Leveraging the Paraeducator-to-Teacher Pipeline to Attract and Prepare Special Education Teachers

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ABSTRACT

The well-documented special education teacher shortage in the U.S. has significant negative consequences for students with disabilities who require specially designed instruction from special education teachers. To address this shortage, special education teacher preparation programs should explore innovative approaches to recruiting and training future special education teachers. One such approach is the paraeducator-to-teacher (PTT) pipeline in which paraeducators complete preservice coursework and on-the-job training to earn their special education certification. In this article, we present two PTT pipelines that exist within one special education teacher preparation program. First, we review the literature on PTT pipelines and their efficacy in building the field. Next, we provide an overview of the special education teacher preparation program of interest and its state context, followed by descriptions of the program's two PTT pipelines. We then discuss the levers that support implementation of each PTT pipeline. Finally, we present considerations for special education teacher preparation programs to ensure PTT pipelines expand the special education teaching workforce with well-prepared, high-quality special education teachers equipped to support students with disabilities.

KEYWORDS

Grow-your-own, paraeducator-to-teacher pipeline, special education teacher preparation

The special education teacher shortage is well documented across the United States (Billingsley & Bettini, 2019). For decades, states struggled to fill open positions with fully credentialed special education teachers (Boe & Cook, 2006), and the COVID-19 pandemic has likely exacerbated this problem (Carver-Thomas et al., 2021). High attrition rates and increases in demand for special education teachers, coupled with declines in teacher preparation enrollments, have contributed to this severe and chronic shortage (Ondrasek et al., 2020). This shortage is a source of concern for local, state, and federal agencies charged with educating students with disabilities (Brownell et al., 2018), as the least qualified teachers are often assigned to students with the most complex learning needs (Cruz et al., 2022). The low number of qualified special education teachers likely impedes the ability of students with disabilities to reach their full academic potential and hinders districts' equity-centered work of preparing all students to be college and career ready (Brownell et al., 2020). The lack of certified special educators also cause eligible students to be denied a free and appropriate public education, as mandated by federal law (Individuals with Disabilities Education Act, 2004).

Students with disabilities attending under-resourced schools are further disadvantaged by these shortages (Albrecht et al., 2009; McLeskey et al., 2003). Researchers indicate that students in high-poverty schools received access to fewer certificated

special education teachers than those in more affluent suburban areas, and high-poverty schools were impacted by high turnover rates of special education teachers, thus affecting academic outcomes for students with disabilities (Cruz et al., 2022; Darling-Hammond, 2015). Without mitigation efforts, current special education teachers working in schools and districts with fewer resources and subsequent high turnover will continue to be overburdened and unable to provide systematic, evidence-based individualized instruction (Boe et al., 2013; Warren & Hill, 2018), and students with complex learning needs will be unable to access legally mandated academic and social supports. The special education teacher shortage has reached a critical juncture, and programs must provide clear and consistent training of high-quality candidates to fill vacancies that serve our most vulnerable students.

Boe et al. (2013) found that the history of special education teacher shortages is a major impetus for the proliferation of alternative routes to certification. Many states have responded by endorsing programs that allow rapid, often immediate, entry to the classroom; in addition, 30% of all alternative route programs have substantially reduced training requirements and professional support mechanisms (e.g., California Department of Education, 2012; Rosenberg et al., 2007). Boe et al. problematized this approach because "teacher quality suffered when preparation in the myriad areas needed for success (e.g., instructional supports, behavior management, literacy, etc.) is minimized" (p. 122). Because underprepared special education teachers are less effective (Brownell et al., 2020) and more likely to leave the field (Feng & Sass, 2013), a systemic approach to recruiting and training high-quality special educators is needed (Collaboration for Effective Educator Development, Accountability, and Reform Center [CEEDAR], 2019). One such approach is the paraeducator-to-teacher (PTT) pipeline in which paraeducators complete preservice coursework and typically receive on-the-job training to earn their teaching certification.

