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Barriers To Entry For Black Pre-Service Teachers

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Abstract

For decades, calls for an increase in the number of minority teachers have led local, state, and federal policy conversations. However, specific barriers to entry into the teaching profession for Black pre-service teachers have received less attention. Moreover, the minimally existing research on the topic is mixed. Despite being the most affected by barriers to entry into the teaching profession, little research has investigated how barriers specifically impact Black pre-service teachers during the teacher training or Educator Preparation Provider (EPP) process. This study examines one possible cause: licensure exams, of which Black test-takers have had the lowest pass rates of all racial or ethnic demographic groups since the inception of the exam.

First, this study will thoroughly review existing literature on the various theoretical barriers to entry for Black pre-service teachers, including coursework, field experiences, and licensure exams. Next, the impact of a licensure exam policy change on Black test taker pass rates in Arkansas will be assessed using various descriptive data and the difference-in-differences estimator methodology. This study hypothesizes a change in licensure exam type has negatively impacted the Black teacher workforce in Arkansas, specifically elementary school teachers. Finally, recommendations for state and federal policy and practice will be discussed.

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Tina Laquita Fletcher

This study is dedicated to Ms. Helen Payne and my great-uncle Billy Joe Murray, two Arkansan educators who collectively served more than 70 years in Arkansas schools and my former student YaaYaa Maria Hunt. You all have forever changed the way I view my role and responsibility as an Arkansan and educator.

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ABSTRACT

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For decades, calls for an increase in the number of minority teachers have led local, state, and federal policy conversations. However, specific barriers to entry into the teaching profession for Black pre-service teachers have received less attention. Moreover, the minimally existing research on the topic is mixed. Despite being the most affected by barriers to entry into the teaching profession, little research has investigated how barriers specifically impact Black pre-service teachers during the teacher training or Educator Preparation Provider (EPP) process. This study examines one possible cause: licensure exams, of which Black test-takers have had the lowest pass rates of all racial or ethnic demographic groups since the inception of the exam.

First, this study will thoroughly review existing literature on the various theoretical barriers to entry for Black pre-service teachers, including coursework, field experiences, and licensure exams. Next, the impact of a licensure exam policy change on Black test taker pass rates in Arkansas will be assessed using various descriptive data and the difference-in-differences estimator methodology. This study hypothesizes a change in licensure exam type has negatively impacted the Black teacher workforce in Arkansas, specifically elementary school teachers. Finally, recommendations for state and federal policy and practice will be discussed.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER 1: INTRODUCTION

The number of Black teachers nationwide declined significantly after *Brown vs. Board* (1954) despite a drastic increase in Black students entering school. According to research, 82,000 Black teachers in 18[1] Southern and border states made up 25% of the region's workforce - (Rosenthal, 1957). These teachers taught an estimated 2.3 million Black students attending segregated schools (United States Census Bureau, 1954). The total number of Black students attending school in 1954 nationwide was 3.9 million (National Center for Education Statistics, 1995; United States Census Bureau, 1975, p. 370-371); however, the number of Black teachers serving outside of the South before 1954 is unknown.

Despite the number of Black students in the South climbing to 3 million by 1964 (Klarman, 2007), the Black teacher workforce in the region declined by over 50% when more than 38,000 Black teachers and administrators lost their jobs due to Black school closures (Madkins, 2011; Toppo, 2004). For example, the total number of Black teachers grew from 130,000 (7.7%) (United States Census, 1962a) to just 132,000 (8.6%) in 1964 despite the total number of teachers increasing by over 300,000 during the same period (United States Census Bureau, 1964). Consequently, the number of Black teachers could not keep pace with the fast-growing number of Black students whose enrollment

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[1] 18 reporting states: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia

increased from 5.6 million in 1960 (United States Census, 1962b) to 6.5 million in 1964 (United States Census, 2021).

Since 1964, the number of Black teachers has fluctuated, climbing to 223,000 in 1970 (Byars-Winston et al., 2015; United States Census Bureau, 1970, p. 638,652), declining to 191,000 in 1988 (National Center for Education Statistics) and rising to 239,000 in 2018 (National Center for Education Statistics, 2018a), a disappointing 16,000 50-year net increase. This trend affected only Black (and Native American) teachers. For example, between 2000 and 2018, the total number of Black teachers increased by just 11,000, less than 1,000 per year. White teachers increased by 279,000, Hispanic teachers grew by 162,000, and Asian teachers increased by 27,000 (National Center for Education Statistics, 2018a). These findings have resulted in a growing number of initiatives focusing on the specific need for more Black teachers (Associated Press, 2011; Duncan, 2011; Graham, 2021; Heubeck, 2020; Sadovi, 2018).

In the years following *Brown*, some scholars attributed the declining share of Black teachers to the decreasing number of Black education majors (King, 1993) and widening career options after the passing of the Civil Rights Act of 1964, especially for Black females (Freeman, 1976). Over time, other scholars pointed to new challenges within the profession, such as dissatisfaction with working or organizational conditions or lack of career advancement opportunities (Connor, 2011; Ingersoll & May, 2011; Ingersoll et al., 2017). According to Ingersoll (2011), Black teachers "convey an image of a revolving door" (p. 64). More recent scholarship highlights obstacles faced at the beginning of the teacher pipeline. Despite decades of calls for a more diverse teacher

workforce, including the creation of over 70 programs in the 1990s to increase teacher diversity (Clewall & Villegas, 1999) the pipeline for preparing aspiring minority teachers has consistently lacked a necessary shift towards progress, especially in recruitment. This was shown by the 4% decrease in minority employed school employees between 1985 and 2000 (National Education Association, 2004). Thus, research notes calls to action may be suppressed by various barriers to entry and exit Educator Provider Programs (EPPs) such as coursework, fieldwork, and teacher competency tests (Graham, 1987; Green, 1996; Irvine, 1988).

Understanding the significance of teacher diversity and barriers to entry into the profession for Black teachers is essential when examining growing literature noting the importance of same-race matching for Black teachers and students. According to data, the percentage of Black students attending public school sits at 15% (National Center for Education Statistics, 2020a; United States Department of Education, 2020b); however, nearly 80% of the teacher workforce during the 2017-18 school year identified as White, mainly women (Loewus, 2017). Consequently, the percentage of Black teachers is just 6.7% (United States Department of Education, 2020a), creating a 9% parity gap between Black teachers and students. Furthermore, data notes the lack of parity between students of color and their same-race and ethnicity teachers is most prevalent for Black and Latinx students. During the 2017-18 school year, for example, Black students represented 15% of all students; however, Black teachers represented just 6.7% of the total workforce (National Center for Education Statistics, 2020b).

Since the passing of *Brown,* several prominent scholars have noted the lasting negative impact a significant loss in the percentage of Black teachers has had on Black students (Hudson and Holmes, 1994). According to noted scholar Vanessa Siddle Walker, prior to *Brown*, Black teachers "developed rigorous curriculum that challenged and inspired [Black students].... educators taught them that they had the same inner resources and potential as any human being" (Long, 2020). Thus, understanding why there is a lack of parity between teachers of color and their same-race students is essential given the mounting literature explicating the academic and non-academic benefits of same-race matching between teachers and students, notably Black teachers and students. Research notes that students of all races have higher perceptions of Black and Latino teachers and that Black teachers have stronger *connections* with and higher *expectations* for their same-race students both in and outside of the classroom. According to EdTrust (2016), Black teachers are considered role models, parental figures, and advocates for their same-race students, characteristics that require *connecting* with students through relationship building. In addition, Black teachers are also "warm demanders" who have higher *expectations* for students, using established *connections* with students to create structured classroom discipline (Evans, 2017; Gottfried et al., 2021). Finally, Black teachers are also culturally sensitive through their actions and teaching practices (Egalite & Kisida, 2016) and acknowledge the necessity of going "above and beyond if their students [are] to succeed" (Duncan, 2019, p. 206).

For Black students, the benefits of having a same-race teacher are both academic and non-academic. As a result of their Black teachers' higher expectations, Black students

have higher achievement outcomes in and outside of the classroom. These outcomes include a decrease in the possibility of being referred to disability or special education services. According to a Tennessee study using STAR data, Black student performance in mathematics and reading increased when assigned to a Black teacher (Dee, 2004). In addition, improvements in social-emotional learning (Gottfried et al., 2019; Wright et al., 2017), decreases in chronic absenteeism (Carver-Thomas, 2018), declines in school drop-outs, and an increase in aspiring to attend college (Clotfelter et al., 2007; Goldhaber & Hansen, 2010) were also positive outcomes. When assigned a Black teacher, these findings were even more significant for Black boys, even those from low-income families (Gershenson et al., 2017).

Consequently, for Black students in general and Black male students specifically, overidentification into disability or special education services is standard (Ford and Russo, 2016). Despite mixed findings, most research focuses on the disproportionate referring of Black students into disability and special education services. Though some scholars argue this is due to misidentification (Sullivan and Osher, 2019), Proctor et al. (2012) found that teachers' biases play a part in special education placement and services. Steward (2016) also found that White teachers are less likely to understand the impact of disproportionate or ill-advised IEP referrals on students of color, specifically Black males. Fortunate are the findings that teachers of color are less likely to unnecessarily assign students of color to these services (Fish, 2019).

According to data, Black teachers are also less likely to punish Black students who were disproportionately suspended or expelled following the mass exodus of Black

5

teachers following the *Brown* decision. From in-school infractions to out-of-school suspensions and expulsions, African American students, for decades, were more likely than their White peers to be punished for similar misbehaviors. For example, a 1974 Department of Health, Education and Welfare (HEW) survey of disciplinary actions in 2,908 school systems showed that Black students were suspended from schools throughout the country at twice the rate of Whites making up 42% of all suspensions and 37% percent of all expulsions (Jones, 1979). Fortunately, recent data notes that Black teachers are less likely to suspend or expel Black students (Lindsay & Hart, 2017; Wright, 2015). This finding is significant given that Black males are more likely to be suspended when taught by a White teacher (Holt & Gershenson, 2015), and Black students are more likely to be punished (Skiba and Rausch, 2006), especially students in Southern schools (Green & Wright, 1991; Smith & Harper, 2015; United States Department of Education, 2018; United States Government Accountability Office, 2018).

Despite mounting research on Black teachers' positive impact on students of all races (Carver-Thomas, 2018) and one study finding students of all backgrounds prefer Black and Latinx teachers (Cherng & Halpin, 2016), recruitment and retention seem to be two significant challenges for the teaching profession and its Black members. Black teachers, specifically Black (and Hispanic) men, are more likely than any other demographic group to leave the teacher workforce (Ingersoll et al., 2017). Coincidently, attrition patterns are similar for educator preparation providers (EPPs), where Black enrollment in teacher preparation programs - both alternative and traditional - has declined by over 25% since 2010. Additionally, 13 states saw decreases in Black enrollment within teacher

6

preparation programs (Partelow, 2019). These data question the role of the beginning of

the teacher pipeline and the need for assessing possible barriers teacher preparation may

introduce for Black pre-service teachers. Although research has pointed to autonomy,

school conditions, or lack of career advancement opportunities (Conner, 2011; Ingersoll

& May, 2011; Ingersoll et al., 2017) as causes of Black teacher attrition, few have

assessed the possible barriers of Black pre-service attrition.

