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Inconsistencies and inequities: certification pathways and their impact on teacher preparedness

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Abstract

Purpose – Educator preparation programs (EPPs) have an enormous responsibility to prepare teacher candidates for the field. While some EPPs allow teacher candidates to major in either general education or special education, other candidacy programs offer dual certification options, meaning that teacher candidates will graduate with both general education and special education teaching certification. This article focuses on a study completed to determine feelings of preparedness in educator preparation with novice teachers (with up to three years of experience) working in a general or special education classroom setting from across the United States ($N = 104$). Statistical analyses were conducted to determine the effect of an EPP on novice teachers' preparedness to work with students with specific learning disabilities (SLD) in inclusive and/or co-taught classrooms. The results of this study suggest that novice teachers who participated in dual certification programs (both general and special education certification) entered the workforce more confident in their ability to address diverse student needs.

Design/methodology/approach – This study employed a quantitative survey design to identify perceived levels of preparation among novice teachers with up to three years of teaching experience to answer how novice, general education teachers feel about their preparation to teach students with disabilities, how novice, special education teachers feel about their preparation to teach students with disabilities, and how EPPs can better support teacher candidates and novice teachers. This methodological approach was selected for its capacity to systematically collect and analyze measurable data, providing a comprehensive understanding of novice teachers' self-perceived preparedness in both general and special education settings across the United States (Creswell, 2013).

Findings – Participants who completed dual certification programs felt more confident in their ability to work with students identified as at risk or with specific learning disabilities and more comfortable working in inclusion or co-teaching environments. The reported standard deviations show less average variability within the dual certification group, indicating that novice teachers who participated in a dual certification program rated their level of preparedness more similarly than survey participants who completed general education certification programs. Although participants who participated in a dual certification program consistently reported higher levels of preparedness than their general education certification program counterparts, only the difference in the level of preparedness when working with students with specific learning disabilities was found to be statistically significant. The results of this study also suggest that novice teachers who participate in certification programs that provide them with numerous opportunities to work with students with disabilities in a variety of settings enter the workforce more confident in their ability to address student needs.

Research limitations/implications – A major limitation of this study was the limited sample size, including the limited number of responses included in the final data analysis. While the study had $N = 104$ respondents, only 64 were included in the final analysis (61.5%). Although the results of this study are meaningful, a larger sample size would be needed in order to truly explore the differences between general education, special education and dual certification programs. Another limitation to this study was the small number of participants who reported



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completion of a special education certification program. Although the study intended to compare the three primary certification programs, only five participants indicated that they completed special education certification programs. Of the five respondents, only one completed the survey in full. As such, this data was excluded from the final analysis.

Originality/value – Investigation and consideration into the various preparation pathways (i.e. traditional and alternative) are imperative, as not all preparation experiences are equal given the variances between program types and/or state requirements. For educator preparation programs (EPPs), findings from this study underscore the importance of offering robust dual certification pathways. By integrating comprehensive training that covers both general and special education competencies, EPPs can prepare teachers to be versatile and highly skilled professionals. Such programs should emphasize culturally responsive teaching practices and evidence-based strategies to ensure that teachers are well-prepared to support diverse learners.

Keywords Co-teaching, Educator preparation program, Inclusion, Learning disabilities, Novice teachers, Teacher certification

Paper type Research paper

It is an undoubtedly pivotal time in education across the United States; while there is a crucial need for high quality teachers, there are fewer individuals choosing to major in education (particularly special education) (Sutcher *et al.*, 2016). An American Association of Colleges for Teacher Education's (AACTE) 2022 report found that in 2018–2019, the national number of undergraduate education degrees awarded was less than 90,000; this is a sharp decline from the nearly 200,000 education undergraduate degrees awarded at the onset of the 1970s. To exasperate this concern, due to heightened accountability measures, those who are choosing to go into the field of education face increased mandates, and while the importance of teacher quality has intensified, there is a substantial teacher shortage (García & Weiss, 2019), thus creating a cycle that is neither suitable nor obtainable.

Teacher attrition has risen across all experience levels, with novice teachers being the most affected. After the 2022–23 school year, 30% of new teachers (i.e. less than 3 years of teaching experience) and 26% of those with 3–7 years of experience left their schools, compared to 17–20% of more experienced teachers (ERS, 2024). While these statistics show increased attrition rates in all disciplinary and grade levels, attrition is even more problematic in special education. In 2020–21, public schools employed 541,000 special education teachers, but 8.5% left the profession, and 9.2% moved to different schools the following year. This turnover required schools to replace approximately 96,000 special education teachers in a single year (Aldeman, 2024). Research has documented numerous challenges leading to teacher attrition, including low paying salaries (e.g. Han *et al.*, 2018), decreased public perception of the profession (e.g. Park & Byun, 2015), lack of resources (e.g. Bettini *et al.*, 2019), stressful working conditions (e.g. Doan *et al.*, 2024), and other classroom complexities (i.e. student behaviors, high special education caseloads, inadequate support) (e.g. Chambers Mack *et al.*, 2019; Darling-Hammond & Podolsky, 2019). This somber reality substantiates the need for EPPs and school-university partnerships to recruit and retain teachers for the field and to adequately train and prepare these educators to work with all students, including those with exceptionalities.