Paraeducator-to-Teacher Pipeline

Paraeducators are school-based employees who assist and support teachers and their students. Although we use the term paraeducators in this article, they may also be referred to as paraprofessionals; educational, instructional, or teacher aides; and educational, instructional, or teaching assistants. Regardless, in this role, paraeducators typically have a range of responsibilities under the direct supervision of a teacher. Special education paraeducators, in particular, frequently provide instructional and behavioral support, including one-on-one instruction, small-group instruction, and behavior management program implementation (Carter et al., 2009). To support students with disabilities effectively, paraeducators require knowledge and skills related to professional learning and ethical practice; learner development and individual learning differences; special education services and supports; assessment; instructional supports and strategies; social, emotional, and behavioral supports; and team collaboration (Council for Exceptional Children [CEC], 2022). Special education teachers also require expertise in these areas (CEC, 2020; McLeskey et al., 2017; Ronfeldt et al., 2013). Therefore, in the special education PTT pipeline, paraeducators can leverage the knowledge and skills they have developed thus far to transition to teaching.

Not only can the PTT pipeline support increased recruitment of special education teachers, thus addressing the teacher shortage; it can also lead to greater diversity among special education teachers (White, 2004). Though the current teaching workforce is diversifying, shares of teachers of color remain, "disproportionately low compared to the percentage of students of color in public schools" (Carver-Thomas, 2018, p. 2). Research shows that the paraeducator workforce is more racially and ethnically diverse than the teacher workforce. While people of color compose only 18% of the special education teacher workforce in the United States, they compose 39% of the paraeducator workforce (Billingsley et al., 2019; Bisht et al., 2021). Thus, as paraeducators transition to teaching, the teacher workforce may likely diversify.

Teacher diversity is important for several reasons. First, teachers of color are more likely to teach in schools with higher proportions of students from racially and ethnically marginalized backgrounds and low-income backgrounds than in schools with lower proportions (Carver-Thomas, 2018; U.S. Department of Education, National Center for Education Statistics [USDOE, NCES], 2021b). As such, greater diversity among teachers can help address the critical shortage of teachers in what are often deemed high-needs schools. Second, given that most students educated in U.S. public schools and almost half of the students who receive special education services are students of color (USDOE NCES, 2021a, 2022), increased teacher diversity allows the teacher workforce to reflect U.S. societal and student diversity. Teacher diversity can contribute to more students of color having same-race teachers, which can promote positive academic and behavioral outcomes among students of color (e.g., Pugach et al., 2019; Redding, 2019; Trainor et al., 2019).

Researchers indicate that teachers of color often leverage their cultural and linguistic funds of knowledge to teach

and interact with students from historically marginalized backgrounds in culturally and linguistically affirming ways (Abbate-Vaughn & Paugh, 2009; Kohli & Pizarro, 2016; Kulkarni et al., 2021; Moll et al., 1992). Therefore, expanding the special education teacher workforce with paraeducators, diverse in race and ethnicity, may help reduce the significant discrepancy between the proportions of special education teachers of color and students of color with disabilities. For these reasons, the special education teacher workforce would benefit from the presence of paraeducators (i.e., a group of individuals who are more diverse than teachers) and the funds of knowledge they bring (Abbate-Vaughn & Paugh, 2009). Recruiting paraeducators to become certified special educators in their home schools may serve as a unique human capital resource, built through both formal programing and on-the-job training to address issues of both quantity (i.e., the teacher shortage) and quality (e.g., a diverse body of educators with a deep knowledge of the community and classroom).

Purpose

The purpose of this article is to present two PTT pipelines that exist within the authors' special education teacher preparation program in Maryland. We describe the special education teacher shortage in Maryland, followed by an overview of our special education teacher preparation program. We then discuss the program's two PTT pipelines, including the levers that may support each pipeline as well as the challenges and limitations that may hinder each pipeline. Given both supportive factors and potential barriers, we also present considerations for special education teacher preparation programs regarding how to leverage PTT pipelines so that they expand the special education teaching workforce with well-prepared, high-quality special education teachers.

STATE CONTEXT AND PROGRAM OVERVIEW

In line with national trends, the Maryland State Department of Education ([MSDE], 2018) has reported a "critical shortage" of teachers, with recent estimates of nearly 2,000 vacancies, many of which were special education positions. Yet the number of practitioners completing teacher preparation programs is steadily declining. In fact, Maryland programs have experienced a 33% reduction in enrollment since 2012 (Maryland State Board of Education [MSBE], 2022), while some geographic areas are more impacted than others. Thus, the Maryland special education teacher shortage and low enrollment in Maryland special education teacher education programs indicate a need for comprehensive pathways designed to serve local communities. Several school districts within the state of Maryland have committed to partnerships with local universities to provide tuition reimbursement and additional support for employees seeking teacher certification. These partnership programs focus on expanding the candidate pool with respect to applicants representing diverse backgrounds and systemic areas of critical need (e.g., special education). Further, the MSDE has committed to providing grant funding for Grow Your Own (GYO) partnerships focused on "developing teachers from the local community, removing barriers to entering and persisting in a teacher preparation program, and incentivizing partnerships between school districts and educator preparation programs" (MSBE, 2022, p. 12).