Research Questions

Like becoming a doctor or lawyer, prospective teachers must complete training to

become official within the profession. The entities tasked with training future teachers are

called Educator Provider Programs (EPPs), of which alternative and traditional programs

exist. Overall, EPPs are complex organizations tasked with providing future teachers with

a plethora of necessary skills, including but not limited to an introduction into the

profession, pedagogical skills, coursework, licensure requirements, and licensure exams

alongside meeting additional accreditation requirements. Despite the vast differences

between programs and their effectiveness (Boyd et al., 2009; Goldhaber et al., 2013;

Henry et al., 2013; Ronfeldt & Reininger 2012), most EPPs reach their goals through

coursework, field experiences, and licensure exams.

Research Question #1. *How do the primary components of the teacher*

preparation process serve as barriers to entry for Black candidates? As stated earlier,

EPPs are tasked with preparing future teachers and exist in two primary forms:

alternative or traditional. Noteworthy is the finding that traditional and alternative programs differ vastly in how they train future teachers. First, while traditional pre-service teachers complete subject-matter content knowledge, pedagogy, educational foundations, and technology courses (Preston, 2017), alternative programs tend to have few content or subject-matter knowledge course requirements (Zeichner & Schulte, 2001). Furthermore, White teacher educators are the majority of faculty (Ladson-Billings, 2001). Second, despite field experience (student teaching), observations, and mentorship opportunities are known to be invaluable experiences during the teacher training process (Janikula, 2017), limited options for each of these three experiences are offered in many alternative certification programs (Ronfeldt, 2012, 2015; Ronfeldt & Reininger, 2012; Ronfeldt et al., 2014; Walsh & Jacobs, 2007).

Research Question #2. What is the relationship between a licensure exam policy change and the Black teacher workforce in Arkansas? Despite EPPs knowledge of required licensure exams on the onset, few alternative or traditional program adequately prepare their candidates for the exams. Furthermore, despite the alleged racist history (Baker, 1999; C.K., 2019; Fultz, 2004; Hooker, 1971; Will, 2019) and biased history (Anastasi, 1988; Bennett et al., 2006; NRC, 1999; Petchauer, 2018) of the exams in addition to the daunting costs for low-income students (Nathenson et al., 2019), licensure exams continue to be a required component of EPP completion and a significant barrier for prospective Black teachers.

Rationale

Several motivating factors lay the foundation for this study: First, Black teachers are more likely than any other demographic group to enroll in alternative programs (National Center on Teacher Quality, 2020) and are disproportionately represented in them. For example, in 2008, 27% of Blacks entered teaching through an alternative certification pathway (Boser, 2011). Black teacher over-representation in alternative programs is essential because data consistently show traditionally trained teachers yield better instructional knowledge across all levels of schooling (Darling-Hammond et al., 2002) except for kindergarten, where just one study found no relationship (Guarino et al., 2006). Second, Black teachers who enroll in alternative programs have less access to rigorous content courses, observations and feedback from mentor teachers, and access to licensure exam preparation through content courses. Moreover, Black test takers are more likely than any other demographic group to take licensure exams, such as ETS' Praxis, multiple times (Dodson, 2007), which has become a costly endeavor and a considerable obstacle to entry into the profession.

As a result of the barriers, fewer potential Black teachers are entering and completing the beginning stage of the teacher pipeline. For example, between 2000 and 2018, the total number of Black teachers increased by just 11,000, less than 1,000 per year, on average. In comparison, other racial and ethnic groups saw much more significant gains. For example, White teachers increased by 279,000, Hispanic teachers grew by 162,000, and Asian teachers increased by 27,000 (National Center for Education Statistics, 2018a). Thus, despite historically mixed scholarship on the causes of Black teachers as a

declining share of the workforce, this study will focus on the low rates of Black teachers entering the workforce with inadequate teacher preparation (Sleeter, 2001) and explicitly look at competency tests (Graham, 1987; Irvine, 1988; Petchauer, 2018) at the forefront of the investigation.

This study will investigate the causes of Black teachers as a declining share in the overall workforce by 1) investigating how the primary mechanisms used to train teachers serve as barriers to entry for Black candidates and 2) measuring the impact of an exam type policy change on Black teachers in Arkansas. First, this study thoroughly synthesizes existing literature regarding various theoretical barriers to entry for Black pre-service teachers: coursework, field experiences, and licensure exams. Next, an assessment of the impact of a policy change using a quasi-experimental methodology will measure the impact of Black test takers in Arkansas following a change in the exam to a more rigorous exam. As noted earlier, the number of Black teachers increased by less than 1,000 per year between 2000 and 2018 in the United States. A similar trend exists in Arkansas, where the number of Black teachers decreased from 1,948 in 1912 (Weeks, 1912) and 3,200 in 1960 (Patterson, 1981) to 2,477 in 2021, of which 487 of those teachers are not fully licensed (Arkansas Department of Education, 2021a). Consequently, while Black teachers in Arkansas made up 16% of the workforce in 1912, in 2021, they made up just 8.8% of the total workforce. Hence, Arkansas is an excellent fit for a case study of these issues.

Definition of Terms

Research on teacher preparation includes terms that often carry multiple meanings. The use of these terms interchangeably can be misleading and confusing. For this study, the following terms require clarity and further explanation:

1. **African American** or **Black** represent individuals identifying as African American and/or Black. This includes individuals who identify as being of African or Caribbean descent.

2. **Educator Preparation Provider (EPP).** Institutions or organizations that offer teacher preparation programs. Educator preparation providers can be Institutions of Higher Education (IHEs) offering traditional programs, IHEs offering Alternative programs, or organizations not based at IHEs offering Alternative programs. Teacher Preparation Programs and Educator Preparation Providers (EPPs) are one in the same and used interchangeably in this report.

3. An **Alternative Educator Preparation Provider** program is a post-baccalaureate preparation program designed for individuals seeking licensure as a teacher whose undergraduate, or post-baccalaureate degree is not in educator preparation.

4. A **Traditional Educator Preparation Provider** program is an undergraduate or graduate program of study at an IHE that prepares candidates for licensure as a teacher (or other school professional) and includes a supervised clinical experience (student teaching).

5. **Candidates**, **test-takers** and **pre-service teachers** are used interchangeably within this study; however, some test takers are current teachers who have received an exception or waiver to begin teaching with the agreement that they will take and pass their licensure exams (or meet other licensure requirements) during the duration of the exception or waiver. Essentially, test takers are not necessarily teachers in this study.

6. An EPP **candidate** refers to an individual who has been admitted into an educator preparation provider program. An EPP **completer** refers to an individual who has met all the requirements of a state-approved educator preparation provider program. Program completers include all those who are documented as having met such requirements. Documentation may take the form of a degree, institutional certificate, program credential, transcript, or other written proof of having met the program's requirements.

7. **Exam** and **test** will be used interchangeably to describe any licensure exam mentioned in the study. Licensure examinations are any exams taken by educator candidates before entering the teaching profession (required by many states, including Arkansas) as part of the licensing process.

8. **Licensure** and **certification** are often used interchangeably. Although licensure refers to receiving a legal authority to practice a profession within a designated scope of practice, certification is usually a voluntary process despite being required or mandatory for some occupations. For this study, both terms may be

used interchangeably to refer to test takers who have completed all requirements of becoming a teacher including the passing of licensure exams.

Summary

Legal actions and research regarding the accuracy, legitimacy, reliability, and validity of teacher licensure exams are mixed, thus legislation nor legal action is likely to admonish licensure exams in the near or far future. However, given the past and present national calls for a more diverse teacher workforce, this study may influence policy and practice on the urgency of acknowledging licensure exams as possible barriers-to-entry in the teacher preparation process. Recommendations for improving recruitment, preparation, and retention efforts of Black teachers with adequate licensure exams preparation will be discussed.

CHAPTER 2: LITERATURE REVIEW

Teacher Preparation as a Gateway and Barrier

The teaching workforce is large. A vast majority, roughly 3.5 million, of America's teachers serve in traditional public schools. An additional 509,000 serve in private schools (National Center for Education Statistics, 2018b), and just 115,600 (Goldring et al., 2013) serve in charter schools. Similar to the requirements necessary to become a doctor or lawyer, prospective teachers must complete training to become official within the profession. Based upon the certifying state, requirements for entry into teaching may differ slightly for teachers serving in traditional public schools as opposed to those serving in charter or private schools. However, for most teachers, entering the profession requires completing one of the several thousand programs offered by Educator Preparation Providers (EPPs), nationally recognized organizations tasked with training teachers. According to the 2020 Title II report (covering the school year 2018-2019), a body of data analyzing all EPPs, 2,177[2] providers trained 560,500[3] candidates enrolled in one of the 25,033 traditional or alternative programs. The following is an overview of American teacher preparation.

Providers. In the United States, prospective teachers are trained by enrolling in one of the 25,033 EPP programs, each of which is hosted by one of the 2,172 providers. Identifying as either alternative or traditional, research indicates programs can vary

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[2] The Title II landing page has 2,172 as the total number of providers; however, the raw data includes 2,177. The latter was used in calculating table data.
[3] The Title II landing page has 559,335 as the total number of candidates; however, the raw data includes 560,500. The latter was used in calculating table data.

dramatically in type, size, effectiveness, and preparation offerings (Boyd et al., 2009;

Goldhaber et al., 2013; Henry et al., 2013; Ronfeldt & Reininger, 2012). Of the 2,172

providers, 1,453 identified as traditional, housed at colleges and universities. Of the 719

alternative EPPs, 495 are housed at higher education institutions (e.g., M.A.T. programs),

and the remaining 224 providers are independent of higher education institutions (e.g.,

Relay and Teach for America). While most providers identify as traditional (66.9%), a

growing number of alternative providers make up the remaining 33%, as can be seen in

Table 1. Interestingly, a disproportionate percentage, nearly 40%, of providers are located

in the Southern region[4] of the United States.

Table 1 Education Preparation Providers in the US and the South by Type

	In the United States	In the South (# and %)
Total Number of Providers	2,177	857 (39.37%)
Alternative IHE	495 (22.73%)	219 (25.55%)
Alternative Non-IHE	224 (10.28%)	142 (16.56%)
Alternative Total	719 (33.02%)	361 (42.12%)
Traditional	1,458 (66.97%)	496 (57.87%)

Despite making up less than 1% of all providers, the top ten providers trained nearly 20%

(108,644) of all candidates, as highlighted in Table 2. Specifically, the Texas-based A+

Texas Teachers program was solely responsible for training 1% of all future teachers in

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[4] Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina,
Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia (UNITED
STATES Census, 2010)

the United States. In addition, although these ten providers are located throughout the

nation, the Midwest is not as well represented as the South, Northeast, and West.