Inclusive classrooms are becoming standard practice in today's schools; it is therefore imperative that educators aim to create a learning environment that maximizes every student's potential in addition to providing the accommodations and/or modifications for students with a disability (SWD) that are set forth in the student's individual education plan (IEP). While “inclusion” may look different within varied educational contexts, we lean into Göransson and Nilholm's placement definition, which states that students with disabilities are located within general education classrooms whenever appropriate. Such inclusive practices allow for students with dis/abilities to be taught in environments that will meet academic and social needs of all learners (Göransson & Nilholm, 2014). The largest category of students receiving special education services (ages 3–21) in the school setting (15%) under the Individuals with Disabilities Act (IDEA) is SLD. Students with SLD typically experience difficulties acquiring

basic skills or academic content due to difficulty in using or understanding spoken or written language ([National Center for Education Statistics, 2024](#)). Typically, students with a SLD spend 80% or more of their school day in the general education, inclusive classroom setting ([U.S. Department of American Association of Colleges for Teacher Education, 2022](#)); therefore, all teachers (including general education) must adhere to the IEP and differentiate instruction regardless of the subject they teach, their level of training, or their type of certification ([Gilmour & Wehby, 2020](#)) in order to support the academic and social-emotional growth of students. An understanding of special education guidelines, effective differentiation strategies, and specialized needs of students with SLD should be introduced within EPP environments and cultivated through practical application and school-university partnerships.

Teacher preparation in the United States

To explicitly assist novice teachers (general and special education), there is a need for increased verification in knowing how to strategically support students with a SLD in varied school settings. For example, novice general education teachers may need assistance with understanding a students' IEP and how that translates into using practices that support individualized accommodations and/or modifications, what types of data should be collected and how to collect that data, and their role within the multidisciplinary team. Novice special education teachers may also need assistance in running effective IEP meetings, learning organizational structures and timelines, and perhaps most importantly, aspects of effective collaboration (i.e. with general education teachers, related service providers, parents/families).

Each type of educator (general or special education) has specific skills that become conducive to best supporting individualized accommodations and/or modifications of students with a SLD. Novice special education teachers should theoretically have a greater knowledge of evidence-based strategies for students and have participated in an increased number of field based experiences as part of the educator preparation program (EPP) requirements ([Gilmour *et al.*, 2022](#)), whereas novice general education show strength in connection of ideas through effective instruction ([Englert *et al.*, 1992](#); [Jones & Brownell, 2014](#)). Collectively, these dual preparation in general and special education can set the stage for optimal impact on student academic and social-emotional performance.

As policymakers, EPPs, and school districts aim to fill and mitigate vacant general and special education teaching positions, varied preparation pathways have expanded their presence in the United States. Due to enhanced teacher shortages, alternative and emergency credentialing has increased significantly ([García & Weiss, 2019](#)). Traditional EPPs and alternative programs are often seen as gateways into the field of education, yet not all pathways are the same, nor do they yield the same results, particularly in preparedness in working with students receiving special education services. [Hester *et al.* \(2020\)](#) found that the form of certification that one receives is a “predictive factor of burnout and attrition” (p. 349). The [Council for Exceptional Children \(2015\)](#) identified that a high-quality special education preparation program should provide sufficient opportunities to demonstrate pedagogical skills in extensive clinical practice, however, variances can exist depending on what type of preparation pathway a teacher candidate pursues (i.e. traditional versus alternative). In addition to the preparation pathway, educational majors also vary, as teacher candidates often major in general education or special education; however, candidates do have the option to become dual-certified, meaning that they become certified/licensed in more than one area (e.g. general education *and* special education) ([Blanton & Pugach, 2011](#)). While dual certification programs have become more relevant in recent years, and in certain instances has become state-mandated ([Blanton & Pugach, 2011](#)), this type of certification is still not offered at all EPPs and/or commissioned by all state licensure agencies ([Howerter *et al.*, 2022](#)).

Traditional EPPs, typically a program within a college or university setting, prepare teacher candidates to receive a bachelor's degree with relevant state certification. During a traditional EPP, teacher candidates enroll in specific courses that provide pedagogy, teaching

methodology, and content knowledge within the specific certification area that they are working to acquire, including cursory knowledge, skills, and experiences necessary for teaching students with varied needs, including students with a SLD. Special education EPPs typically require additional learning components that include aspects of collaboration (i.e. co-teaching), differentiating for diverse student populations (i.e. inclusive classroom programming), for example (Brownell *et al.*, 2005). In addition to satisfactory completion of preparation program coursework, states educator licensing agencies also require a specific number of field-based hours to be completed during the EPP.

Alternative certification, often designed for those who need to earn their teaching license to change careers or enhance their job status within a school setting (Dori *et al.*, 2023), can afford a less expensive and more expedient option into the classroom versus a traditional EPP. According to the United States Department of Education (USDOE) (2022a), alternative certification programs aim to recruit teacher candidates who may not have a traditional education and/or preparation background in an effort to fill high-need teaching areas (e.g. rural, urban, special education). These programs can be located in universities, school districts, education service centers, community colleges, or through a private entity. Alternative certification programs utilize varied modalities (e.g. in-person, synchronous, asynchronous) to accommodate the various needs of teacher candidates (e.g. Scott *et al.*, 2019) in addition to teacher candidates often serving as the teacher of record with a provisional teaching license, while they are actively working to complete their training. Coursework is completed in various formats ranging from video lectures to readings, with an array of ways in which students can demonstrate their content knowledge (e.g. discussion boards, observation in fieldwork, etc.).

