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# How Do Alternatively and Traditionally Certified Beginning Workforce Development Teachers Feel About Their Preparedness?

RESEARCH

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## ABSTRACT

Retaining highly qualified teachers is critical since about 40% of teachers leave within the first four years. Over the past few decades, there has been a rise in alternatively certified Development, which has the highest percentage of teachers that enter the profession through alternative certification. However, there is a debate on whether or not a teacher entering the profession through an alternative pathway is as effective as a teacher certified through a traditional pathway. One of the critical factors in determining teacher effectiveness is how prepared a beginning teacher feels when entering the classroom. To identify how these beginning teachers perceive their preparedness when entering the classroom, this study analyzes self-reported data from the 2015–2016 National Teacher and Principal Survey to compare the perceived preparedness of alternatively and traditionally certified teachers. The results show that within the field of Workforce Development, traditionally certified teachers felt statistically teachers filling empty positions due to a teacher shortage. This is particularly true in Workforce significantly more prepared to enter the classroom than alternatively certified teachers. Also, within the individual constructs of Workforce Development, traditionally certified teachers felt statistically significantly more prepared in six of the ten areas. By better understanding the level of perceived preparedness of beginning Workforce Development teachers from both alternative and traditional certification pathways, teachers can be better supported to increase their effectiveness in the classroom.

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## INTRODUCTION

Teachers need to have high levels of content and pedagogical knowledge to offer every child a valuable learning experience. To offer this experience, each child deserves a highly qualified teacher. However, teacher shortages exist in every state and many content areas (Cross 2017). Due to these shortages, teachers can be placed into the classroom who may not be considered highly qualified as determined by the No Child Left Behind Act (NCLB) of 2001 and the Every Student Succeeds Act of 2015 (Darling-Hammond et al. 2005; García & Weiss 2020; Koehler et al. 2013). To fill vacant positions, teachers can get certified through different pathways, which are mainly controlled by each state (Tobin 2012). The two main pathways for a teacher to get certified are traditional, typically through a university undergraduate teacher preparation program (TPP), or alternative certification. Although it first began as an emergency method for filling vacant teaching positions (Hoepfl 2001), alternative certification has become a common method for filling regular teaching positions (Bowen et al. 2018; Cohen-Vogel & Smith 2007; Gimbert et al. 2005; Jacob 2007). This is particularly true for teachers in Career and Technical Education (CTE), or Workforce Development, content areas (Litowitz 1998), as 37% of teachers in these areas enter teaching through alternative certification (Coleman et al. 2020), compared to 18% of total teachers (National Center for Education Statistics 2022). Classes in Workforce Development content areas prepare students with the skills required to compete in a future market (Cross 2017; DiBenedetto & Somers 2023). Students in these programs develop diverse skills for success in postsecondary education and the workforce (Carnevale et al. 2009; DiBenedetto & Somers 2023). To prepare students for future careers, qualified teachers must be retained to provide the exceptional educational opportunities students deserve.

### TEACHER RETENTION

The Teacher Follow-up Survey (TFS) is a nationwide survey given by the US Department of Education that collects data on teaching and teacher perceptions. Ingersoll (2002, 2003) reports that about 40% of teachers leave the teaching profession after only four years. Findings from the TFS help highlight some of the main reasons teachers are leaving the profession, particularly early-career teachers (teaching three years or less). One of the main factors that contribute to early-career teachers remaining in the profession after the first year was job satisfaction (Kawasaki et al. 2020; Liu 2007; Liu & Meyer 2005; Liu & Ramsey 2008). Beginning teachers reported a higher level of job satisfaction if they feel the opportunity to collaboratively influence school policy (Bowen et al. 2017; Boyd et al. 2009; Reid et al. 2023; Strong & Yoshida 2014), which decreased their probability of leaving by 15% (Liu 2007). Other factors that determine whether beginning teachers stay in their position, particularly in Workforce Development, are their preparedness for classroom management, level of administrative support, and the institutional climate (Hasselquist & Graves 2020; Ruhland 2001; Shwartz & Dori 2020). In addition, many qualified teacher candidates, especially those from a Workforce Development content area, decide to enter an industry-related position, either directly after graduating from an undergraduate TPP or after just a few years of teaching (Kistler et al. 2024).