Table 2 Top 10 Education Preparation Providers by Candidate Size

Rank	State	Region	Provider	Provider Type	Number of Candidates
1	Texas	South	A+ Texas Teachers	Alternative, not IHE-based	55,807
2	Arizona	West	Grand Canyon University	Traditional	20,914
3	Arizona	West	University of Phoenix	Traditional	7,028
4	North Carolina	South	North Carolina RALCs	Alternative, not IHE-based	5,870
5	Illinois	Midwest	Illinois State University	Traditional	3,698
6	California	West	National University	Traditional	3,221
7	New York	Northeast	CUNY Hunter College	Traditional	3,191
8	Washington	West	Western Governors University	Traditional	3,071
9	Florida	South	District Alternative Certification	Alternative, not IHE-based	2,955
10	New York	Northeast	A+ Texas Teachers	Traditional	2,889

Candidates. Individuals entering EPPs to become teachers are referred to as candidates. During the 2018-19 school year, over 560,000 teacher candidates enrolled in various EPPs to begin the process of becoming a teacher. Geographically, four (4) states trained the largest number of candidates. Specifically, 39% of all candidates were enrolled in EPP programs based in either Arizona, California, New York, or Texas. Notably, the South is home to the largest number of candidates for each of the three EPPs types, as can be seen in Table 3.

Table 3 Education Preparation Provider Candidate Enrollment by Region and Type

	United States	**Northeast**	**Midwest**	**South**	**West**	**Territories**
Total	560,500	104,103 (18.6%)	108,863 (19.4%)	**217,248 (38.8%)**	116,312 (20.8%)	13,974 (2.5%)
Traditional	417,011 (74.4%)	92,840 (22.3%)	100,633 (24.1%)	**115,031 (27.6%)**	98,388 (23.6%)	10,119 (2.4%)
Alternative	143,489 (25.6%)	11,263 (7.9%)	8,230 (5.8%)	**102,217 (71.4%)**	17,924 (12.5%)	3,855 (2.7%)
Alternative IHE	48,968 (8.7%)	8,790 (18.0%)	5,539 (11.3%)	**17,938 (36.6%)**	12,846 (26.2%)	3,855 (7.9%)
Alternative Non-IHE	94,521 (16.9%)	2,473 (2.6%)	2,691 (2.9%)	**84,279 (89.2%)**	5,078 (5.4%)	0

The gender make-up of EPP candidates mirrored that of the national workforce with 74% (411,074) of candidates identifying as female and 23% (127,936) identifying as male, as indicated in Table 4. Unfortunately, despite an increase on the significance of males teachers of color specific calls from policy makers and education stakeholders for an increase in their presence in schools (United States Department of Education, 2011), Title II data was not disaggregated by gender and race collectively. Thus, the

intersectionality of gender and race in the teacher workforce is unknown. the number and

percentage of male teachers of color, for example, is unknown. Racially, teacher

candidates were predominantly White, with 61.4% (343, 309) of enrolled candidates

identifying with this group. Hispanic candidates enrolled made up 14.6% (81,576) and

Black candidates made up 9.6% (53,674). Individuals identifying as two or more races

were 2.7% (14,923) of all candidates. American Indian or Alaskan Native made up 0.6%

(3,246) of candidates, and Native Hawaiian or other Pacific Islanders were just 0.4%

(2,047) of all enrolled candidates. Nearly 10% of candidates did not select a race or

ethnicity. Notable is the finding that Black candidates are the least likely to be enrolled in

traditional programs and the most likely to be enrolled in alternative programs. This

finding is pertinent to the empirical component of this study.

Table 4 EPP Candidate Enrollment by Program Type, Gender and Race

	Total (# and %)	Traditional (# and %)	Alternative (# and %)
Total	560,500	417,011 (74.4%)	143,489 (25.6%)
Female	411,791 (74%)	320,766 (77.9%)	91,025 (22.1%)
Male	128,384 (23%)	86,379 (67.3%)	42,005 (32.7%)
White	343,313 (61.3%)	277,378 (80.8%)	65,935 (19.2%)
Hispanic	81,756 (14.6%)	55,239 (67.6%)	26,517 (32.4%)
Black	**53,675 (9.6%)**	**28,431 (53%)**	**25,244 (47%)**
Asian	16,673 (3%)	12,263 (73.6%)	4,410 (26.4%)
Two or More Races	14,942 (2.7%)	11,713 (78.4%)	3,229 (21.6%)
American Indian/ Alaskan Native	3,246 (0.6%)	2,493 (76.8%)	753 (23.2%)
Native Hawaiian/ Pacific Islander	3,074 (0.5%)	2,611 (84.9%)	463 (15.1%)

Completers. Candidates completing all components of EPPs requirements are referred to as completers. The number of completers during the 2018-19 school year was 150,200. As can be seen in Table 5, the number of alternative and traditional completers declined steadily between 2008 and 2018. Notably, traditional programs saw the most significant declines in their number of completers. Arizona, California, Texas, and New York, the four states responsible for training 39% of all candidates, also trained 34% of all completers. Interestingly, there is a significant gap in the number of candidates (560,500) and completers (150,200), raising concerns regarding the EPP process and possible causes of vastly lower completer rates.

Table 5 10-Year EPP Completer Data by Program Type, 2008-2019

	2008-09	2018-19	Percent Change
Total Completers	221,439	150,200	-32%
Traditional	178,777	116,019	-35%
Alternative Total	42,662	34,181	-20%
Alternative IHE	17,870	15,865	-11%
Alternative Non-IHE	24,792	18,316	-26%

Despite the differences between and within programs and the diversity of their effectiveness (Boyd et al., 2009; Goldhaber et al., 2013; Henry et al., 2013; Ronfeldt & Reininger, 2012), most EPPs reach their goals through **coursework, field experiences, and licensure exams**. Although these seemingly foundational mechanisms may be

identified as the minimum requirements necessary for becoming a high-quality teacher, aspects of these very mechanisms can serve as barriers to entry into and out of EPPs for particular groups of candidates. Moreover, for Black candidates who are least likely to complete EPPs, the teacher preparation pipeline as a whole may include barriers that make the completion process especially burdensome.

Unpacking Education Preparation Provider Programs

EPPs are complex organizations tasked with providing candidates with the necessary skills to become high-quality educators. Said skills include but are not limited to an introduction into the profession, pedagogical skills, coursework, and licensure exams in addition to meeting additional accreditation requirements set by national or state-based accreditation organizations.

A Brief History

The qualifications of a high-quality teacher have been a topic of debate for decades. Several studies concluded "failure of school districts, states, and teacher preparation programs to provide all students with high-quality teachers" to be *the* problem and pushed for "policies that produce[d] and distribute[d] more high-quality teachers" (Cochran-Smith, 2015, p. 14). Thus, the need for stronger EPPs became a significant reform effort starting with releasing the Nation at Risk (NAR) report in 1983. Consequently, NAR shook the nation when it exposed vast challenges facing America's public schools. Despite various economic and social challenges facing the nation's

education system, NAR "unfairly scapegoated educators" (Mehta, 2013, p. 25) and thus recommendations for teaching teachers how to teach (Lambert & Ball, 1999) by revising the traditional way of preparation (Cochran-Smith, 2015) surfaced. However, resources were funneled into immediate, quick-fix solutions instead of recommended long-term solutions for improving assumed poor teacher quality. According to Weiss (2013), "the vast majority of alternative certification money and effort was invested in the recruitment of young, largely uncredentialed novices to teach in disadvantaged schools" (p. 63-64) with programs such as Teach for America, a teacher recruitment initiative that likened teaching to a "paid internship" (Labaree, 2010, p. 53).

Nearly two decades after NAR, little progress was made. Consequently, bi-partisan legislators created and passed the No Child Left Behind (NCLB) Act of 2001 (NCLB; 20 U.S.C. § 6301) to create a high-quality teacher workforce. Unlike the quick fixes of the 1990s, NCLB, called for every teacher to be highly-qualified which required teachers to pass licensure exams, in many cases, for the first time (NCLB, 2001). Notably, this was in contrast to national calls from Schools of Education and teacher educators to increase focus on core teaching techniques such as classroom management and the pedagogical delivery of content (Ball & McDiarmid, 1990; Baumert et al., 2010; Hill et al., 2005; Voss et al., 2011). Nonetheless, despite opposition from the two largest teacher union groups the American Federation of Teachers and the National Education Association (NCLB, 2008; Rudalevige, 2003; Weaver, 2007; Weingarten, 2015), assumed fundamental changes were introduced and implemented through NBLC.

21

Consequently, NCLB laid the foundation for a new wave of reform efforts that have shaped present-day teacher education policy and EPPs requirements.

Teacher Preparation Today

According to the most recent Title II data, roughly 560,500 prospective teachers were enrolled in over 26,345 programs offered by 2,172 providers throughout the country (United States Department of Education, 2020c) to gain the necessary skills to become high-quality educators. Such skills include an introduction into the profession, coursework completion, pedagogical skills, and preparation for licensure exams. For many candidates, three primary mechanisms lead to mastery of these required skills: **coursework, field experiences, and licensure exams**.

Coursework. Coursework, a vital component of teacher training, serves as the foundation for which all prospective teachers gain the knowledge and skills needed to succeed in traditional and alternative programs (Humphrey & Wechsler, 2007). Coursework for pre-service teachers can include subject-matter content knowledge courses that focus on the content teachers will teach and are expected to have mastered upon entry into the classroom (Jang and Horn, 2017). In addition, pedagogy-focused courses are often required within EPP curriculums. Additional courses can include but are not limited to educational foundations, the history of education, or those related to the incorporation of technology in the classroom (Preston, 2017).

Furthermore, while some EPPs also require courses that focus on diverse learners, students with special needs or disabilities, and classroom management, to name a few,

others do not. Research shows vast variation between and within alternative and traditional programs (Cochran-Smith & Villegas, 2015; Humphrey & Wechsler, 2007), forming an uneven experience for participants across the country. For example, while traditional candidates are likely to take 40 or more content and pedagogy courses, most alternative candidates complete 15 or fewer courses or modules focusing primarily on pedagogical techniques.

Although some research on the impact of coursework is mixed (Allen, 2003; Harris & Sass, 2011; Henry et al., 2013), several studies have found that coursework has a positive impact on candidate preparedness in cultural and linguistic diversity (Whitaker & Valtierra, 2018), subject-matter efficacy (King & Wiseman, 2001) and knowledge of classroom management strategies (O'Neill & Stephenson, 2021). However, the in-classroom experience itself varies. For example, recent data show that some alternative programs offer no in-person instruction, syllabi, or instructors. Instead, candidates complete online modules at their own pace with clickable PowerPoints (Partelow, 2019). Consequently, there is growing concern regarding such programs and their inability to produce completers despite their large number of candidates (Robinson, 2018).