In Maryland, our graduate school of education (SOE) offers a Master of Science in Special Education focused on teaching students with disabilities in grades 1–8 or 6–12, in alignment with options for special education certification in Maryland. This program is also a Maryland-approved certification program that candidates can complete to become eligible for their special education certification. Therefore, most candidates complete this master's program as a means to certification. While completing the program, candidates take several courses in preparation to become high-quality special education teachers, such as Collaborative Programming and Access to the General Education Curriculum. Additionally, candidates complete two internships that provide the opportunity to apply and further develop the knowledge and skills they have gained thus far in the program while working directly with students with disabilities.

Two PTT pipelines exist within this special education master's program, both requiring two years of combined coursework and two internships for graduation. The first pipeline is an immersion training partnership with a local school district. As part of this partnership, district paraeducators and other school-based employees who are eligible for employee benefits earn their master's degree in two years and become eligible for their special education certification. The second pipeline is an MSDE-funded GYO partnership that recruits paraeducators throughout the state of Maryland, with specific recruitment efforts targeted in under-resourced and hard-to-staff schools. While the immersion training partnership has been in operation for almost 20 years, the GYO partnership began in 2019, with only preliminary efficacy data.

In addition to being a paraeducator in our partner school district (for the first pipeline) or Maryland at large (for the second pipeline), applicants must hold a bachelor's degree with a minimum cumulative GPA of 3.0 (or a minimum SAT/Praxis I score if a cumulative GPA is below 3.0). Applicants must also submit a résumé; a 500-word personal

TABLE 1: Pipeline Features

FEATURE	IMMERSION TRAINING PARTNERSHIP	GROW-YOUR-OWN PARTNERSHIP
Targeted Recruitment	Direct partnership with a district experiencing teacher shortages	Statewide program with specific recruitment efforts in under-resourced schools
Eligibility Requirements	Bachelor's degree and current employment in partner district as a paraeducator or other full-time benefits-eligible school-based employee	Bachelor's degree and current employment in MD school district as a paraeducator
Supports Offered	Professional development via school district	One-hour monthly support sessions addressing urgent problems of practice and equity-centered content directly applied to teaching practice
Benefits to Participants	District-negotiated partial tuition reimbursement per credit	75% tuition reimbursement; $100 per semester for books and supplies
Commitment to Teaching	Must remain employed in district while participating in partnership	Three years of full-time teaching upon program completion
Evidence of Success	Began in 2006; approximately100 participants, 90% of whom have graduated with teaching certification	Began in 2019; 10 total participants, 6 of whom have successfully completed the program

statement regarding academic and professional goals; and two letters of recommendation from individuals who can comment on their experiences with children, preferably students with disabilities. Applicants who receive an average application rating of 3.0 on a 4-point scale (across all areas and reviewers) are invited to participate in a 30-minute virtual interview, which explores the applicant's professional interests, goals, and dispositions related to leadership, diversity, and collaboration.

To graduate from the program with certification eligibility, candidates in both pipelines must complete a 39-credit prescribed course sequence. They must also pass a comprehensive exam at the program's midpoint, two Praxis Subject tests (i.e., the Special Education: Core Knowledge and Applications and the Teaching Reading: Elementary), and the edTPA. Completing these requirements results in candidates earning the Maryland-Approved Program stamp upon graduation, which signifies their eligibility for the renewable standard professional certificate in Maryland.

The program's course sequence also includes a fall and spring internship course, which candidates complete in their schools of employment during the second year of the program. In these job-embedded internships, candidates work directly with students with (and, possibly, without) disabilities in grades 1–8 or 6–12, depending on each candidate's target grade range for certification. Not only do they earn their master's degrees and certification eligibility, but candidates also maintain their employment while completing the program (particularly the internships) and, thus, maintain access to their salary and employee benefits. Candidates in the district partnership receive partial tuition support from their district of employment, while candidates in the GYO partnership receive partial tuition reimbursement from the MSDE, with a requirement that they complete two years of teaching in Maryland for each year of tuition support provided. These financial benefits are especially important considering that paraeducators earn less than half of a teacher's salary (Bisht et al., 2021; Theobald et al., 2023). It should be noted that, while this program comprises two years of intensive coursework and training, it is not considered an alternate route to certification. See Table 1 for the features of each pipeline.