### TRADITIONAL VERSUS ALTERNATIVE CERTIFICATION

Teachers can be certified through an alternative or traditional pathway. Many Workforce Development teachers certified through an alternative pathway bring years of authentic work experience into the classroom (Dori et al. 2023). However, these teachers may lack the pedagogical knowledge they would gain from a traditional TPP. This has caused some concern about the quality of these teachers. Research on the effectiveness of alternatively certified teachers compared to traditionally certified teachers produces mixed results (Bowen 2013; Boyd et al. 2009; Koehler et al. 2013). It is difficult to determine statistically significant differences between the groups when measuring teacher and student outcomes (Bowen 2013; Dori et al. 2023; Hoepfl 2001; Reese 2010). More research is needed to determine the level of preparedness that beginning Workforce Development teachers perceive when comparing the two pathways to certification (Hoepfl 1997, 2001; Merrill 2004; Pavlova 2005). This will help undergraduate TPPs and school administrators know how to better prepare and support teachers choosing to enter teaching through multiple pathways.

#### Traditional certification

Most secondary education teachers earn teaching certification through a traditional pathway (Coleman et al. 2020; National Center for Education Statistics 2022). The most common route is attending a four-year university and completing an undergraduate TPP. These programs provide teachers with the pedagogical knowledge needed to provide quality learning experiences for students and obtain content knowledge in a particular content area. Although there is some consistency among states concerning certification requirements, each state has autonomy to determine the requirements regarding the amount of coursework, quantity of field experiences, and length of time spent on student teaching (Townsend & Bates 2007).

#### Alternative certification

The alternative certification pathway is typically designed for individuals who already have a career

but want to switch careers into a classroom teaching role and need to earn their teaching license (Dori et al. 2023). 'The term *alternative certification* has historically been used to refer to every licensure avenue outside of traditional college-based programs' (Cohen-Vogel & Smith 2007, p. 733). This pathway is commonly less costly to obtain a teaching certification and has a shorter timeframe than a traditional TPP. Eligibility can vary by state and content area, as some states may require a bachelor's degree, while others may only require an associate's degree. These requirements may also be adjusted based on the individual's field of study and number of years of work experience. These programs typically have the individual attend various professional development activities before entering the classroom. The activities can vary by state but can range from just a few hours to extensive workshops and university coursework, depending on the individual's previous education and work experience.

### TEACHING EFFECTIVENESS WHEN COMPARING PATHWAYS

The difference in teacher quality and effectiveness between alternatively certified and traditionally certified teachers is a common debate within the educational community nationwide. By not completing a TPP, alternatively certified teachers lack training in classroom pedagogy, causing them to struggle in lesson planning, classroom management, and accommodating assignments for a diverse group of learners (Gray & Taie 2015; Koehler et al. 2013; Shwartz & Dori 2020). Darling-Hammond (1992) reports, 'Studies of teachers through quick-entry alternate routes frequently note that the candidates have difficulty with curriculum development, pedagogical content knowledge, attending to students' differing learning styles and levels, classroom management, and student motivation' (p. 131). These deficits in the teacher's pedagogical knowledge could result in a lower level of student learning compared to students taught by traditionally certified teachers (Baines 2006; Darling-Hammond 2000). Some studies report that when considering the ratings from teacher evaluation, traditionally certified teachers have significantly higher ratings than alternatively certified teachers, but an analysis that included student test scores was not part of the study (Darling-Hammond et al. 2002). However, a study by Wright (2020) found no significant difference in pedagogical knowledge when comparing teachers from both pathways as measured by the Principles of Learning and Teaching test.