Field Experience. Data show a significant facet of the preparation experience is the on-the-job component of training that allows an inductee to directly connect with his or her tasks (Becker, 1972; Rivera, 2012). For traditional candidates, the completion of coursework signifies the start of field experience, often referred to as student teaching. For most candidates, this process is a means of gradually assuming the role of "lead teacher" with the support and supervision of a seasoned educator, also referred to as a

23

mentor (or cooperating) teacher. It is argued that this hands-on student teaching experience is essential for developing the best instructional practices for candidates (Bastian et al., 2021). Traditionally-trained candidates, for example, often receive opportunities to learn how to teach diverse learners during this process.

Field experiences can also include required observations from a university-based faculty from the EPP for which the student is enrolled. This process allows for frequent feedback and opportunities to grow as an emerging educator through constant evaluation of best practices. Though some studies found the actual benefits of field experiences to be mixed (Ng et al., 2018; Valencia et al., 2009; Youngs & Qian, 2013), most pre-service teachers rate observations and feedback as the most valuable component of the process (Guyton & McIntyre, 1990; NCATE, 2010; Van Zandt, 1998).

Additionally, the field experience with feedback from a seasoned mentor teacher is also upheld as essential. Research finds mentor teachers have measurable influence on their student teachers (Hollingsworth, 1989; Lortie, 1975), with one scholar describing them as "the most relevant variable operating in student teaching" (Yee, 1969, p. 327). According to data, the relationship between a traditionally trained pre-service teacher and their mentor teacher is essential to the candidates' success (or failure) (Conner & Killmer, 1995; Ferber & Nillas, 2010; Guyton, 1989; Janikula, 2017). However, for candidates enrolled in alternative programs, the opportunity to participate in field experiences is not as common (Ronfeldt et al., 2014), with most alternative candidates serving as the lead teacher while also meeting other EPP requirements (e.g., coursework and licensure exams).

24

Licensure Exams. As early as the late 1600s, education officials called for a teacher licensure exam similar to those used to prepare doctors or lawyers. These calls remained over the centuries and paved the way for the establishment of the Educational Testing Service (ETS) and its National Teacher Examination (NTE) around 1940 (ETS, n.d.). According to ETS, the NTE "stressed basic intellectual and communication skills, cultural and contemporary background, and professional information" (Wilson, 1985, p. 1). Though some states have opted to create their own licensure exam, the ETS's Praxis exam is the most widely used in the United States. As it currently stands, 45 states, the District of Columbia, and several territories and national organizations and agencies require at least one Praxis exam for teacher, administration, and professional education licensures (i.e., Speech Pathologist or Reading Specialist) (ETS, n.d.).

Although most Praxis exams are formatted as multiple-choice exams, with some requiring written responses, most are multiple-choice despite research noting that such formatted licensure exams are not good indicators of teacher effectiveness nor preparation (Darling-Hammond, 2000b). Nonetheless, as with any professional exam, rigor depends on exam content and test taker readiness. According to ETS, exam rigor and content are based upon "the level of knowledge for a test taker to be considered minimally qualified for independent, beginning practice" (Tannenbaum, 2011). Additionally, pass scores are based upon what states deems novice teachers should know (United States Department of Education, 2016).

Consequently, the contentious national debate around licensure exams has resulted in new, alternative, performance-based exams to serve as stronger evaluators of

teacher quality (Carver-Thomas, 2018). For example, Stanford University and the American Association of Colleges for Teacher Education (AACTE) formed a partnership to "develop and share edTPA in order to give teacher preparation programs access to a multiple-measure assessment system aligned to state and national standards" (edTPA, n.d.). Interestingly, ETS also created a performance-based assessment similar to edTPA. Nonetheless, despite the type of program candidates enroll in – traditional or alternative – or the type of exam required (e.g., the ETS Praxis, Pearson, edTPA), all candidates are required to take and pass a licensure exam in order to become a teacher of record with an official license to show they have mastered the content and pedagogical skills required of the profession.

Exploring Key Differences: Alternative versus Traditional Preparation Programs

EPPs typically fall within two types: alternative or traditional (NRC, 2010). Although the number of traditionally trained candidates far outpace those enrolled in alternative programs, the number of alternative programs preparing future teachers has steadily increased. The drive for alternative certification began in the 1980s and grew during the 1990s, both in program and candidate numbers. For example, the number of states with state-run alternative programs increased from 8 to 43 between 1983 and 2003 (National Center for Alternative Certification, 2004). Additionally, the number of alternatively trained teachers increased roughly fivefold, with 39 percent of teachers entering the profession through alternative programs between 2004 and 2009 (Feistritzer, 2011; Henry et al., 2014). These data are significant considering the varying quality

between traditional and alternative EPPs and the distinctions between their candidate demographics. As shown in Table 6, traditional and alternative programs vary in location, candidate and completer size, and gender.

Table 6 Educator Preparation Provider Characteristics by Program Type

	Traditional	Alternative
Location	22-27% Per Region	71.4% Southern Region
Size (Average # of Candidates)	286	199
Candidates Enrolled	417,011 (74%)	143,489 (26%)
Completers	116,019 (77%)	34,181 (23%)
Female Candidates	320,766 (78%)	91,025 (22%)
Male Candidates	86,379 (67%)	42,005 (33%)

While traditional programs tend to accommodate undergraduate college students who select education as a major (e.g., University of Central Arkansas), alternative programs often cater to individuals who have already earned a college degree (the University of Arkansas at Monticello M.A.T.), identify as non-traditional teachers (e.g., Teach for America), or are seeking a career change (e.g., Arkansas Teacher Corp). Each program type differs in structure, offerings, requirements, and implementation by institution, state, or federal requirements. While traditional programs require extensive coursework and field experiences, alternative programs have fewer course requirements and are less likely to require or include field experiences, including mentor teacher support, observations, or feedback, as highlighted in Table 7.

Table 7 Arkansas Educator Preparation Provider Examples by Program Type

	Traditional (Sample K-6)	Alternative IHE (Sample M.A.T)	Alternative Non-IHE (Sample Alternative)
General Information	K-6 Checklist	K-6 Checklist	
Diversity	13.6% Candidates of Color	18% Candidates of Color	44% Candidates of Color
Course Requirements	123 Hours	30 Hours	7-week summer institute[5]
- Content Courses	54 Hours	0 Hours	0 Hours
- Pedagogy Courses	60 Hours	24 Hours	6 Courses
Student Teaching	12 hours	6 Hours	130 PD Hours
Mentor (or Cooperating) Teacher/Observations	Yes (Handbook)	No	Yes (Summer)
Licensure Exams	Praxis, Pearson	Praxis, Pearson	Praxis, Pearson
- Required for Entry	ACT and Praxis Core I (Requirement removed May 2021)	N/A	N/A
- Required for Completion	Praxis II 5001 (5002-5005) Pearson's Foundations of Reading 190 Principles of Learning and Teaching (5622)	Praxis II 5001 (5002-5005) Pearson's Foundations of Reading 190 Principles of Learning and Teaching (5622)	Praxis II 5001 (5002-5005)[6] Pearson's Foundations of Reading 190 Principles of Learning and Teaching (5622)

The causes and implications of such diverse preparation offerings are plenty, and leaders

in the field have yet to formulate a centralized system. This finding is significant given

the evidence suggesting the quality of EPPs can impact teacher-quality rates in the field

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[5] Courses: Planning, Pedagogy, Classroom Skills, DEI, Racial Affinity Spaces, and Emotional Resilience.
[6] One of the four exams must be passed during the summer institute.

(Sutcher et al., 2016) and help or hinder national efforts to diversify the teacher workforce, a lofty goal given Black candidates, for example, are the least likely to complete EPPs despite program type.

Black EPP Candidates

One group disproportionately impacted by the EPP process is Black candidates, the focus of this study. According to EPP research, Black candidates are twice as likely to enter the field via alternative programs than any other demographic group (National Center on Teacher Quality, 2020). Of the 53,675 Black candidates trained in 2018-19, 47% (25,244) enrolled in alternative programs. These findings are even more pronounced after disaggregating data by region and program type. For example, 63% (33,802) of all Black candidates were trained in the South and 66% (21,727) of those candidates enrolled in alternative programs, as indicated in Tables 8 and 9.

Table 8 Characteristics of Black EPP Candidates in the United States

	Total (# and %)
All Candidates	560,500
Black Candidates	53,675 (9.60%)
Black Candidates (South, 16 States)	33,802 (62.98%)
Black Candidates (Alternative EPPs)	25,244 (47.04%)
Black Candidates (Traditional EPPs)	28,431 (52.97%)

According to data, 75% of all Black candidates were enrolled in EPP programs in the South and Arizona. Interestingly, 12% of all Black EPP candidates in America were trained in the state of Arizona, a West region state, despite the state's Black population

being just 5%. This is due, in part, to Arizona's infamous online traditional programs

Grand Canyon University and the University of Phoenix. Specifically, of the 6,178 Black

candidates trained in Arizona, 5,923 (96%) are enrolled in either Grand Canyon

University or the University of Phoenix's traditional programs. Thus, 11% of all Black

candidates were enrolled in just two of America's 25,033 EPP programs. Consequently,

these data are concerning considering the differences between alternative, traditional in-

person, and traditional online degree programs.

Table 9 Characteristics of Black EPP Candidates in the South

	Total (# and %)
All Candidates in the South	217,248
Black Candidates in the South	33,802 (15.23%)
Black Candidates in the South (Alternative EPPs)	**21,727 (65.68%)**
Black Candidates in the South (Traditional EPPs)	11,355 (34.32%)

In Arkansas, a Southern state and focus of this study, EPP Black candidate data trends

similar to Black candidates throughout the region and nation. For example, of the states'

418 Black candidates, 56% (238) were enrolled in alternative programs, as seen in Table

10.

Table 10 Characteristics of Black EPP Candidates in Arkansas

	Total (# and %)
All Candidates in Arkansas	5,506
Black Candidates in Arkansas	418 (7.59%)
Black Candidates in Arkansas (Alternative EPPs)	**238 (56.94%)**
Black Candidates in Arkansas (Traditional EPPs)	180 (43.06%)

Furthermore, the number of Black EPP candidates in Arkansas enrolled in traditional programs has declined steadily over the past five years, whereas the number of candidates trained in alternative programs has increased steadily though at a slower rate, as described in the next chapter (see Figure 2). Therefore, understanding Black candidate enrollment in alternative programs is essential to identifying the barriers to entry and completion for Black EPP candidates as described throughout this study.