Strategies Supporting PTT Pipelines

Several strategies can be used to facilitate the implementation of PTT pipelines. These strategies include collaborating with districts to recruit candidates, deliberately designing the structure and format of our coursework, and utilizing job-embedded assignments, and job-embedded internships.

District Recruiting

To recruit for the immersion training partnership each year, we host three virtual informational sessions, which

are publicized on the SOE's website and via district outlets (e.g., monthly newsletters). The SOE advisor of the partnership and the district's lead for higher education partnerships co-lead these sessions to introduce the master's degree program and explain how the partnership operates. Additionally, special education program faculty attend district-sponsored events (e.g., paraeducator professional development sessions) to recruit applicants for the partnership. In doing so, we aim to increase the number of candidates in our degree program with plans to serve as certified special education teachers in our partner district. While recruiting candidates for our immersion training partnership requires a district liaison who advocates for the partnership, recruiting for the GYO partnership requires collaboration with a state liaison. Both the state liaison and the special education program lead rely on contacts with state, district, and school leaders to disseminate recruitment materials to potential candidates.

Coursework Design

Our 13-course program leverages a hybrid approach to coursework, with seven courses offered in person, five courses held in an asynchronous virtual environment, and one course offered online in a synchronous format. Our in-person courses are held in a location that is convenient for candidates traveling from several school districts and in the evenings to meet the needs of paraeducators and other individuals who work during the day. Additionally, candidates complete four virtual courses across two summer sessions—during which paraeducators and other school-based employees typically have more time to engage in self-paced learning—and two asynchronous courses that accompany candidates' two internships.

Job-Embedded Assignments and Internships

Because our PTT pipelines support professionals already connected to classrooms in impacted geographical locations (MSBE, 2022), our pipelines can provide authentic, iterative learning experiences, allowing candidates to work with students with whom they already have relationships. These learning experiences can emphasize cycles of inquiry (e.g., plan, implement, reflect, repeat) as candidates receive in-depth feedback in order to refine a lesson sequence by integrating instructor feedback and their own reflections. This pedagogical tool equips candidates with skills necessary for performance-based assessments typically required for licensure (e.g., edTPA, 2018) and for future engagement with school-based professional development (e.g., professional learning communities; see Dogan et al., 2016; Shelton et al., 2023). Job-embedded internships, in particular, provide candidates with immediate quality mentoring and supervised practice in delivering high-quality instruction that is closely aligned with their current work assignments. These internships are especially beneficial because mentorship, specialized training, and social supports are critical for special education teachers during their first years of teaching, and these supports must come from within school communities (Hagaman & Casey, 2018).

Barriers Hindering PTT Pipelines

Both PTT pipelines (i.e., immersion training and GYO partnerships) have provided the benefits of growth-in-practice modes of teacher learning that are tightly connected to paraeducators' daily classroom experiences and have thus proven more effective than passive models of teacher preparation (see Firestone et al., 2020). Nevertheless, there are several barriers to implementation worth noting.

Despite the innovation of our two pipelines, our cohorts are small—an issue that has been exacerbated during the COVID-19 pandemic. Not only are individuals not seeking to become teachers at the rate they once did, but also many paraeducators are not eligible for our program given that a bachelor's degree is an admissions requirement but not a requirement to be a paraeducator (No Child Left Behind Act of 2001, 2002). In fact, approximately 75% of paraeducators do not have a bachelor's degree (Bisht et al., 2021). As such, one barrier we face is having graduate-level PTT pipelines. Therefore, we seek additional opportunities to recruit college graduates interested in becoming traditionally certified special education teachers.