Certification routes and school university partnerships

The importance of school-university partnerships in the preparation of high-quality teachers cannot be understated. Effective partnerships disrupt the “binary of theory-to-practice,” bringing both entities together as one (Flores, 2016, p. 218) and “ending the fragmented approach to teacher education, professional development, and school improvement” (Bartholomew & Sandholtz, 2009, p. 156). The intersection of learning and practice is an important step in teacher development. School-university partnerships can give teacher candidates structured opportunities to hone their skills and knowledge in three distinct ways: knowledge-for-practice; knowledge-in-practice; and knowledge-of-practice (Cochran-Smith & Lytle, 1999). Yet while partnerships are a foundation of the teacher preparation experience, not all school-university partnerships are of equal quality (Harford & O’Doherty, 2016). As we look to such partnerships as mutually-beneficial in the training and buttress of pre- and in-service educators, there is often a sense of extreme discouragement when gaps between expectations and reality emerge. Furthermore, Bartholomew and Sandholtz (2009) recognize that organizing partnerships that will endure and flourish is difficult. Though maintaining successful partnerships can be laborious, they are essential in the training and maintaining of educators.

Clinical experiences (e.g. student teaching) are a required component of all traditional EPPs that can last for a semester or across an entire school year, aimed at helping prepare teacher candidates for readiness for the career (Salgado *et al.*, 2018) in the respective classroom related to the enrolled program and certification area. During clinical experiences, teacher candidates study processes, procedures, and students’ cultural backgrounds while simultaneously learning how to plan, instruct, and assess students’ learning needs side by side with a mentor teacher in a classroom (Cooper *et al.*, 2008; Feiman-Nemser, 2003; Kent & Giles, 2016; Richards, 2010). For example, a general education teacher candidate would complete clinical classroom experience in a general education classroom setting, whereas a special education teacher candidate would complete their clinical practice in a special education classroom setting. Mandatory observations of the teacher candidate are conducted across the duration of clinical experiences to indicate a progression of increased competency in

relevant state standards, prior to recommendation for licensure. Since many students enrolled in an alternative certification program are already employed within a school district with a “provisional” license, clinical experience requirements can be viewed on a continuum (i.e. progression throughout the entire year) with some alternative programs implementing them and others not requiring them (Jameson *et al.*, 2019). It is important to note that according to Beck (2016), alternative programs cannot be truly successful without strong and thriving partnerships, thus displaying that regardless of the pathway to certification, school-university partnerships are paramount.

While there are various pathways to teacher certification, focus should be centered on the quality of the routes available. Alternative programs have enhanced the number of teachers going into teaching, yet teachers prepared in this manner are less likely to stay in the profession (Overschelde & Wiggins, 2019), and recent insight from Sztain (2023) shows that teachers who enter the field through traditional educator preparation paths are more likely to be prepared, have a higher percentage of student performance, and have a 24% higher retention rate than those who enter the field through other certification offerings, such as accelerated routes. In addition, Ronfeldt (2021) found that individuals are more likely to remain in the classroom if they receive extensive training in the methods of teaching and have adequate opportunities to practice and hone their skills. Not all options are equal, and not all special education teachers receive adequate training (Day *et al.*, 2024); this reinforces the work of Sutchter *et al.* (2019), who stated, “It is striking that the field that serves the most vulnerable students and, arguably, requires the most wide-ranging teacher knowledge—drawing on medical, psychological, and pedagogical fields—is increasingly populated by underprepared teachers” (p. 6).

Two worlds meet in inclusive classrooms

Regardless of the pathway of teacher preparation, general and special education collaboration is key. One commonly used collaborative method to support students with a SLD in an inclusive, general education classroom is co-teaching. Co-teaching is a service delivery model that allows students receiving special education services to gain access to the general education curriculum in tandem with the specialized instruction that supports their individual needs by both the general education and the special education teacher (Cook *et al.*, 2021). Both teachers (general education and special education) support the academic and social-emotional needs of students with disabilities by providing increased access to grade level content combined with targeted instruction. Each teacher focuses on their areas of expertise; the general education teacher focusing on subject area content and the special education teacher focusing on adapting instruction to meet the specific needs of each student (Cook & McDuffie-Landrum, 2020).

Disparities have been found in the ways that co-teaching is implemented though, particularly the variability to which teachers collaborate in the inclusive, co-taught classroom setting. Special education teachers were often found to be helping students much like the role of an educational assistant instead of providing individualized instruction to students with disabilities (Scruggs *et al.*, 2007; Zigmond & Matta, 2004). Educators who believe that instructional practices may not need to be adjusted, or who do not know how to make relevant adjustments based on the individualized needs of students receiving special education services, may be denying opportunities to students who would otherwise be successful if adjustments to the instruction were made (Drame & Frattura, 2011; Mayer *et al.*, 2018; Slee *et al.*, 2019). Researching the impact of certification pathways on teaching effectiveness is essential to understanding how different certification routes influence novice teachers’ perceived preparedness to support students with SLDs in inclusive classrooms. Given the significance of special education guidelines, effective differentiation strategies, and the specialized needs of students with disabilities, it is crucial to examine how various certification pathways affect novice teachers’ readiness to work in inclusive settings.