Defining Barriers in EPPs for Black Candidates

Like many professions, becoming a teacher of record requires surpassing barriers to entry. For EPPs, barriers also exist within the three primary mechanisms mentioned throughout the study: coursework, fieldwork, and licensure exams. Licensure exams, in particular, have grown to become the final gatekeeper for certification within the profession. Though these three mechanisms are presumed to be necessary and foundational, they tend to be more burdensome for particular candidates, specifically Black candidates who, according to research, already face several barriers in everyday life, such as stereotype threat (Steele & Aronson, 1995), racism, and other forms of discrimination (Steele, 1997). Moreover, these same everyday barriers are often compounded during the EPP process where Black candidates are known to "superficially attempt to engage with colleagues" (Bristol & Goings, 2019, p. 58) as a means of overcoming feelings of isolation or racial microaggressions often prevalent in teacher preparation programs (Scott & Rodriquez, 2014). The following is an assessment of

31

specific EPP barriers for Black candidates in coursework, field experiences, and licensure exams.

Coursework as a Barrier

For EPP candidates, coursework serves as a vital component of the teacher training process, an opportunity to gain the knowledge and skills needed to succeed as an educator (Humphrey & Wechsler, 2007). Courses offered include subject-matter content knowledge (Jang and Horn, 2017), pedagogy-focused, and in some cases, more diverse options such as the history of education or technology in the classroom (Preston, 2017). Despite research showing vast variation between and within alternative and traditional programs (Cochran-Smith & Villegas, 2015; Humphrey & Wechsler, 2007), it is expected that all candidates complete some level of coursework during the EPP process. Unfortunately, the variation between and within programs has resulted in an uneven playing field for candidates. The following is an overview of how coursework serves as a barrier to entry for Black EPP candidates.

Barrier 1: Inadequate K-12 and College Coursework

For EPP candidates, rigorous and well-delivered coursework is necessary for completing program requirements, especially licensure exams. This is especially true for Black candidates who, according to data, are more likely to enroll in college with lower ACT and SAT scores (Toldson & McGee, 2014), likely due to long-standing K-12 inequalities (Wright, 2019) and inequitable access to advanced placement (A.P.) courses

(Patrick et al., 2020; United States Department of Education, 2014). Additionally, data show a disproportionate percentage of Black college students are assigned to remedial courses and the least likely to advance out of such courses (Hanford, 2016; Vandal, 2016), which widens the knowledge gap upon entry into EPPs. Moreover, even when Black candidates enter college prepared for the rigorous requirements of EPPs, research shows that most traditional EPP course content does not align with content found on teacher licensure exams (National Center on Teacher Quality, 2019b). Thus, for many Black EPP candidates, the content knowledge gap developed during K-12 is rarely closed during college content courses or the EPP process.

Additionally, Black pre-service and novice teachers who are more likely to serve in urban, public schools with higher numbers of low-income, low-achieving Black students (Connor, 2011) are more likely to remain in those schools (Jonsson, 2003; Scafidia et al., 2007) than their White counterparts. Thus, coursework adequately preparing them for such a teaching environment is necessary. Unfortunately, few EPPs adequately prepare candidates for future working conditions through rigorous, adequately aligned coursework. For example, one study found that while coursework increased perceived preparedness, familiarity, and confidence in using strategies and models regarding classroom management, study participants felt only somewhat prepared and confident in half of the strategies taught (O'Neill & Stephenson, 2012).

Barrier 2: Traditional vs. Alternative Coursework

Each EPP candidate enters the teacher preparation process with a different level of knowledge attainment - content and pedagogy. Thus, additional rigorous coursework is necessary for many candidates to complete all EPP requirements, especially licensure exams, successfully. Unfortunately, course offerings vary drastically by program type. For example, one study found traditionally trained teachers completed a minimum of 275 hours or 92 courses compared to alternatively trained program candidates who completed, on average, just 75 hours or 25 courses (Constantine et al., 2009). Additionally, while traditional pre-service teachers complete subject-matter content knowledge, pedagogy, educational foundations, and technology courses (Preston, 2017), alternative programs tended to have few, if any, content-knowledge course requirements (Zeichner & Schulte, 2001). Furthermore, just 13 states required alternative candidates to demonstrate content knowledge mastery before being admitted into an EPP (National Center on Teacher Quality, 2020). In addition, research showed that even when content courses were offered, most EPP content coursed did not align with the content found on teacher licensure exams (National Center on Teacher Quality, 2019b).

Moreover, given the research showing the positive correlation between college admissions exam performance and coursework on teacher licensure exam performance (Nettles et al., 2011), rigorous coursework within any EPP type is necessary for Black candidates to pass required licensure exams. Thus, for Black candidates, who enter college far behind their counterparts academically (Toldson & McGee, 2014) and take courses misaligned with licensure exam content (National Center on Teacher Quality,

2019b), enrolling in alternative EPP programs (47%) may eliminate the opportunity to close the content knowledge gap obtained during K-12 schooling (Patrick et al., 2020; United States Department of Education, 2014). Furthermore, given that data consistently show traditionally trained teachers yield better instructional knowledge than alternatively trained teachers across all levels of schooling (Darling-Hammond et al., 2002), except kindergarten, where one study found no relationship (Guarino et al., 2006), alternative programs are seemingly an ill-fit for Black EPP candidates.

Barrier 3: Whiteness

At the college level, teacher educators are even more White and female than within the K-12 profession. Scholars posit that 88% of teacher educators and 80% to 93% of all current teacher education students are White women (Cochran-Smith, 2004; Ladson-Billings, 2001; Picower, 2009). According to one scholar, an "overwhelming presence of Whiteness can be silencing" (Sleeter, 2001, p. 101). Furthermore, scholars argue a lack of focus on culturally salient instructional strategies (Sleeter, 2012) for Black EPP candidates, especially those already facing challenges attending Predominantly White Institutions (PWIs) (Feagin & Sikes, 1995), can be startling.

These feelings are especially pronounced for Black men, who make up just 1.81% of the teaching profession (Lewis & Toldson, 2013) and often find themselves "superficially attempting to engage with colleagues" (Bristol & Goings, 2019, p. 58) as a means of overcoming feelings of isolation or racial microaggressions often prevalent in EPPs (Scott & Rodriquez, 2014). In addition, Black men are often forced to challenge the stereotypes and status quo that often visualize them as disciplinarians rather than experts

35

on pedagogy (Brockenbrough, 2015) during and after the EPP process. Furthermore, despite research noting mentoring as an essential ingredient to the success of Black candidates (Bristol et al., 2020; Bristol & Goings, 2019; Fant, 2017), White and female-dominated EPPs often lack opportunities for same-race mentorship. Furthermore, for Black men whose post-EPP experiences can often be influenced by strained interactions with White EPP teacher educators (Bryan, 2017; Goings et al., 2015; Walker, 2020), same-race mentorship can have a profound impact on EPP completion.

Field Experience as a Barrier

Field experience, which encompasses student teaching, observations and feedback from seasoned teachers, school of education officials or principals, and mentorship from veteran teachers, are significant benchmarks of the teacher training experience (Fives et al., 2007). According to data, the most influential employment preparation is the on-the-job component of training that allows the employee to directly connect with his or her tasks (Becker, 1972; Rivera, 2012). Scholars note opportunities to participate in authentic, extended clinical experiences aid in producing high-quality teachers (Hammerness et al., 2005). In addition, student teaching is known to positively impact candidate efficacy (Housego, 1992) and is referred to as the bedrock of the transition from "student" to "teacher" (Choy et al., 2008).

The field experience also affords candidates an opportunity to learn alongside a seasoned mentor teacher to observe the skills needed to become a successful educator. Research finds mentor teachers have a measurable influence on their student teachers

(Hollingsworth, 1989; Lortie, 1975), and data has found that the relationship between a traditionally trained pre-service teacher and their mentor teacher is essential to the candidates' success (or failure) (Conner & Killmer, 1995; Ferber & Nillas, 2010; Guyton, 1989; Janikula, 2017). Unfortunately, field experience opportunities depend heavily on individual EPPs (Ferber & Nillas, 2010; Ronfeldt, 2012, 2015; Ronfeldt & Reininger, 2012). Thus, for Black candidates who are more likely to enroll in alternative programs that often lack student teaching or mentorship opportunities, access to quality preparation through field experience is not always afforded. The following describes how the lack or absence of field experiences, mentorship, observations, and feedback hinder Black candidates during the EPP process.

Barrier 1: Student Teaching

As noted previously, data show that 47% of Black EPP candidates were trained by alternative certification programs (National Center for Education Statistics, 2020c) that rarely, if ever, offer student teaching opportunities. This same dataset found that at least an additional 11% of Black candidates are enrolled in traditional online EPPs, which may also fail to offer an adequate student teaching opportunity. Additionally, most Black candidates, who receive their training through such programs, do not have an opportunity to serve as student teachers, a significant barrier when considering the correlation between student teaching and future success as an educator (Choy et al., 2008). In addition, while nearly all traditional EPPs supplement coursework with field-based experiences or student teaching opportunities, one study of alternative programs found

that more than half of study participants did not complete practice teaching at all (Ronfeldt et al., 2014). Thus, given the research finding student teaching to be integral to the foundation of high-quality educators, the absence of such opportunities can be detrimental to Black candidates attempting to enter the profession.

Barrier 2: Access to Mentor (or Cooperating) Teachers

While nearly every traditional program requires student teaching to take place with the support of a mentor teacher, a study of 49 alternative programs found that nearly 75% of the programs did not require more than one visit from a mentor teacher per week. In addition, over 50% of alternative programs in the study reported one visit or less per month from a mentor teacher. This data is significant considering the research finding that ample time between mentee and mentor is needed to provide constructive feedback (Hong & Matsko, 2019). Also, research has found that as first-year teachers spent more time with their mentor teacher, their rating of their mentors increased, absences decreased, and student achievement increased both in math and reading (Rockoff, 2008). Unfortunately, as noted previously, data show that 47% of Black EPP candidates were trained by alternative certification programs (National Center for Education Statistics, 2020c). This data point is even higher in the South, where 66% of all Black teachers are trained via alternative programs.

Additionally, many Black teachers who receive their training through such programs lack mentorship, moving directly into the lead teacher role on their first day. Moreover, for Black candidates enrolled in traditional programs likely to assign a mentor

38

teacher, they are unlikely to be paired with a mentor teacher of the same race, a factor research has proven to be beneficial to future teachers (Bristol et al., 2020; Bristol & Goings, 2019; Fant, 2017). According to Watson (2015), Black mentor teachers made up just 10% of the study participants. Thus, for Black candidates, despite program type, access to Black mentor teachers is unlikely, another barrier in the EPP process.

Barrier 3: Observations and Feedback

Although research is mixed on the actual benefits of observations and feedback (Ng et al., 2018; Valencia et al., 2009; Youngs & Qian, 2013), most pre-service teachers rate observations as the most helpful (Guyton & McIntyre, 1990; NCATE, 2010; Van Zandt, 1998). Unfortunately, data show that while traditional programs often offer observation and feedback opportunities that can help candidates strengthen instructional strategies and learn how to teach diverse learners (Jang and Horn, 2017), one study of alternative programs found less than half offered their participants opportunities to observe seasoned teachers. Moreover, even fewer alternative programs allowed an extra observation from the principal during the first year (Walsh & Jacobs, 2007). Thus, for the 47% of all Black candidates and the 66% of those in the South enrolled in alternative programs, opportunities to be observed, observe others, or receive helpful feedback from seasoned professionals within the field are rare. Consequently, Black candidates may lack the necessary skills to complete EPP requirements such as the edTPA, a performance-based final exam, or cumulative observations due to lack of exposure to and feedback

from highly qualified teachers and school officials, significant components within the teacher training experience.