Because the teacher shortage is pervasive, our program faces a second barrier in that our paraeducator participants are often offered the chance to become conditionally licensed teachers before they complete the program, allowing them to teach for two years without certification. Though we encourage paraeducators to complete the program prior to leading a classroom as the teacher of record, many are unable to financially sustain this approach, especially considering that many also have families to support. Therefore, many paraeducators accept this offer, which comes with a significant salary increase (Bisht et al., 2021). When this transition occurs, candidates often spend considerable time with faculty advisors and in core courses working through urgent problems of practice, which leaves less time for the structured knowledge and skill development beginning special education teachers need. We aimed to strengthen our support for participants through a cohort model and by allowing flexibility in coursework format.

The third barrier is structural: the siloed nature of teacher training and practice for special and general education leads to difficulty in developing

TABLE 2: Implementation Strategies and Barriers

STRATEGIES SUPPORTING PARAEDUCATOR-TO-TEACHER PIPELINES	
Collaborative relationships with partner districts:	
Support recruitment, mentorship, and retention	
Leverage district-sponsored professional development for paraeducators	
Deliberate coursework design and format:	
Hybrid course offerings	
Face-to-face courses offered in convenient location and at convenient time	
Job-embedded assignments leading to job-embedded internships:	
Leverage existing relationships with students and community	
Include iterative cycles of inquiry to refine lesson sequences through daily instruction	
Barriers	**Solutions**
Small cohort numbers	Expand program to include additional districts
COVID pandemic impact on the field	Gradually expand recruitment initiatives
Teachers move from paraeducator to classroom teacher before completing the program	Provide additional monthly support sessions using a Teacher Study Group format
Opportunities to collaborate with general education teacher candidates is limited	Support integrated training opportunities from a common course framework

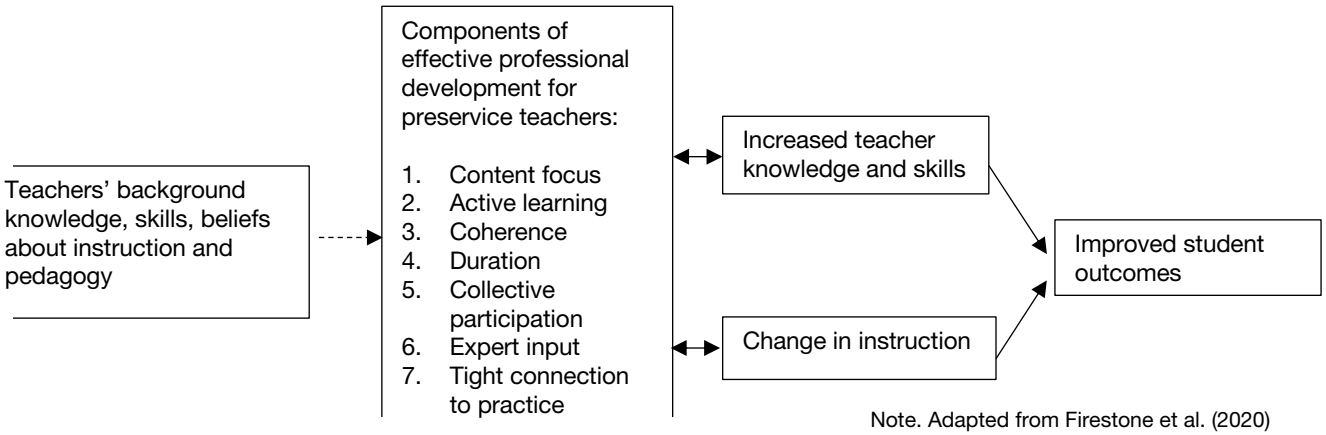
preservice teachers' inclusive practices and pedagogy. Although paraeducators in these pipelines must develop an understanding of specially designed instruction, they must also practice and develop the skills to implement universally designed pedagogy. Yet special education teachers are commonly trained separately from general education teachers, perpetuating "enduring fissure[s]" (Cochran-Smith & Dudley-Marling, 2012, p. 237) that maintain the general-special education binary and systematic exclusion (Blanton et al., 2014). This situates dis-ability "as totally disjointed from other issues of educational equity of access" (Waitoller et al., 2021, p. 3). Thus, program faculty have expended significant time searching for (sometimes to no avail) opportunities for candidates in the immersion training and GYO partnerships to practice inclusive paradigms and pedagogical strategies. Cochran-Smith et al. (2016) argued that equity in teacher education should operate with the "dual purposes of continuously improving local programs, on one hand, and building theory about how, why, to what extent, and under what conditions teacher candidates learn to enact practice for equity, on the other" (p. 68). In this endeavor, our two pipelines have important areas for growth, outlined in Table 2.