Not all researchers agree that there is substantial evidence that the learning experience provided to students by alternatively certified teachers is significantly different than that of traditionally certified teachers. Several studies report that students taught by alternatively certified teachers achieved just as much, and in some cases more, as the students taught by traditionally certified teachers (Bowen 2013; Dori et al. 2023; Jacob 2007; Tournaki et al. 2009), as demonstrated by no significant differences in some state test scores and on the National Teachers Exam (Bowen 2013; Hawk & Schmidt 1989). Also, because most alternatively certified teachers have corporate or industry work experience, they have gained a level of content knowledge that is more in-depth than the level of content knowledge teachers gained through a traditional TPP (Darling-Hammond et al. 2005; Dori et al. 2023). Because of the knowledge gained through corporate work experience, these teachers better understand the application of the content and can potentially provide students with more relevant and authentic real-world applications than a traditionally certified teacher (Matsko et al. 2022; Smith 2020).

## RESEARCH QUESTIONS

The number of teachers entering the profession through an alternative certification pathway has drastically increased in the last two decades. Feistritzer (2011) reported that as many as four out of every ten public school teachers were hired through an alternative certification program between 2005 and 2010. This highlights the need to better understand teacher development through both pathways and how these teachers perceive their preparedness when entering the classroom. The current study aims to better understand how beginning Workforce Development teachers perceive their preparedness when entering the classroom, comparing those certified through an alternative pathway to those certified through a traditional pathway. Understanding the perceived preparedness of beginning teachers is critical since it is a predictor of teacher outcomes (Bastian et al. 2021; Geiger & Pivovarova 2018; Ronfeldt et al. 2021), such as feelings of instructional readiness (Matsko et al. 2022) and teacher retention (Bastian et al. 2017; Geiger & Pivovarova 2018). Using these predictors allows policy decisions to be made more efficiently and sooner rather than waiting to analyze the results of workforce outcomes.

The purpose of this study is to inform the educational community about the perceived preparedness of alternatively and traditionally certified teachers in Workforce Development. By understanding the teachers' perspective on preparedness, alternative and traditional teacher preparation programs will have a better understanding of areas of improvement. This study analyzes the differences between alternatively certified and traditionally certified Workforce Development teachers regarding their perceived preparedness during

the beginning years of teaching. The following two research questions guided this study:

1. Are there differences in the overall perceived preparedness for beginning Workforce Development teachers who entered the field through an alternative versus traditional certification pathway?
2. Are there differences in individual items of perceived preparedness for beginning Workforce Development teachers who entered the field through an alternative versus traditional certification pathway?

## METHOD

The following sections describe the methods used to collect and analyze data in this study. This includes a description of the participants, the instrument used for data collection, variables analyzed, and the procedures used for data analysis.

### PARTICIPANTS

In this study, Workforce Development teachers who had three years or less of teaching experience and who provided subject-matter codes relating to Workforce Development for the 2015–2016 National Teacher and Principal Survey (NTPS) question 2-4, 'Using Table 1 on page 10, this school year, in what subject is your MAIN teaching assignment at THIS school, that is, the subject matter in which you teach the most classes?' were identified. Table 1 shows the NTPS descriptions used for placing teachers into the categories of Workforce Development.

The data for these teachers were then categorized as teachers who entered teaching through a traditional or alternative certification program. The data were weighted using the required sampling weights provided by IES. This resulted in 14,750 teachers within the weighted results for alternative certification and 20,330 teachers for traditional certification. Table 2 shows basic demographic information for these teachers.

### INSTRUMENTATION

The 2015–2016 NTPS is conducted by the National Center for Education Statistics (NCES) on behalf of the US Department of Education to collect extensive data on American public elementary and secondary schools. The NTPS is a redesign of the Schools and Staffing Survey (SASS). The SASS was developed by the National Center for Education Statistics (NCES) to improve on studies that were developed in the 1980s and has been administered seven times (1987–88, 1990–91, 1993–94, 1999–2000, 2003–04, 2007–08, and 2011–12) to provide a snapshot of America's public and private schools. The NCES has continually examined the purpose, direction, and use of the survey. In line with the SASS mission, the redesigned NTPS was first administered in the 2015–16 school year.