Licensure Exams as Barriers

For decades, education officials have called for a teacher licensure exam similar to those used in other fields (e.g., law, medicine), paving the way for the Educational Testing Service (ETS) and its infamous National Teacher Examination (NTE), now known as the Praxis (ETS, n.d.) which "stressed basic intellectual and communication skills" (Wilson, 1985, p. 1). Today, the ETS's Praxis exam is the most widely used in the United States, offering assessments to candidates in 45 states, the District of Columbia, and several territories and organizations (ETS, n.d.). While most Praxis exams are formatted similarly, another aspect of the testing process is abstract. For example, though some Praxis exams require written responses, most are multiple-choice despite research noting such exams were poor good indicators of teacher effectiveness and preparation (Darling-Hammond, 2000b). Furthermore, according to ETS, exam rigor is based upon the level of knowledge required for a test taker to be considered "minimally qualified" (Tannenbaum, 2011). However, qualifying scores are based upon what states believe beginning teachers need to know (United States Department of Education, 2016). Consequently, a state's qualifying scores can differ drastically, creating an unequal playing field nationally amongst candidates (Shuls, 2016).

Although nearly every traditional program requires students to take licensure exams before being admitted into or completing programs (Roth & Swail, 2000),

alternative programs may not require exams for entry or exit. This finding is significant

given the historical data showing Black test takers are the least likely of all demographic

groups to complete EPPs (United States Department of Education, 2020c) and pass

licensure exams (Nettles et al., 2011; Steinberg et al., 2014; Tyler, 2011). Moreover, this

is especially important in the South, where Black candidates are more likely to be trained

(United States Department of Education, 2020c). Consequently, Black candidates leave

or drop out of alternative programs or complete alternative programs without receiving a

license (United States Department of Education, 2013) which presents additional

challenges when entering the profession despite new performance-based assessments

created to better measure candidate readiness (e.g., edTPA). Unfortunately, they too have

emerged as barriers for Black test-takers. The following is an overview of how licensure

exams pose specific barriers for Black test-takers.

Barrier 1: Increasing Cost

One challenging aspect of licensure exams is the cost. Not only are licensure

exams costly expenditures for states, but many states also take on additional costs when

exams require validation to ensure they are suitable measures of teacher capability

(Flippo, 1986). Specifically, the cost of licensure exams has a particular impact on Black

test-takers, particularly current college students, who, according to research, are more

likely to come from low-income families (Nathenson et al., 2019) and are less likely to

have disposable income to cover the costs of exams. Even worse, Black test takers are

more likely than any other demographic group to take licensure exams, such as the

Praxis, multiple times (Dodson, 2007; Arkansas Department of Education, 2019), a very

costly endeavor. One University in Arkansas HBCU, for example, recently published five years of Praxis performance data showing three Black EPP candidates took exams over a dozen times, spending over two thousand dollars each in exam registration fees (Fletcher, 2020). This same institution graduated hundreds of Black completers in the 60s and 70s. It now graduates less than fifty Black completers each year (Baxter, 1970).

Barrier 2: Bias in Nature

According to the ETS, the NTE "stressed basic intellectual and communication skills, cultural and contemporary background, and professional information" (Wilson, 1985, p. 1). However, scholars have argued that the creation of the NTE was based on an interest in maintaining a "legally defensible way of avoiding faculty desegregation" (Baker, 1999, p. 179), a means to keep Black teachers out of the profession (C.K., 2019; Fultz, 2004; Hooker, 1971; Will, 2019). One White supervisor of Black schools proclaimed the exams were necessary to "determine if the Negro teachers were worthy of salaries equal to those paid to White teachers" (Clark to White, April 23, 1942, NAACP Papers). Consequently, Thurgood Marshall and the National Association for the Advancement of Colored People (NAACP) chose not to fight the exams (Marshall to White, July 28, 1941, NAACP Papers), believing the war for increased salaries was more significant than the fear of Black teachers' failing the NTE (Thomas, 1948).

Despite ETS' long-standing commitment to creating exams that pass a "fairness review" (Dodson, 2007), "free of cultural bias" (ETS, 2019, p. 4), some scholars argue ETS exams are the problem because of their biased nature (Anastasi, 1988; Bennett et al.,

2006; Helms, 2018; NRC, 1999; Petchauer, 2018). This, coupled with Black student struggles with stereotype threat (Steele, 1997; Steele & Aronson, 1995) create a particularly burdensome testing experience for Black test takers. Though ETS argues their exams require "the level of knowledge for a test taker to be considered minimally qualified for independent, beginning practice" (Tannenbaum, 2011), history presents an interesting contrast. In 1967, for example, just 3% of Black and 1% of White pre-service teachers in South Carolina could not pass the required exams. However, after White legislators "increase standards" two years later, 41% of Black and less than 1% of White test takers failed to pass (Daniel, 2004; Strassle, 1985).

Consequently, similar pass rates exist for Black teachers today (National Center on Teacher Quality, 2019a). This, in addition to a 27% decline in Black EPP enrollment over the past ten years (Partelow, 2019) due, in part, to testing requirements required for education majors to enroll in and complete the EPP process (Gitomer et al.,1999; Madkins, 2011; Murnane et al., 2001). According to one Historically Black College and University (HBCU) official, "25 percent and 33 percent of [our] teacher candidates change majors by their junior year because of difficulties with Praxis I" (Dodson, 2007). Furthermore, Black test-takers struggle with licensure exams despite attending more selective schools, having higher GPAs, or parents with more education (Nettles et al., 2011). One study even found that Black test takers with advanced degrees, on average, perform lower than White test-takers who identify as undergraduate freshmen on Praxis I exams (Steinberg et al., 2014, p. 8). As such, scholars have hypothesized low pass rates may be a deterrent for Black students interested in education (McNeal & Lawrence,

2009; Murnane et al., 2001) and a direct cause of the declining number of certified

minority teachers (Albers, 2002). Nonetheless, exam bias debates are mixed, preventing

courts from ruling them "unfairly biased" (National Center on Teacher Quality, 2019a).

Barrier 3: A New Solution? Alternative Assessments

Alternative, performance-based exams such as the educative Teacher

Performance Assessment, widely known as the (edTPA) have emerged in more recent

years (Carver-Thomas, 2018) to serve as stronger evaluators of teacher quality. Created

by Stanford University and the American Association of Colleges for Teacher Education

(AACTE), the purpose of edTPA was to "give teacher preparation programs access to a

multiple-measure assessment system aligned to state and national standards" (edTPA,

n.d.). ETS also has a performance-based assessment.

Unfortunately, studies found candidate perception of the edTPA to be critical. For

example, research has found that candidates felt detached from their mentor teacher (Heil

& Berg, 2017) and student teaching duties (Burns et al., 2015) due to edTPA

requirements. Additional studies found the edTPA negatively impacted candidate growth,

with some describing it as "[non-]educative and [un]authentic" (Shin, 2021, p. 231),

resulting in "subpar teaching practices" (Okhremtchouk et al., 2013, p. 19). Another

study of cooperating teachers' found that coaching candidates for the edTPA was also a

challenge (Hobbs Moody, 2020). For Black test-takers in particular, performances on the

edTPA are the lowest of all demographic groups (Carver-Thomas, 2018), a likely result

of research indicating the exam may be biased in its scoring for teachers of color. It is

also a very costly exam at $300 per participant (Cohen, 2021). Petchauer and colleagues (2018) also found the edTPA to require laborious efforts and additional funding, both of which disproportionately impact HBCUs. They also claim the exam may restrict "justice-oriented" approaches to teaching. Consequently, there is a growing disinterest in the edTPA, with some states (e.g., Georgia) opting to remove the exam as an EPP completion requirement (Will, 2020).

<div align="center">**Rationale for Empirical Analysis**</div>

Purpose of the Study

Of the three primary EPPs mechanisms used to measure readiness into the teaching profession: coursework, field experiences, and licensure exams, the latter tends to be the most high-stakes barrier to entry for Black candidates. Unlike coursework and field experience, both of which are diverse in offerings and – at times – allow for subjectivity in grading or scoring, licensure exams are administered through national, arguably objective organizations (e.g., ETS, Pearson), rather than the EPPs themselves. Although not passing licensure exams can prevent a teacher of any racial or ethnic background from entering the profession, data show they are particularly burdensome to prospective Black candidates. For example, even if Black pre-service teachers can overcome the burdens of uncomfortable experiences during coursework such as the dominant presence of White teacher educators or inadequate opportunities to observe or receive feedback from a same-race mentor teacher, licensure exams tend to be the final deciding factor as to whether or not Black candidates enter or remain in the field.

45

According to scholars (e.g., Autor & Scarborough, 2003; Gitomer, 2007; Gitomer & Qi, 2010; Goldhaber & Hansen, 2010; Irvine, 1988), licensure exams serve as barriers to entry into teaching for minority candidates in general, and Black candidates in particular. Historical data also notes that Black test takers are the least likely of all racial or ethnic demographic groups to pass licensure exams (Nettles et al., 2011; Steinberg et al., 2014; Tyler, 2011), and this has been the case for several decades (DeMauro, 1989; Goertz & Pitcher, 1985). Moreover, despite mixed literature on the correlation between licensure exam performance and student outcomes (e.g., Clotfelter et al., 2006; Darling-Hammond, 2000b; Goldhaber & Anthony, 2007; Hanushek, 1997) and national calls for a more diversified teacher workforce, several court cases have ruled in favor of licensure exams (Burke, 2005; Witty, 1986). As such, licensure exams will likely continue serving as the gatekeeper into the profession.

Thus, given the significance of passing licensure exams in the overall process of becoming a teacher, investigating the performance and impact of licensure exams on Black test takers is of particular importance and serves as the motivation for this study. Additionally, ETS's Praxis exam is used in 45 states and the District of Columbia, many located in the South where a majority of Black teachers are trained (United States Department of Education, 2020c), making the Praxis an ideal candidate for investigating the impact of licensure exams on the Black test takers. Moreover, the Praxis 5001 Elementary Education: Multiple Subjects exams, in particular, is used in 24 states, including Arkansas and several other Southern states, making it the best candidate for

assessing the impact of a licensure exam policy change on Black test takers in Arkansas, the focus of this study.