Future Directions

To address the barriers, we are actively developing ways to increase the number of candidates in our program and support candidates in and beyond the program as they complete their first years of teaching. We hope these efforts address the issues around teachers shifting from paraeducator status to fully credentialed—no matter when they make this transition.

Although several local school districts employ paraeducators in special education, our immersion training partnership is a PTT pipeline with only one school district. Therefore, one effort to increase the number of candidates seeking certification via our program is to expand this pipeline with other school districts. Establishing additional partnerships will allow us to increase the number of bachelor-level paraeducators seeking special

FIGURE 1: Theory of Teacher Learning



Note. Adapted from Firestone et al. (2020)

TABLE 3: TSG Pilot Scope and Sequence

Timeframe	Topic	Brief Description
December	Overview	Research behind TSGs, study purpose, logistics and scheduling, etc.
January	Introduction to culturally sustaining pedagogy	Shifting from deficit perspectives, framing students as co-constructors of knowledge
February	Universal Design for Learning (UDL): Multiple means of representation	The "what" of learning: Providing options for perception of information, promoting understanding across languages, using multimedia, and highlighting big ideas
March	UDL: Providing a hook for a lesson; linking representation to engagement	Activating background knowledge, creating cognitive dissonance, making connections to students' lived experiences
April	UDL: Multiple means of engagement	Varying demands and resources to optimize challenge (i.e., the "how" of learning): Providing options for recruiting interest, sustaining effort and persistence, and self-regulation
May	Effective group work	Small-group roles and accountability
June	Inquiry and project-based learning	Student-student dialogue, project-worthy inquiry, project-based tasks
July	Inclusive content-area literacy instruction (summer session)	The "why" and "how" of providing students with disabilities culturally and linguistically responsive, evidence-based literacy instruction using inclusive practices
August	UDL: Multiple means of action and expression	The "why" of learning: Providing options for method of response (e.g., use of multimedia) and enhancing capacity for students to self-monitor progress.

education certification, thus addressing the teacher shortage. Given that the paraeducator workforce is more diverse, expanding the PTT pipeline will likely diversify the teacher workforce, thus promoting the educational outcomes and experiences of students of color, who are largely represented in these districts, and students of color with disabilities, in particular. Yet bringing new teachers into the profession is only effective if special education teacher attrition is addressed overall (Bettini et al., 2023). Therefore, to help maintain the current workforce, we also aim to support and sustain practitioners once they enter the field.

To this end, we are currently building growth-in-practice professional development opportunities that can support candidates in their transition from the program into their first three years of practice. To support paraeducators throughout the program, we plan to hold small monthly seminars that will provide

candidates with extra coaching and mentoring support during their internship year. This approach uses effective evidence-based strategies for building a novice teacher workforce invested in hard-to-staff communities. Program faculty will also provide monthly support to the paraeducators in: (a)practicing inclusive paradigms and pedagogical strategies; (b) addressing urgent problems of practice; (c)building community with their students' families; (d)advocating for students' social and emotional growth(e) facilitating Individualized Education Program meetings effectively; and (f)using universally designed curriculum and pedagogy within a multi-tiered system of supports.

As candidates transition from the internship to full-time teaching, we will offer monthly professional development in partnership districts' schools using a Teacher Study Group format (TSG; Firestone et al., 2020). TSGs are a form of collaborative, practitioner-led professional development shown to impact quality of instruction (Desimone & Garet, 2015). TSGs are communities of educators that convene regularly over a sustained period (e.g., an academic school year), engaging in reflective cycles of inquiry focused on the relationship between participants' day-to-day practice and student learning. The model can be understood as a growth-in-practice approach to professional learning, in which teachers are supported in learning from their practice through critical reflection and discussion with other practitioners. We aim to support paraeducator participants as they transition from a support role to a classroom teacher role through our theory of action depicted in Figure 1. Additionally, we are currently piloting an initial scope and sequence of expert content depicted in Table 3.

