913
Factor determinancy	0.980	Factor determinancy	0.943	Factor determinancy	0.934	Factor determinancy	0.984
Panel D: Principals							
Graduate effectiveness		*Resident effectiveness*		*TRP effectiveness*		*TRP support*	
Component	Loading	Component	Loading	Component	Loading	Component	Loading
Graduates' effectiveness compared to other new teachers	0.661	Resident prepared compared to other teachers	0.646	Instructional practice aligned	0.618	Program provides relevant PD	0.741
Graduates' content preparation	0.868	Residents' content preparation	0.733	Residency prog defined principal role	0.737	Program provides strong induction to graduates	0.701
Graduates' student data use preparation	0.867	Residents' student data use preparation	0.623	Program gives manageable responsibilities	0.746	Access prog staff to support graduates	0.713
Graduates' nurturing preparation	0.646	Residents' nurturing preparation	0.788	Program is supportive	0.740	Informally assess grads with prog staff	0.667
Graduates' classroom routines preparation	0.788	Residents' classroom routines preparation	0.760	Program improves school culture	0.766	Formally assess grads with prog staff	0.662
Graduates' beh and acad expectations prep	0.764	Residents' beh and acad expectations prep	0.825	Program improves student learning	0.711	Graduates proficient with eff framework	0.700
Graduates creating affirming classroom preparation	0.704	Residents creating affirming classroom preparation	0.860	Residents are integrated in community	0.870	Graduates improve culture	0.681
Graduates' self-reflection preparation	0.826	Residents' self-reflection preparation	0.547	Program prepares residents to be effective	0.823	Graduates share innovative practices	0.730
Graduates' planning curr beyond school	0.922	Residents' planning curr beyond school	0.740	Would host residents again	0.844	Would hire graduates again	0.650
Graduates' adapting curr beyond school	0.874	Residents' adapting curr beyond school	0.708	Would hire residents again	0.777		
Graduates' planning curr reflecting asset	0.877	Residents' planning curr reflecting asset	0.760	Program coursework is relevant	0.634		
Graduates' adapting curr reflecting asset	0.880	Residents' adapting curr reflecting asset	0.726	Balance of theory and practice	0.582		
Graduates differentiate instruction	0.807	Residents differentiate instruction	0.742	Program selects effective mentor	0.618		
Graduates collaborate with others	0.814	Residents collaborate with others	0.683	Mentors use data to improve residents	0.726		
				Program supports mentors	0.715		
				Mentors grow more effective	0.676		
Cronbach alpha	0.973	Cronbach alpha	0.967	Cronbach alpha	0.946	Cronbach alpha	0.883
Factor determinancy	0.993	Factor determinancy	0.972	Factor determinancy	0.948	Factor determinancy	0.951

Note. Alpha levels for this dissatisfaction factor are good to excellent (Tavakol & Dennick, 2011). All determinancy coefficients from factor score indeterminacy, except one at 0.885, are above 0.90, indicating good exploratory factors (Beauducel, 2011). MS=marginalized students

Appendix E

The Association of Program Type and Effectiveness Factors

Participants	**Residents**				**Graduates**	
	(1) Support, Feedback, & Coursework	**(2) Pedagogical Self-Efficacy**	**(3) School community**	**(4) Mentor Teacher**	**(5) Pedagogy self-evaluation**	**(6) TRP preparation**
Multi-Funded	0.095	-0.066	-0.051	-0.080	-0.023	-0.063
Multifaceted Program	(0.110)	(0.104)	(0.108)	(0.100)	(0.101)	(0.107)
Federally-Funded Post-Residency Support Program	0.143	-0.036	-0.073	-0.057	-0.138	-0.179
	(0.113)	(0.108)	(0.114)	(0.105)	(0.119)	(0.118)
Constant	2.191**	2.394**	2.335**	2.500**	2.125**	2.295**
	(0.107)	(0.101)	(0.103)	(0.094)	(0.093)	(0.102)
R^2	0.005	0.001	0.001	0.001	0.006	0.010
N	533	533	533	533	382	382
Participants	**Mentors**		**Principals**			
	(1) Resident effectiveness	**(2) Programmatic support**	**(3) Graduate effectiveness**	**(4) Resident effectiveness**	**(5) TRP effectiveness**	**(6) TRP support**
Multi-Funded	-0.068	0.057	-0.064	-0.130	-0.118	-0.311*
Multifaceted Program	(0.123)	(0.104)	(0.103)	(0.115)	(0.110)	(0.144)
Federally-Funded Post-Residency Support Program	-0.109	0.036	-0.110	-0.178	-0.167	-0.352*
	(0.128)	(0.108)	(0.120)	(0.139)	(0.129)	(0.161)
Constant	2.260**	2.206**	2.241**	2.218**	2.556**	3.085**
	(0.118)	(0.100)	(0.092)	(0.101)	(0.103)	(0.135)
R^2	0.002	0.001	0.003	0.004	0.007	0.018
N	526	526	192	220	220	252

Note. Heteroskedastic-robust standard errors are in parentheses. Reference group is large underfunded residency programs. Some principals did not answer questions related to different survey modules, resulting in differing sample sizes for principal factors. PR = post-residency.

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$