The purpose of NTPS is to collect information that can provide a detailed picture of US elementary and secondary schools and their staff concerning general

| WORKFORCE DEVELOPMENT AREA | NTPS CODE | DESCRIPTION |
|---|---|---|
| Agricultural Education | 241 | Agriculture and natural resources |
| Business & Information | 242 | Business management |
| Technology Education | 243 | Business support |
| Marketing Education | 244 | Marketing and distribution |
| Health Science Education | 245 | Healthcare occupations |
| Technology & Engineering Education | 246 | Construction trades, engineering, or science technologies (including CADD and drafting) |
| | 250 | Communications and related technologies (including design, graphics, or printing; not including computer science) |
| | 255 | Industrial arts or technology education |
| Trade & Industrial Education | 247 | Mechanics and repair |
| | 249 | Manufacturing or precision production (electronics, metalwork, textiles, etc.) |
| Family & Consumer Sciences Education | 253 | Personal and public services (including culinary arts, cosmetology, child care, social work, protective services, custodial services, and interior design) |
| | 254 | Family and consumer sciences education |
| Other Career or Technical Education | 256 | |

**Table 1** Workforce development area codes and descriptors.

| | CERTIFICATION ROUTE | |
|---|---|---|
| | TRADITIONAL ROUTE | ALTERNATIVE ROUTE |
| Weighted sample size | 20,330 | 14,750 |
| Mean age (years) | 34.20 | 39.70 |
| Mean teaching experience (years) | 2.71 | 2.29 |
| Male | 45.1% | 45.5% |
| Female | 54.9% | 54.5% |

**Table 2** Workforce Development teaching assignment NTPS demographics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Teacher and Principal Survey (NTPS), 'Public School Teacher Data File,' 2015–16.

information; class organization; education and training; certification; early career experiences; teacher working conditions; school climate and teacher attitudes; and general employment and background information. The NTPS provides data on the characteristics and qualifications of teachers and principals, teacher hiring practices, professional development, class size, and other conditions in schools nationwide for a comprehensive picture of elementary and secondary education in the United States. Through the NTPS, estimates can be produced at the national level for each target population and attribute (Goldring et al. 2017).

## VARIABLES ANALYZED

The following sections describe the variables analyzed from the NTPS. Using descriptive statistics, mean scores, standard deviations, standard errors and the score ranges were reported for alternative and traditional certification for both the composite variable perceived preparedness score and the ten individual items that made up the perceive preparedness composite variable.

### Certification type

Certification type was defined by the verbatim NTPS question 4-1, 'Did you enter teaching through an alternative route to certification program? (An alternative route to certification program is a program that was designed to expedite the transition of nonteachers to a teaching career, for example, a state, district, or university alternative route to certification program.)' was used to make this determination. The teachers answered either yes or no. For the purposes of this study teachers were classified accordingly as either completing an alternative or traditional program.

### Perceived Preparedness

Perceived preparedness was a composite variable that was created by summing up the ten questions on the NTPS where participants rated how prepared they believed themselves to be during their first year of teaching. We labeled the composite variable as perceived preparedness because it was self-rating. The verbatim NTPS survey question the researchers employed for perceived preparedness was question 5-4, 'In your FIRST year of teaching, how well prepared were you to – (a) Handle a range of classroom management or discipline situations? (b) Use a variety of instructional methods? (c) Teach your subject matter? (d) Use computers in classroom instruction? (e) Assess students? (f) Differentiate instruction in the classroom? (g) Use data from student assessments to inform instruction? (h) Teach to state content standards? (i) Teach students who are limited-English proficient [LEP] or English-language learners [ELLs] (j) Teach students with special needs?' The teachers responded to each question on a Likert scale from one to four. A value of one was 'Not at all prepared,' a value of two was 'Somewhat prepared,' a value of three was 'Well prepared,' and a value of four was 'Very well prepared.' The ten items were summed as a composite score for perceive preparedness.