Methods

The purpose of this study was to examine how different certification pathways impacted novice teachers' perceived preparedness to work with students with specific learning disabilities (SLDs) in inclusive classroom settings. The study was created to better understand how novice general education teachers feel about their preparation, how novice special education teachers feel about their preparation, and how EPPs can better support pre-service and novice teachers to enhance readiness and retention. The researchers sought to give novice teachers a voice to determine, from their viewpoints, what guidance would have made them feel even more prepared for the field and in working with students with disabilities in order to strengthen course content within EPPs and enhance partnerships practices and focused on participants' perceptions, to ascertain early-career teachers' experiences and learn about their feelings of preparation. According to Qadhi *et al.* (2020), "it is essential to explore how novice teachers think they have achieved the necessary skills for their teaching profession" (p. 119). Moreover, research (e.g. Bettini *et al.*, 2018) shows that novice teachers typically have limited opportunities to express their own perceptions and give their own input. Institutional Review Board (IRB) approval was obtained for this study.

Participants

Participant recruitment for this study involved strategic outreach via personal emails and professional network platforms to EPP field supervisors and school administrators across the United States, as they had access to recent EPP graduates or currently worked with novice teachers. Field supervisors and school administrators who responded to these queries were asked to distribute the online Qualtrics survey (Appendix) to eligible novice teachers. As a result, $N = 104$ novice teachers from across the United States participated in completion of the survey.

Table 1 shows the demographic characteristics of the participant group for this study. A majority of participants indicated that they were in their first ($n = 42$) or second year ($n = 18$) of teaching, while 14 participants indicated they currently held instructional positions other than classroom teacher (e.g. substitute, paraprofessional). Over half of the participants (68.3%) completed an EPP as a traditional undergraduate student, broadly defined as a student who is enrolled as a full-time student for the first time after graduating high school, while 16 participants (15.4%) reported completion of the EPP through post-undergraduate or alternative programs. Most participants currently work in elementary settings; 44 participants indicated that they worked in PK-1 classrooms (42.3%), 38 in grades 2–5 (36.5%). Educational settings varied, however, as 18 participants indicated they worked in urban settings (17.3%), 17 participants worked in suburban communities (16.3%), and 12 reported that they worked in rural settings (11.5%). The majority of participants worked in schools receiving Title 1 funds (38.5%), 35 public schools (33.7%), and 14 in charter, private, or magnet schools (13.4%).

Research design

This study employed a quantitative survey design to identify perceived levels of preparation among novice teachers with up to three years of teaching experience to answer how novice, general education teachers feel about their preparation to teach students with disabilities, how novice, special education teachers feel about their preparation to teach students with disabilities, and how EPPs can better support teacher candidates and novice teachers. This methodological approach was selected for its capacity to systematically collect and analyze measurable data, providing a comprehensive understanding of novice teachers' self-perceived preparedness in both general and special education settings across the United States (Creswell, 2013).

Measures and data collection

The survey instrument was meticulously crafted based on a thorough review of existing literature on teacher preparation and novice teacher efficacy (e.g. Bischoff *et al.*, 2014; Ng *et al.*, 2018; Reitman & Karge, 2019). Reliability of the survey instrument was assessed using Cronbach's

Table 1. Demographic characteristics of participant group

Characteristic	N	%
<i>Years of teaching experience</i>		
First year	42	40.4
2 years	18	17.3
3 years	13	12.5
Other	14	13.5
<i>College major</i>		
General education	41	39.4
Special education	5	4.8
Dual certification	41	39.4
<i>Program type</i>		
Alternative	4	3.8
Traditional	71	68.3
Post-traditional	9	8.7
MAT	3	2.9
<i>Current classroom teaching grade level</i>		
Pre-K–1st	44	42.3
2nd–5th	38	36.5
6th–8th	14	13.5
9th–12th	10	9.6
<i>School district type</i>		
Rural	12	11.5
Urban	18	17.3
Suburban	17	16.3
<i>School type</i>		
Public	35	33.7
Charter	7	6.7
Private	5	4.8
Magnet	2	1.9
Title 1	40	38.5

Source(s): Authors’ own creation/work

alpha, with values for the key scales ranging from 0.82 to 0.90, indicating acceptable to excellent internal consistency (Tavakol & Dennick, 2011). Validity was ensured through both face validity, confirmed by expert review, and construct validity, evaluated through exploratory factor analysis (EFA). EFA results supported the hypothesized factor structure, demonstrating that the survey effectively measured the intended constructs. To further establish the reliability and validity of the survey instrument, a pilot study was conducted with a small sample of 20 novice teachers who were not part of the main study. Feedback from the pilot study was used to refine the survey items for clarity and relevance. The pilot study’s Cronbach’s alpha values were consistent with the main study, reinforcing the reliability of the instrument. Additionally, content validity was established through the alignment of survey items with key competencies identified in the literature on teacher preparation and novice teacher challenges (Darling-Hammond, 2022; Jones & Brownell, 2014).

The survey included 20 questions; however, of these, the first question was consent to participate in the study. The survey was administered online via a secure survey online platform (Qualtrics), ensuring anonymity and adherence to ethical standards for research involving human subjects (Kang & Hwang, 2023). This approach facilitated access to a diverse and representative sample of novice teachers, ensuring broad geographic and contextual coverage and provided valuable insight into their preparedness and professional experiences in their respective EPP programs. $N = 104$ respondents initiated the survey,

however, only 87 participants completed all survey questions; those respondents were included in the final data analysis. As the purpose of this study was to explore the effectiveness of certification programs in preparing students to work with students with disabilities in a variety of settings, the specific classroom management and instructional strategies used by novice teachers were not considered. To best explore the differences between the certification programs in preparing novice teachers to work with students with disabilities in a variety of settings, three survey questions were extracted from the survey data set; these included closed-ended questions stems that utilized a five-point Likert scale ranging from “strongly disagree” to “strongly agree,” in an effort to quantify novice teachers’ feelings of preparedness across various dimensions related to aspects of inclusive education (Table 2).