Contribution to the Literature

Although several studies have highlighted the lower performance rates of Black test takers on licensure exams (e.g., DeMauro, 1989; Gitomer & Qi, 2010; Graham, 2013; National Center on Teacher Quality, 2019a; Nettles et al., 2011; Petchauer, 2018; Steinberg et al., 2014; Tyler, 2011), investigations on why Black test-takers consistently perform less well and the possible correlation between exam performance and the Black teacher workforce are limited. A few studies have assessed the impact of interventions designed to improve Black test-taker performance on the Praxis I; the exam needed to enter EPPs or student teaching (Marshall-Jackson, 2017; Nugent, 2005). However, studies on Praxis II interventions, the exam widely used for EPP completion and licensure, lack a significant number of Black participants, if any (e.g., Gosa, 2001; Hunter, 2009; James & Okpala, 2010; Kohl, 2007; Nnazor et al., 2004; Sanford, 2013; Wall, 2008).

Additionally, few studies highlight the licensure performance of test-takers in the South[7], the region training a majority of Black test takers and posting the lowest first-time pass rates on the Praxis 5001 (Putman & Walsh, 2021). For example, nine of 16 Southern states and the District of Columbia used the 5001 exams between 2015 and 2018, with Tennessee introducing the exam in 2021 (ETS, 2021*). Of those nine, none

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[7] Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia (US Census, 2010)

posted first-time pass rates above 41% for test takers of color, as indicated in Table 11.

Notably, Arkansas posted the lowest first-time pass rates for all test takers, 39% (tied

with West Virginia), and test-takers of color, 23% (tied with South Carolina). Moreover,

though there is an existing study measuring the performance of Arkansas test takers on

the Praxis 5001 (Miller, 2021), the author omits test takers who did not pass, which likely

eliminates a majority of Black test-takers. Thus, no single study investigates the low

Black test taker pass rates on the Praxis 5001 nationally, in the South, or Arkansas.

Table 11 Praxis 5001 First-Time Pass Rates (FTPR) in the South by Test-Taker Race[8]

State	FTPR for All Test Takers (%)	FTPR for All Test Takers (Rank)	FTPR for Teachers of Color (%)	FTPR for Teachers of Color (Rank)
Alabama	53%	#3	29%	#5
Arkansas	**39%**	**#8 Tie**	**23%**	**#8 Tie**
Delaware	43%	#7	25%	#7
District of Columbia	59%	#1	38%	#3
Kentucky	46%	#5	41%	#2
Louisiana	45%	#6	27%	#6
South Carolina	52%	#4	23%	#8 Tie
Virginia	57%	#2	43%	#1
West Virginia	39%	#8 Tie	33%	#4

Summary

This chapter aimed to investigate the barriers to entry within EPPs for Black

candidates. The next chapter will analyze the components of EPPS and their role in

preventing Black candidate success by answering the first of two research question: How

do the primary components of the teacher preparation process serve as barriers to entry

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[8] Southern states not included in Table 11 did not use the Praxis 5001 during the time period covered in the study.

for Black candidates? Descriptive in nature, the first research question will be

investigated and results provided in the next chapter.

CHAPTER 3: METHODS

The purpose of the quantitative portion of this study is to assess barriers to entry for prospective Black teachers and whether that affects outcomes for this key demographic group. Specifically, this study aims to measure the impact of a licensure exam policy change on Black test-takers in Arkansas by answering the following research questions: 1) How do the primary components of the teacher preparation process serve as barriers to entry for Black candidates? Descriptive in nature, the first research question will be addressed in this chapter. 2) What is the relationship between a licensure exam policy change and the Black teacher workforce in Arkansas? Inferential in nature, this research question will be introduced in this chapter and addressed in Chapter 4.

Research Design

Research Question 1: Descriptive Overview

In answering the first research question: How do the primary components of the teacher preparation process serve as barriers to entry for Black candidates?, a descriptive analysis of EPP characteristics was collected using data provided by the providers, provider websites, or the Arkansas Department of Education. With this data, a descriptive analysis using charts and figures highlights the EPP landscape at the four Arkansas EPPs most likely to train Black candidates. Given the descriptive nature of this research questions' findings, no hypothesis is provided.

Research Question 2: Difference-in-Differences

Although methods such as the RCT are arguably the gold standard, it is not always the most dependable at tracing impact over time. Contrarily, research has found the difference-in-differences method to be "a powerful and intuitive approach to causal evaluation that exploits variation in the timing and coverage of policies" (Furquim et al., 2020). Thus, for the second research question, the difference-in-differences (DD) estimator will be used to measure the impact of a licensure exam policy change on test-taker performance before and after the change. Unlike traditional DD studies with one treatment and one control group, this study will use the DD method to measure the impact of the policy change on Black versus White test takers within the same treated state, controlling for their differences beforehand. Thus, treatment status depends on the race of each test taker.

This study hypothesizes this particular licensure exam policy change has negatively impacted Black K-6 test-takers and thus the overall number of Black teachers in Arkansas. Specifically, the exam transitioned from a pedagogical knowledge-based exam to an exam focused on rigorous content knowledge. Therefore, passing the new exam is unlikely for Black test-takers who did not receive an adequate K-12 education. Inferential in nature, the findings for the study's second research question will be provided in the next chapter.

Dataset Overview

Research Question 1: Data Collection

To answer the first of two research questions: How do the primary components of the teacher preparation process serve as barriers to entry for Black candidates? a series of data was collected using the following guiding questions to convey a description of the EPP landscape in Arkansas.

- How many EPPs operate in the state of Arkansas?
- What are the characteristics of these EPPs? Alternative vs. traditional? IHE vs. Non-IHE?
- What are the growth trends of these EPPs over time?

Next, using the following guiding questions, an assessment of the instructional and programmatic characteristics of the state's EPPs most likely to enroll Black candidates were used to assess the possible barriers to entry in the three areas of **coursework, field experience, and licensure exams**. To find this data, the following served as guiding questions:

- Which EPP types are Black candidates in Arkansas most likely to enroll?
- Which EPPs have the highest Black candidate numbers?
- Which EPPs have the highest Black completer numbers?
- What are the characteristics of these EPPs in the areas of coursework, field experience, and licensure exam support?

Research Question 1: Data Analysis and Findings

  Teacher Education in Arkansas. Since laying the foundation for its first school system in the mid 1800s, Arkansas' teacher workforce has been shaped by several policies and practices. First, the teaching profession lacked financial investment from the state for the first century of its existence despite calls for formal teacher training and teacher involvement in professional organizations. Consequently, Arkansas was one of the last states to open its first normal (teaching) school the Arkansas State Normal College (now University of Central Arkansas) in 1907 (Weeks, 1912; Wynn, 1995). And even after support for teacher training began to surface (e.g. John L. Slater, General Education, Anna T. Jeanes funds), Black teachers and schools received limited training and resources through the Branch Normal School (now the University of Arkansas at Pine Bluff) and the Julius Rosenwald fund. Not permitted to join the states professional organization, Black teachers created their own, the Arkansas Teachers Association which offered Black teacher training and professionalism within the field (Patterson, 1981).

  Over time, Arkansas followed national trends by introducing alternative pathways into teaching to fill teacher shortage gaps and incorporating licensure exam requirements to answer increase calls form more accountability following NCLB. In 2010, for example, Arkansas began requiring the Praxis Core for admissions into EPPs (Shuls, 2016) and today the state requires every prospective teacher pass a Praxis II content exam before receiving a standard license. However, more recent policy changes to teacher licensure requirements have redefined the teacher quality landscape in the state. School

districts, for example, can apply for one of six waivers to hire non-licensed teachers or those teaching a course outside of their licensure area to fill vacant positions (Arkansas Department of Education, 2020). The Act 1240 waiver, for example, was introduced in 2015 and is disproportionately used by school districts more likely to hire Black teachers and serve majority Black student populations (The New Teacher Project, 2021). Collectively, the current landscape of teacher preparation and licensure within Arkansas' teacher workforce is decentralized with frequent policy changes taking place to meet the growing demands for more teachers.

Arkansas EPP Characteristics. As indicated in Figure 1, the number of EPPs in Arkansas grew by eight between 2010 and 2019 before leveling off at 37. While the number of traditional providers saw a net gain of just one, alternative providers grew by seven during the same period. As such, most of the alternative growth occurred amongst non-IHE based programs such as Arkansas Teacher Corp, a newer non-IHE EPP that uses a homegrown approach to teacher recruitment.
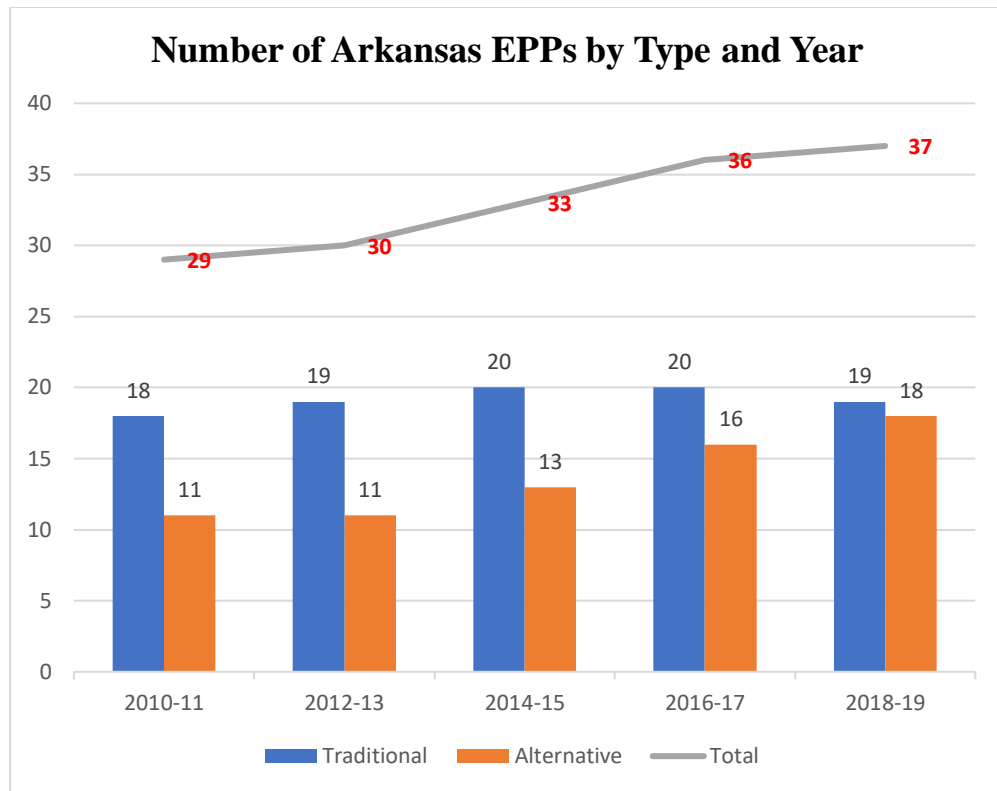
Figure 1 Arkansas EPPs by Type and Year, 2010-2019

Black EPP Enrollment. As highlighted in Figure 2, Black candidate enrollment in Arkansas EPPs has fluctuated over the past ten years, with an average of just under 400 candidates per year. Also noticeable is the transition from majority traditional to majority alternative enrollment between 2009 and 2019 by Black candidates. Disaggregated data also show Black candidates are enrolling in non-IHE based alternative programs at higher percentages (United States Department of Education, 2020c). Specifically, 356 Black candidates enrolled in traditional programs in 2009, but

only 180 did so in 2019. Consequently, as of 2013, Black EPPs candidates in Arkansas have been more likely to enroll in alternative programs.