## PROCEDURES

The NTPS data is released from IES in the form of restricted-use data files. The researchers applied for a restricted-use data license from IES and received permission to access the data. As this study analyzed data from the NTPS restricted-use dataset, appropriate protocols required by the NCES and IES were followed. Reporting protocols required the results intended for submission to be sent to the IES for approval and authorization for release to non-licensed individuals. The results were approved by IES for dissemination to the general public. The NCES and IES required that weighted *n*'s be rounded to the nearest 10 to assure participant anonymity and that all degrees of freedom reported in statistical tests be rounded to the nearest 10. Therefore, data in tables and the associated narrative may not add to the total N reported because of rounding requirements. Data were weighted using the Teacher Final Sampling Weight (TFNLWGT) variable and the NTPS supplied 200 replicate weight variables utilizing a jackknife 2 replication procedure as required by the IES.

The composite variable of perceived preparedness and the ten individual items of preparedness were analyzed using AM Statistical Software. AM Statistical Software is

one of the recommended statistical packages that IES recommends for analyzing data. Independent samples *t*-tests were used to identify statistically significant differences between the self-ratings of those who entered teaching though an alternate education program and those who entered through a traditional certification program. The researchers examined these differences for the overall composite perceived preparedness rating as well as the ten individual items that made up perceived preparedness. Probability levels of .05 or less were deemed to be statistically significant. Where statistical significance was found, Cohen's *d* was provided as a measure of effect size.

## RESULTS

Descriptive statistics and independent samples *t*-tests were conducted to investigate teacher perceptions of preparedness. A descriptive account of the composite score and the item scores for perceived preparedness are presented in Table 3. Results for the *t*-tests are presented in Table 4.

Research question one, 'Are there differences in the overall perception of preparedness for beginning Workforce Development teachers who entered the field through an alternative versus traditional certification pathway?' was analyzed using independent samples *t*-tests, and the results are reported in Table 4.

The results showed that there was a statistically significant difference between traditionally and alternatively certified Workforce Development teachers on their overall perceived preparedness scores. Traditionally certified teachers ($M$ = 26.965, $SD$ = 5.828) perceived themselves to be more prepared than those who received certification through an alternative program ($M$ = 24.948, $SD$ = 6.316); $t(200) = -2.907$, $p$ = 0.004. The effect size was small (Cohen's $d$ = .332).

| CERTIFICATION ROUTE | VARIABLE | MEAN | *SE* | *SD* | MIN | MAX |
|---|---|---|---|---|---|---|
| Alternative | Perceived Preparedness | 24.948 | 0.504 | 6.316 | 11 | 40 |
| | Behavior Management | 2.445 | 0.064 | 0.802 | 1 | 4 |
| | Instructional Methods | 2.513 | 0.071 | 0.863 | 1 | 4 |
| | Subject Matter | 3.232 | 0.067 | 0.792 | 1 | 4 |
| | Computers | 3.010 | 0.070 | 0.875 | 1 | 4 |
| | Assessment | 2.608 | 0.065 | 0.790 | 1 | 4 |
| | Differentiate Instruction | 2.347 | 0.071 | 0.884 | 1 | 4 |
| | Student Assessment for Instruction | 2.294 | 0.066 | 0.822 | 1 | 4 |
| | Content Standards | 2.536 | 0.071 | 0.912 | 1 | 4 |
| | LEP/ELL | 1.873 | 0.069 | 0.847 | 1 | 4 |
| | Special Education | 2.090 | 0.064 | 0.854 | 1 | 4 |
| Traditional | Perceived Preparedness | 26.965 | 0.505 | 5.828 | 14 | 40 |
| | Behavior Management | 2.648 | 0.068 | 0.784 | 1 | 4 |
| | Instructional Methods | 2.811 | 0.076 | 0.839 | 1 | 4 |
| | Subject Matter | 3.273 | 0.060 | 0.766 | 1 | 4 |
| | Computers | 3.143 | 0.078 | 0.854 | 1 | 4 |
| | Assessment | 2.811 | 0.066 | 0.783 | 1 | 4 |
| | Differentiate Instruction | 2.722 | 0.079 | 0.848 | 1 | 4 |
| | Student Assessment for Instruction | 2.448 | 0.077 | 0.861 | 1 | 4 |
| | Content Standards | 2.777 | 0.081 | 0.872 | 1 | 4 |
| | LEP/ELL | 2.015 | 0.069 | 0.804 | 1 | 4 |
| | Special Education | 2.317 | 0.063 | 0.724 | 1 | 4 |