The independent variable utilized in statistical analysis was college major, which asked participants to identify whether they participated in a teacher preparation program that resulted in only a general or special education certification, or if they participated in a preparation program that resulted in both special education and general education certifications (dual certification). The initial review of the data revealed that 41 participants reported that they completed a dual certification program, 41 participants completed general education only certification programs, and 5 participants indicated that they completed special education only certification programs. After exclusion of incomplete survey responses, 28 participants who majored in general education and 36 participants who majored in dual certification programs were included in the final analysis of the dataset. Only one participant reporting completion of a special education only certification program completed the survey, therefore, that data was excluded from the final analysis, leaving a total number of 64 participants. Prior to analyzing the data, participants responses for this question were recoded into a nominal variable, where “1” = “I majored in general education,” “2” = “I majored in a special education program,” and “3” = “I majored in a dual certification program.”

Quantitative data analysis was conducted in IBM SPSS v. 28.0, using both descriptive and inferential statistics. Descriptive statistics, including means, standard deviations, and frequency distributions, provided an initial overview of novice teachers’ self-reported feelings of preparedness. Inferential statistical methods were employed to examine differences in preparedness between various subgroups, such as teachers in general versus special education settings and those in different geographic regions. In order to determine if a difference existed between major and/or certification areas in relation to novice teacher preparedness in working with students with disabilities in a variety of settings, two survey

Table 2. Survey questions measuring novice teacher preparedness

Variable question	Answer options				
IV – Which of the following best describes your major in college?	1 = I majored in general education	2 = I majored in special education	3 = I majored in dual certification		
DV – My educator preparation program prepared me to teach students with specific learning disabilities	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree
DV – My educator preparation program prepared me to co-teach and work in inclusive settings	1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree
Source(s): Authors’ own creation/work					

questions were identified as the dependent variables. The survey questions selected as the dependent variables for this study were: (1) My educator preparation program prepared me to teach students with specific learning disabilities, and (2) My educator preparation program prepared me to co-teach and work in inclusive settings. Participants reported their level of preparation in these areas using a Likert scale ranging from 1 to 5, with “1” meaning “strongly disagree” and “5” meaning “strongly agree.”

To ensure that there was no significant linear relationship between the independent and dependent variables, preliminary regression and correlation analyses were conducted. The results of these analyses indicated that there was no significant correlation between years of service and average preparedness scores ($r = -0.17, p = 0.08$). Regression analysis between years of service and average preparedness was also found to be nonsignificant, $F(1, 62) = 1.95, p = 0.17$. There was also no significant correlation between years of service and preparedness to work with students with SLD ($r = -0.20, p = 0.12$), or between years of service and preparedness to work in inclusive settings ($r = -0.20, p = 0.11$).

Results

A multivariate analysis of variance (MANOVA) was used to compare the effect of general education and dual certification programs on novice teachers’ reported confidence when working with students with SLD and working within co-teach and/or inclusion settings. Prior to the MANOVA analysis, preliminary assumption testing was conducted to check for normality, linearity, outliers, homogeneity, and multicollinearity with no major violations noted. A correlation analysis was conducted to determine the relationship between the two dependent variables (i.e. prepared to work with students with a SLD and prepared to co-teach in an inclusive setting), and it was found that there was a significant, low to moderate correlation. A benefit of MANOVA analysis is that it takes into account the correlation between the dependent variables and explores the dependent variables together, rather than separately (Grice & Iwasaki, 2007). As a result of the low to moderate correlation between the two dependent variables in this study, MANOVA would be considered a more appropriate analysis method for this study than multiple single-dependent variable analyses (Grice & Iwasaki, 2007). The multivariate test of the differences among the groups was significant, $F(2, 61) = 10.25$, Wilks’ Lambda = 0.749, $p < 0.001$, $\eta^2 = 0.251$. Tests of between-subjects (Table 3) effects revealed that a novice teachers’ college major had a significant effect upon the preparedness of teachers to teach students with specific learning disabilities, $F(1, 62) = 19.90, p < 0.001, \eta^2 = 0.243$. Pairwise comparisons (Table 3) found that novice teachers who majored in dual certification programs ($M = 3.92, SD = 0.91$) were significantly more likely to feel prepared to teach students with specific learning disabilities than those who majored in general education programs ($M = 2.82, SD = 1.06, p < 0.001$). The effect of college major on novice teachers’ preparedness to work in co-teaching or inclusive settings was found to be nonsignificant. Table 3 identifies the mean, standard deviation, and F ratio statistics for each of the three variables.

Table 3. Mean, standard deviation, and between-subjects effects of college major on educator preparation

Dependent variable	General education program (n = 28)		Dual certification program (n = 36)		F (1, 62)
	M	SD	M	SD	
Prepared SLD	2.82	1.06	3.92	0.91	19.90**
Prepared inclusion	3.57	1.03	3.86	0.87	1.49
Note(s): **p < 0.001					
Source(s): Authors’ own creation/work					

Survey results were included in the final analysis of this data only if the participant answered the three survey questions identified as variables for this study. Although five participants reported they completed special education certification programs, only one participant answered the three variable questions. Because only one data point exists in the current study which measures the effectiveness of special education EPPs in preparing novice teachers to work with students with disabilities in inclusive settings, analysis of the overall effectiveness of the program could not be made. Therefore, special education program participants were not included in this analysis.