Our TSGs will aim to build parity between the skills and theories learned in the program and how the schools and districts in which teachers begin their careers operate. Topics will include inclusive content-area literacy instruction for culturally and linguistically marginalized students (see Shelton et al., 2023; Wexler et al., 2022), Universal Design for Learning (see Hall et al., 2012), and culturally sustaining pedagogy (see Alim et al., 2020). TSGs on these topics will be facilitated meetings, and each meeting will follow a five-step process, adapted from Cunningham et al. (2015): (a) reflection on implementation from the previous session, (b) new content presentation, (c) collaboration for implementation of new content, (d) review and answering of questions, and (e) addressing any urgent problems of practice as identified by the paraeducator participants. The scope and sequence of each TSG session has been developed intentionally to support participants as they enter the workforce and to support practicing teachers with whom they will eventually partner.

Practical Implications

The benefits of and barriers to our pipelines have several practical implications that can support the development of PTT pipelines in other programs. First, partnering with a district to establish a PTT pipeline is beneficial to both the program and the district. For example, the partner district can support the program's recruitment efforts, while the program prepares paraeducators to become special education teachers, thus addressing the special education teacher shortage in the district. This partnership is important as research shows that interning in a particular district increases the likelihood that candidates will teach in that district upon graduation and certification (Goldhaber et al., 2014). As such, we recommend considering whether a PTT partnership would be appropriate for other programs in different settings. In particular, program and district personnel should convene to discuss whether there is a sufficient pool of paraeducators who are interested in and eligible for the pipeline. If the partnership is appropriate and can be feasibly established, the team should collaborate to establish the pipeline and identify funding sources to support candidates (e.g., district's tuition reimbursement and state funding opportunities).

Second, teacher educators may need to tailor elements of the program to the paraeducator's experience. For example, because candidates in the pipeline are likely full-time school-based employees, they are typically unable to attend morning or afternoon classes. Therefore, the program should have accessible program offerings, including evening and online classes. Additionally, research indicates a need for extended opportunities to work directly with students in school settings (Hammerness et al., 2005), and a PTT pipeline addresses this need by providing coordinated opportunities for candidates to engage in extended clinical experiences in authentic contexts. A program can also leverage paraeducators' jobs supporting and working with students in schools to incorporate job-embedded assignments into most courses. These assignments provide additional practice-based learning opportunities (McDonald et al., 2013), further supporting teacher development. Nevertheless, the success of a program depends on strong relationships within the partnership to create coherence between clinical teaching experiences and theoretical content provided in coursework (Capraro et al., 2010; Darling-Hammond, 2006; Putman & Polly, 2021).

Third, a PTT pipeline should be accompanied by a system that provides candidates with the supports they need. This system should support candidates in balancing their employment and education, which may become more

difficult to establish and maintain if candidates become conditionally licensed teachers before completing the program and now must meet the complex demands special education teachers face (Brownell et al., 2020). This balance may also become more difficult if candidates are nontraditional students who return to school after significant time out of school and have additional responsibilities (e.g., caregiving). As such, a strong system of supports should include financial resources (e.g., district tuition reimbursement), academic and professional resources (e.g., career counseling, writing center support), and resources supporting emotional and mental wellness (e.g., personal counseling). Therefore, programs should consider the supports that are already in place to support candidates, and the additional supports and resources needed from the program and partner district.

Finally, because special education paraeducators often work in restrictive settings (Giangreco et al., 2010; Howley et al., 2017) and, thus, have limited experiences in inclusive settings, it is important to identify and create ways candidates can learn from and collaborate with their general education peers. For example, programs should consider offering a set of core coursework in which general and special education teacher candidates work together to develop and implement lesson plans in inclusive practicum opportunities. Additionally, it is important that programs develop candidates' understanding and application of inclusive practices regardless of the educational setting in which they work. For example, programs should intentionally design their curriculum, instruction, and methods courses from a framework that considers broadening participation and rightful presence (see Calabrese Barton & Tan, 2020) to guide candidates in teaching inclusively and providing students access to rigorous learning (Cruz et al., 2023; Firestone et al., 2023).

FINAL THOUGHTS

Our SOE has been successful in maintaining two PTT pipelines to recruit and train future special education teachers. For example, approximately 100 candidates have been admitted into and entered the immersion training partnership, and 90% have graduated. Meanwhile, in the GYO partnership, 10 students have been admitted and six have successfully completed the program. These pipelines have the potential to address the special education teacher shortage, while diversifying the field of special education. Yet, barriers exist, including the need to expand the PTT pipelines and support paraeducators as they transition to their beginning years as a teacher. These are barriers that we continually discuss and aim to target to recruit, train, and retain special education teachers in Maryland.

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