**Table 3** Perceived preparedness composite variable and individual item descriptive statistics.

*Note*. *SE* is standard error. *SD* is standard deviation. Min is minimum score. Max is maximum score. LEP/ELL is limited English proficiency and English language learner.

SOURCE: US Department of Education, National Center for Education Statistics, National Teacher and Principal Survey (NTPS), 'Public School Teacher Data File,' 2015–16.

| VARIABLE | ALTERNATIVE PROGRAM MEAN SCORE | TRADITIONAL PROGRAM MEAN SCORE | DIFF | *df* | *t* | *p* | COHEN'S *d* |
|---|---|---|---|---|---|---|---|
| Perceived preparedness | 24.948 | 26.965 | −2.017 | 200 | −2.907 | 0.004 | 0.332 |
| Behavior Management | 2.445 | 2.648 | −0.203 | 200 | −2.121 | 0.035 | 0.262 |
| Instructional Methods | 2.513 | 2.811 | −0.298 | 200 | −2.936 | 0.004 | 0.350 |
| Subject Matter | 3.232 | 3.273 | −0.041 | 200 | −0.487 | 0.627 | *na* |
| Computers | 3.010 | 3.143 | −0.133 | 200 | −1.349 | 0.179 | *na* |
| Assessment | 2.608 | 2.811 | −0.203 | 200 | −2.183 | 0.03 | 0.258 |
| Differentiate Instruction | 2.347 | 2.722 | −0.375 | 200 | −3.575 | <0.001 | 0.433 |
| Student Assessment for Instruction | 2.294 | 2.448 | −0.154 | 200 | −1.550 | 0.123 | *na* |
| Content Standards | 2.536 | 2.777 | −0.241 | 200 | −2.257 | 0.025 | 0.270 |
| LEP/ELL | 1.873 | 2.015 | −0.142 | 200 | −1.486 | 0.139 | *na* |
| Special Education | 2.090 | 2.317 | −0.227 | 200 | −2.592 | 0.01 | 0.287 |

**Table 4** Results from *t*-tests for perceived preparedness composite variable and individual items for alternative and traditional programs.

*Note*. Diff is mean score difference, *df* is degrees of freedom. *t* is *t*-test value. *p* is probability level, *na* is not applicable.

SOURCE: US Department of Education, National Center for Education Statistics, National Teacher and Principal Survey (NTPS), "Public School Teacher Data File," 2015–16.

Research question two, 'Are there differences in individual items of perceived preparedness for beginning Workforce Development teachers who entered the field through an alternative versus traditional certification pathway?' was analyzed using independent samples *t*-tests, and the results are reported in Table 4. Questions relating to behavior management, instructional methods, assessment, differentiate instruction, content standards, and special education received statistically significantly higher scores for the traditional certification group when compared to the alternative certification group. Even though the differences were statistically significant, the effect sizes were small, with Cohen's *d* ranging from .258 to .433.

## DISCUSSION

Current research reports mixed data on alternative and traditional pathways when comparing the effectiveness and performance of teachers. Unlike much of the research on teacher preparedness, this study utilized a national dataset, looking specifically at beginning Workforce Development teachers to inform decisions affecting the design and development of alternative and traditional certification pathways. Some studies, such as Bowen (2013), Bowen et al. (2019), and Tournaki et al. (2009), found no difference in specific subsets of teachers of Workforce Development, while Jeffery (2017) and the current study found significant differences. The current study, however, did not analyze data from specific teaching practices, teacher performance, or student achievement but analyzed self-reported data about the teachers' perceptions. Due to the relatively high percentage of teachers leaving the profession with just a few years of teaching (Räsänen et al. 2020), it is critical to investigate the reasons in more depth so systems can be improved to support these teachers.