Participants who completed dual certification programs felt more confident in their ability to work with students identified as at risk or with specific learning disabilities, and more comfort working in inclusion or co-teaching environments. The reported standard deviations show less average variability within the dual certification group, indicating that novice teachers who participated in a dual certification program rated their level of preparedness more similarly than survey participants who completed general education certification programs. Although participants who participated in a dual certification program consistently reported higher levels of preparedness than their general education certification program counterparts, only the difference in the level of preparedness when working with students with specific learning disabilities was found to be statistically significant. The results of this study could suggest that dual certification programs offer more relevant experiences in working with students with disabilities, however, further research would be required in order to draw conclusions regarding the quality and quantity of coursework and/or fieldwork experiences upon the novice teacher preparation to work with students with SLD in inclusive settings.

Discussion

The findings of this study have significant implications for both EPPs and school districts that can foster strategic strategy and collaborative partnerships, tailored to the needs of novice teachers during their initial years in the field. As the number of candidates entering teacher education has dropped by more than 30% over the past decade (DiNapoli, 2021), this trend gives evidence that preparation is key. Moreover, preparation (or lack thereof), is a commonly cited factor that influences teacher persistence in the classroom. The fact that many teachers remain underprepared could eventually lead to attrition as increased teaching demands are placed on the day-to-day job duties (Billingsley *et al.*, 2020; Rooney, 2015). Beacham and Rouse (2012) discovered that of student teachers who completed a course focused on providing the knowledge, skills, and values needed to teach all children, regardless of impairment or learning difficulties, many had not acquired the requisite skills and experiences to be fully prepared or adequately understood diversity in the classroom and ways to incorporate inclusive elements into regularly planned lessons (Kervick *et al.*, 2020). Other research found that in-service teachers lacked specific training to meet the individualized needs of students receiving services for special education and/or felt as though they did not have sufficient classroom resources (e.g. Gesel *et al.*, 2022; Gilmour & Wehby, 2020; Johnston & Young, 2019; Moore *et al.*, 2017).

When novice teachers begin teaching, they can be faced with numerous challenges for which they may not be fully prepared (particularly within the first few years). This has contributed to nearly half of American teachers leaving the profession during their first five years of their careers (Darling-Hammond, 2001, 2003; Ingersoll *et al.*, 2018). An abundance of research conducted provides evidence that the field of education is an often stressful and highly demanding profession for even seasoned veteran teachers, yet the stress and demands of the field can be even more palpable for beginning educators (Darling-Hammond *et al.*, 2016; Ingersoll *et al.*, 2018). Highly-trained teachers with heightened self-efficacy (Bandura, 1977) are better able to cater to the needs of all students in their care (Woodcock *et al.*, 2022). While there is, of course, no way to completely prepare novice teachers for the many responsibilities associated with teaching (e.g. classroom management, assessment techniques, paperwork), it

should be a right, not a privilege, that all students be taught by educators who have been highly-prepared, effectively trained, and who are adequately supported during the critical first years (Darling-Hammond *et al.*, 2016).

Because dual-certified teachers bring substantial human capital that allows for meeting diverse student needs by transitioning between general and special education pedagogy and strategy, this flexibility can improve co-teaching opportunities, facilitating collaborative and critical thinking in implementing individualized or modified instruction for at-risk students or those with SLDs (Browder *et al.*, 2012; Kosko & Wilkins, 2009; Waitoller & Artiles, 2013). Findings from this study identified that dual certification allowed novice teachers to feel better prepared to work with students who have a SLD in an inclusive classroom setting which also mirrors research with similar findings (e.g. Gilmour & Wehby, 2020; Kirksey & Lloydhauser, 2022). Therefore, EPPs should investigate the process by which teacher candidates obtain dual certification, particularly for general and special education. In order to ensure that the dual certification process is clear, EPPs can also streamline advising practices to identify critical stages (i.e. certification exam preparation and readiness) so that teacher candidates feel confident and aware of the expectations and completion requirements of the dual certification process.

Next, it is vital that teacher candidates moving into the role of a novice teacher, have sufficient opportunities for continued growth of skills and strategies that ensure students of all ability levels achieve success in the classroom (Cooper *et al.*, 2008; Gay, 2002), as feelings of incompetence are a major reason that teachers leave the field (Glazer, 2018). Ongoing learning can encompass strategic and innovative practices that disrupt the status quo and can impact teacher practices more positively when there is a coherent link to content specificity that is longitudinal in nature and that provides hand-on application, active learning and collective participation, and is directly tied to explicit needs of the teacher(s) (Garet *et al.*, 2001; Kennedy, 2016) but provided through wraparound support. Proactive collaboration between EPPs and districts should regularly occur to provide explicit and ongoing learning opportunities for novice teachers as these strategies support the continued learning necessary to effectively address the needs of at-risk students and students with SLDs (Nagro, 2020). By understanding the specific needs of novice teachers, EPPs and districts can identify areas of explicit support that will align with their schools and students' needs. According to Reitman and Karge (2019), the support that new teachers receive, or the lack thereof, is paramount in their decision to either remain or to leave the profession. This is especially critical, as novice teachers are more likely to start their careers in high-need, diverse schools (Gagnon & Mattingly, 2012), yet these schools do not always provide effective mentoring support. Examples of how this could be further supported are provided in Table 4.