This study reports the results of a study comparing the perceived preparedness of beginning Workforce Development teachers when entering the profession through either an alternative or traditional certification program. Of the weighted total of 35,080 teachers, approximately 42% (14,750) began teaching with an alternative certification. The results show that based on this national sample of beginning Workforce Development teachers, there is a statistically significant difference in the perceived preparedness when comparing alternatively and traditionally certified teachers. This study found statistically significant differences in six individual items of perceived preparedness between alternatively and traditionally prepared Workforce Development teachers. However, although the effect sizes for these statistically significant differences were small, we believe these are still important. This is supported by a report by Kee (2012), who conducted a study with the Schools and Staffing Survey and concluded that when considering teachers from all subject areas, traditionally certified teachers perceived themselves to be slightly more prepared than alternatively certified teachers. However, that study did not analyze individual constructs of preparedness but considered preparedness as a whole. The current study also supports previous research that earning a teaching certification through

alternative certification creates some challenges with understanding effective pedagogical practices, as well as curriculum development, differentiated instructions, and other critical aspects of teaching gained through a traditional TPP (Evertson & Weinstein 2006; Flower et al. 2017; Piwowar et al. 2013). However, one study by Bowen et al. (2019) reported no statistically significant differences in the perceived preparedness of alternatively certified teachers compared to traditionally certified teachers for beginning technology and engineering education teachers. Within the NTPS codes, technology and engineering education falls under the main Workforce Development category. Therefore, research shows that although alternatively certified beginning Workforce Development teachers perceived themselves to be less prepared for their first teaching assignment than their traditionally certified counterparts, there may be individual groups of teachers within the Workforce Development domain that do not feel less prepared.

Within the construct of preparedness, data analysis revealed a significantly higher level of perceived preparedness for the traditionally certified teachers on six of the ten items compared to alternatively certified teachers. These items were related to behavior management, instructional methods, assessment, differentiate instruction, content standards, and special education. Although some previous research studies report there may not be statistically significant differences in the two types of certification pathways regarding student achievement (Bowen 2013; Matsko et al. 2022; Smith 2020), this study demonstrates there are significant differences, especially in specific areas, in how the teachers perceive their preparedness when beginning their teaching position. These results provide evidence that teachers view their preparedness differently, depending on the licensure pathway. The developers of each type of licensure pathway need to be aware of these results in order to be able to better serve individuals seeking teacher licensure. For example, according to this study, developers of alternatively certified programs could include additional training and resources for the six individual items that are significantly different from teachers prepared through a traditional licensure pathway. However, more research is needed to understand the reasons behind these differences in order to better develop content for both teacher licensure pathway programs.

## CONCLUSIONS AND RECOMMENDATIONS

This study looked specifically at the perceived preparedness of beginning teachers in Workforce Development. Since these teachers have three or fewer years of classroom teaching experience, it is plausible that both the alternatively certified and traditionally certified groups cannot yet contextualize what they know or don't know about teaching. They may not have a practical idea of what knowledge and skills are necessary to be an effective teacher. As such, they can be subject to bias by either over or understated scores, and the researchers had no objective way to verify the fidelity of their ratings.

Both alternative and traditional teacher certification pathways produce teachers with different expertise and diverse skill sets (Bowen 2013; Stoddart & Flodon 1995). Workforce Development is a field that has a wide range of knowledge and opportunities for students, anywhere from trade-based activities to engineering design. This range of knowledge lends itself to incorporating skills obtained by teachers of both certification types (Darling-Hammond et al. 2005; Reese 2010). Therefore, more empirical research is needed to distinguish how teachers from both certification types are impacted by their pathway into the teaching profession. If the characteristics of teachers from both types of certifications are better understood, more research can be done to identify how teachers can be better supported, traditional TPPs could be improved, and targeted professional development could be designed for beginning Workforce Development educators.

## COMPETING INTERESTS

The authors have no competing interests to declare.

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