Limitations

During the 2020–21 school year, there were approximately 4.2 million full- and part-time teachers working in public, private, or charter schools across the United States, 11.8% having three or fewer years of service (NCES, 2023). As a result, examination of the effectiveness of EPPs to prepare novice teachers for the workforce is vital. This study aimed to explore the ability of general education, special education, and dual certification EPPs to prepare novice teachers to address the needs of students with disabilities in a variety of settings. A major limitation of this study was the limited sample size, including the limited number of responses included in the final data analysis. While the study had $N = 104$ respondents, only 64 were included in the final analysis (61.5%). Although the results of this study are meaningful, a larger sample size would be needed in order to truly explore the differences between general education, special education, and dual certification programs.

Another limitation to this study was the small number of participants who reported completion of a special education certification program. Although the study intended to

Table 4. Strategies to support EPP and school district collaboration to support students with a SLD

Strategy	Description
Wraparound mentorship	1. Frequent mentor/mentee check-in's 2. Opportunities to debrief and self-reflect through conversation and goal-setting with the mentor/mentee 3. Key stakeholder meetings to foster continuous improvement of the EPP based on the unique needs of the partnerships with the school/district, and/or novice teacher(s) 4. Monthly meetings with the mentor, mentee, and members of the school/district multidisciplinary team to ensure clarification on student individual education plans (IEPs)
Collaborative professional development opportunities	1. Attendance at school/district professional development with ample time to debrief and self-reflect with the mentor/mentee 2. Attendance at state/national professional development with ample time to debrief and self-reflect with the mentor/mentee 3. Mindful individualization of professional development suggestions for the mentee based on specific career growth areas of opportunity

Source(s): Authors' own creation/work

compare the three primary certification programs, only five participants indicated that they completed special education certification programs. Of the five respondents, only one completed the survey in full. As such, this data was excluded from the final analysis. This study shows that significant differences exist between the preparedness of novice teachers who graduate from general education and dual certification programs, however, questions continue to exist regarding the role of special education coursework and specific field experiences focused on working with children with disabilities in the overall preparation of novice teachers. Opportunities for future research exploring the difference between general education, special education, and dual certification EPPs, as well as opportunities for specific consideration of the role of special education coursework and field experiences are available.

Conclusion

Due to the large population of students with a SLD spending a majority of their school day in the inclusive, general education setting, it is imperative that novice general and special education teachers enter the workforce feeling prepared. Traditional programs that focus entirely on general education certification can limit pre-service candidates' understanding of inclusion, as this dichotomous view contrasts real world classroom practices (Ruppar *et al.*, 2017). Though one may argue that it is impossible to prepare teacher candidates for every type of disability they may encounter, it is certainly plausible that the more time candidates spend engaged in meaningful field experiences, the better they will be able to adapt to the situations they will encounter. Dual certification programs have the potential to help break down such barriers by preparing candidates who can become increasingly prepared to enter the field than their peers with a singular degree/certification (Brownell *et al.*, 2005; Sands *et al.*, 2007). Dually certified teachers in general and special education can promote academic gains with students with a SLD (Gilmour, 2020) and foster an inclusive environment focused on student-centered instruction that meets the needs of all students (Cyr *et al.*, 2012).

Investigation and consideration into the various preparation pathways (i.e. traditional, alternative) are imperative, as not all preparation experiences are equal given the variances between program types and/or state requirements. In general, traditional certification programs are often supported for their rigorous coursework, field experiences, and mentoring, which help produce teachers who are more qualified and confident in their preparedness to

teach (Darling-Hammond & Sykes, 2003). Additionally, traditional programs tend to have higher entry and retention rates and may ultimately be more cost-effective when factoring in certification, recruitment, induction, and the costs associated with teacher attrition (Darling-Hammond, 2000). According to the National Center for Education Statistics (2022), 18% of teachers were trained in alternative programs. Such programs typically have fewer coursework requirements, and can make teaching more accessible to career changers and those with financial constraints (Legler, 2002). Alternative certification programs may also increase minority representation, address teacher shortages, and produce educators with comparable performance and student outcomes to traditionally certified teachers.

By integrating comprehensive training that covers both general and special education competencies, EPPs can prepare teachers to be versatile and highly skilled professionals that emphasize culturally responsive teaching practices and evidence-based to support diverse learners. For example, traditional educator preparation programs (EPPs) often follow state and/or national standards and include strategic field-based experience components. Alternative programs on the other hand, can allow students to enter the profession without having completed course- and fieldwork at a traditional EPP; these often place teachers in school settings prior to having completed their training or certification (Humphrey & Wechsler, 2007). Promoting dual certification among teachers holds promise for addressing teacher shortages, enhancing educational equity, and improving student outcomes; however, further research is needed to explore the long-term impacts of dual certification on teacher career trajectories and student outcomes.

Next, school districts can also work to create supportive professional development opportunities that are strategically tailored to the unique needs of novice teachers, and which will foster continuous growth and effectiveness through collaborative university partnerships as they are vital for novice teachers during the first critical years within the classroom. Many beginning teachers long for the comfort and stability of their respective EPP programs as they are being ushered into the unknowns of those first years of teaching. It is therefore not uncommon for novice teachers to find it difficult to transition into their roles, often feeling as though they are caught between what they thought teaching would be and what the reality of teaching really is. Working together to provide “right-on-time” professional learning options allows for a more streamlined and structured transition from being “pre-service” to “in-service” educators.

Finally, continuing research that provides substantial evidence on how EPPs can further leverage school/district partnerships is needed. Strong partnerships allow pre- and early-career educators opportunities to develop and strengthen their understanding and use of high leverage practices (HLPs) (Maheady *et al.*, 2019). According to Darling-Hammond *et al.* (2023), proactive, authentic, and carefully constructed partnerships better prepare teachers for the field and have the potential to enhance teacher retention efforts. Additionally, Nagro (2020) believe that such partnerships are relationship-based and become more robust when stakeholders work in the best interest of teachers and students. Two-way communication and collaboration are invaluable in strengthening partnerships, which will in-turn strengthen teacher development (Nagro, 2020). EPPs and P-12 systems that consistently work in tandem can effectively support teachers as they work to meet the academic, social, and emotional needs of all students.

Research-based strategies that are learned in an EPP may not always translate to novice teachers working in real time with students who are at risk or who have a SLD, as these strategies are often generalized and are not always provided in context with the individualized needs of the students. More can be done to study the impact that strong clinical practices make on the preparation of teacher candidates who will work with students with an SLD, as through such venues, teacher candidates will be able to bring those research-based strategies and educational theories into practice such as longitudinal studies that could provide deeper insight into how dual-certified teachers contribute to educational environments over time and inform policy decisions aimed at optimizing teacher preparation and deployment. Institutions of higher education should review the requirements of EPPs to ensure that pre-service teachers

receive meaningful cross-curricular coursework, including instruction in both general education and special education pedagogies, and ensure that students have increased opportunities to practice their instructional skills through meaningful field experiences in a variety of settings. Policymakers at the district and state levels could support these changes within EPPs by providing more streamlined procedures for earning dual teacher certifications through state-required examinations. Policymakers could also ensure that novice teachers receive required training (professional development) in both general education and special education topics, including co-teaching and inclusive instructional practices, regardless of original certification type.

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Further reading

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Appendix

Survey instrument

- (1) How many years of teaching experience do you currently have?
 - a. This is my first year in the classroom
 - b. 2 years
 - c. 3 years
 - d. Other [open ended response]
- (2) How many different schools have you been employed in during this time?
- (3) Which of the following best describes your major in college?
 - a. I majored in general education.
 - b. I majored in special education.
 - c. I majored in a dual certification program.
- (4) If you stated in Question #3 that you majored in general education or special education, please skip to the next question. If you majored in a dual certification program, please state the areas in which you are certified (e.g. both general education and high-incidence special education, etc.).
- (5) Which of the following best describes you as you worked toward your education degree?
 - a. I was a traditional student in an undergraduate program.
 - b. I was a post-traditional student in an undergraduate program.
 - c. I obtained my teaching degree through an MAT.
 - d. I obtained my teaching degree through an alternative certification.

- (6) What teaching and/or professional certification(s)/endorsement(s) do you *currently* hold (e.g. *K-12 Special Education; 9-12 English; Reading Endorsement*)? [open ended]
- (7) In which grade band(s) do you currently teach? Please check all that apply.
 - a. Pre-K-1st grade
 - b. 2nd-5th grade
 - c. 6th-8th grade
 - d. 9th-12th grade
- (8) Which of the following best describes your primary classroom environment?
 - a. I teach in a general education classroom. [open ended response for content area here]
 - b. I teach in an inclusion classroom as a general education teacher. [open ended response for content area here]
 - c. I teach in an inclusion classroom as a special education teacher.
 - d. I teach in a resource room.
 - e. Other _____
- (9) In a typical day of teaching, how many days out of the school week do you co-teach and/or teach in an inclusive setting?
 1. 0
 2. 1
 3. 2
 4. 3
 5. 4
 6. 5
- (10) Which of the following describe the school in which you *currently* teach? Please check *all* that apply.
 - a. Title I
 - b. Rural (outside of a large town)
 - c. Urban (within a city with a population of 70,000 or more)
 - d. Suburban (outside of a large city; within a town or neighborhood)
 - e. Public
 - f. Charter
 - g. Private [e.g. parochial]
 - h. Magnet
 - i. Other [open ended response]
- (11) In thinking back to your educator preparation program, how many courses do you remember that specifically focused on how to support students with learning disabilities?
 - a. 0-1
 - b. 2-3
 - c. 4-5
 - d. 6 or more

- (12) In thinking back to your educator preparation program, how many courses do you remember that specifically focused on how to support the social/emotional needs of students with disabilities?
- a. 0–1
 - b. 2–3
 - c. 4–5
 - d. 6 or more
- (13) In thinking back to your educator preparation program, how many field experiences do you remember that allowed you to work extensively with students with special needs (e.g. inclusion classroom, behavior intervention classroom, etc.)?
- a. 0
 - b. 1–2
 - c. 3–4
 - d. 5 or more

For this portion of the survey, you will complete a Likert scale. Please check your response, noting that the scale goes from “Strongly Agree” to “Strongly Disagree.”

- (14) My educator preparation program prepared me to teach students with specific learning disabilities.
- (15) My educator preparation program prepared me to co-teach and work in inclusive settings.
- (16) My educator preparation program prepared me to work with parents/caregivers of students with various disabilities.
- (17) My educator preparation program prepared me to provide strategies related to the social/emotional needs of students in special education.
- (18) I feel like I had an appropriate number of field placement experiences to prepare me to work with students who are at risk (*e.g. academically or behaviorally*) or in special education?
- (19) Open Ended: What do you now wish you had learned more about in your educator preparation program to better prepare you to work with students who are at risk or in special education?

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