Black EPP Enrollment in Arkansas by Program Type and Year

A line graph titled "Black EPP Enrollment in Arkansas by Program Type and Year" with a y-axis ranging from 0 to 350 and an x-axis showing years from 2010-11 to 2018-19. Two lines are plotted: Traditional (blue) with values 296, 297, 237, 218, 122, 110, 108, 157, 180; and Alternative (orange) with values 173, 190, 184, 197, 181, 179, 177, 228, 238.
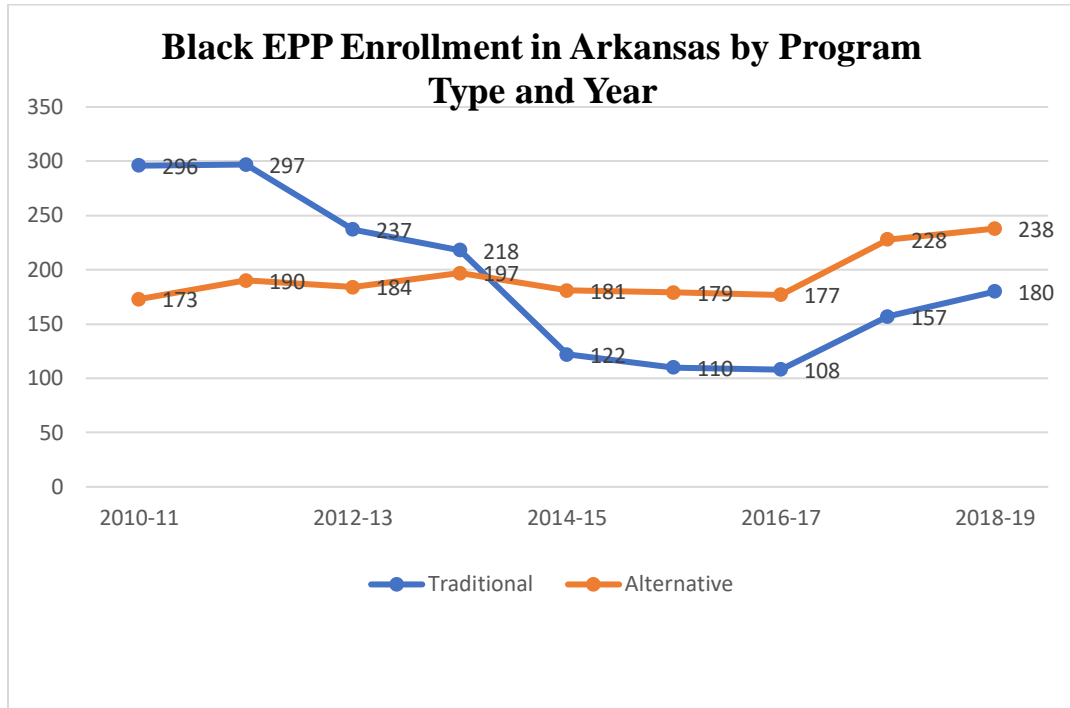
Figure 2 Black EPP Enrollment in Arkansas by Program Type and Year, 2010-2019

Arkansas EPP Black Candidates. The study's first research question seeks to identify the barriers to entry for Black pre-service teachers in Arkansas. Thus, data was collected from the state's top four (top 10%) EPPs training the most Black candidates. Ten years of EPP data show these four providers were the most likely to enroll Black candidates between 2009 and 2019. As highlighted in Table 12, the four EPPs were: Apple University (Alternative, Non-IHE); Grape University (Alternative, IHE); Lemon

University (Alternative, IHE), and Peach University (Traditional)[9]. The table also includes the number of times each of the four EPPs topped the list for Black candidate enrollment.

Table 12 Arkansas EPPs with Largest Black Candidate Enrollment, 2009-2019

Institution	Provider Type	# of Times in Top 3 for Black Candidate Enrollment
Apple University	Alternative Non-IHE	8
Grape University (M.A.T)	Alternative IHE	5
Lemon University (M.A.T)	Alternative IHE	3
Peach University	Traditional	3

Arkansas EPP Black Completers. Although the ADE nor Title II reports disaggregated completer data by race between 2009 and 2019, individual EPP state-submitted reports revealed such data in 2014 and 2016. These two reports showed there were 123 and 112 Black completers respectfully and that the state's top providers of Black completers were also those with higher Black enrollment numbers. Thus, identifying the characteristics of these four EPPs served as the most reliable analyzable

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[9] Pseudonyms

data to understand the possible barriers to entry for Black completers through the critical mechanisms of coursework, field experience, and licensure exam support.

Table 13 Characteristics of the Top Arkansas EPPs for Black Candidate Enrollment

Program	Coursework	Field Experience	Licensure Exam Support
Apple University (Alternative Non-IHE)	0 Hours of Content Courses Modules (161 clock hours) Modules are Pedagogy focused Virtual formatting; No In-Person Learning	No Field Experience Component Teacher of Record Immediately	Reference to external resources
Grape University (Alternative IHE)	0 Hours of Content Courses 36 Hours of Pedagogy Coursework	6 Hour Internship Participants are Paid Teachers of Record	References to external resources
Lemon University (Alternative IHE)	0 Hours of Content Courses 33 Hours of Pedagogy Coursework	L: 6 Hour Internship. Full semester in a school, under supervision of a cooperating teacher or mentor and a university supervisor.	Reference to external resources
Peach University (Traditional)	120 Total Coursework Hours 49 Content Coursework Hours 71 Pedagogy Coursework Hours	9 Hours Student Teaching 3 Hour Education Seminar	Reference to external resources

Arkansas EPP Characteristics. To conduct an EPP landscape analysis of the Arkansas EPPs most likely to train Black candidates, instructional and programmatic data was collected from the four providers (see Table 13) in the areas of coursework, field experience, and licensure exam support. Data revealed several significant findings.

First, Black candidates were more likely to enroll in alternative programs and consistently enrolled in the Apple University non-IHE program eight years in a row.

Second, data also revealed a lack of content-based courses by the top 3 providers. Even then, data showed not even content course requirements ensured completion. For example, despite being a traditional program, Peach University recorded just two Black completers during the 2016-17 school year, highlighting the need for licensure exam support even when content-based courses are required. Third, the lack of opportunities for mentorship, observations, and feedback offered by the Apple, Grape, and Lemon Universities likely serves as a series of barriers for the Black candidates enrolled in these programs. Finally, the instructional data analysis also revealed a near-complete absence of licensure exam support for candidates with support equating to external links included on the programs' website. As highlighted in previous literature (e.g., Nettles et al., 2010, Petchauer, 2018), lack of support in this particular area is a barrier Black candidates are unlikely to overcome during their time in the teacher preparation pipeline.

Research Question 2: Data Collection

To answer the second of the study's two research questions, What is the relationship between a licensure exam policy change and the Black teacher workforce in Arkansas?, the questions below led the data collection process. Findings aided in analyzing the impact of a licensure exam policy change on test-takers in Arkansas. Data used in this study were compiled by the Educational Testing Services (ETS) in Princeton and are owned by Arkansas. The Arkansas Department of Education's (ADE) Division of Elementary and Secondary Education supplied reports for both the 5002 (formerly 0022) Early Childhood (P-4): Content Knowledge exam and the new 5001 Elementary School

Multiple Subjects exams. In the next chapter, I will analyze and address the first three guiding questions as they require descriptive overviews of the data aligning with the methods used to address research question 1's guiding questions. The fourth and final guiding question will be analyzed in Chapter 4.

- Who were the 5022 and 5001 exam(s) test takers?
- When did the policy change from 5022 to 5001 occur, and why?
- What are the primary differences between the 5022 and 5001 exam(s)?
- What impact did the licensure exam policy change have on test takers?

Arkansas 5022 and 5001 Test Takers. Study participants include any individual registering for and taking Arkansas required Early Childhood (P-4): Content Knowledge 5022 exam, the single-hurdle (one exam) assessment used to certify elementary teachers before 2015. Data includes all test takers of the 5022 exam between 2010 and 2015 (5 school years) and all test takers of the Multiple Subjects 5001 exam. The new exam served to measure the content mastery of prospective elementary educators. Data includes all exams taken between 2016 and 2019 (3 total school years). Participant characteristics are highlighted in Table 14.

As seen in the Table, the number of test takers and the exams taken both increased following the policy change. Further research disclosed this to be a likely result of adding test takers who were prospective fifth and sixth grade teachers. Coincidently, fifth grade teachers are the largest number of individual grade teachers amongst all Black Kindergarten through sixth grade teachers.

Table 14 Study Participant Demographics 2010-2019

Baseline characteristic	Black		White		Full Sample	
	n	%	*n*	%	*n*	%
5022 Exam (2010-2015)						
Exams Taken	277	6.9	3728	93.1	4005	100
Test Takers	262	6.6	3707	93.4	3969	100
Retakes	15	6	21	<1	36	1
# of Exams Passed	250	95.7	3692	99.6	3942	97.6
Mean Score	169.9	-	177.7	-	173.8	-
5001 Exam (2015-2019)						
Exams Taken	786	6.7	11033	93.3	11819	100
Test Takers	534	6.2	8096	93.8	8630	100
Retakes	252	47.2	2937	36.3	3189	27
# of Exams Passed	285	60.0	6702	82.9	6987	71.4
Mean Score	157.4	-	167.5	-	162.4	-
Difference-in-Differences (DD)						
Exams Taken	509	-	7305	-	7814	-
Test Takers	272	+103.8	4389	+118.4	4661	+117.4
Retakes	237	-	2916	-	3153	-
# of Exams Passed	35	-	2740	-	3045	-
Mean Score	-12.5	-7.4%	-10.2	-5.7	-11.4	-6.6

Note. Number of exams taken = 15,824. Number of test takers = 12,599. The number of exam retakes = 3,225. Retakes = the % of exams taken more than once by test takers by race/ethnicity. Data marked (-) within DD calculations are omitted due to the 5001 exam's multi-hurdle (multiple exams), rather than one exam.

Importantly, participants of this study are limited to test takers identifying as either White or Black/African American. There were just under 4,000 test takers of the 5022 exam with 93% identifying as White and 7% identifying as Black. With regards to the new 5001 exam, the data set includes over 8,000 test takers with 94% identifying as White and 6% identifying as Black.

These two groups collectively make up nearly 98% of the total Arkansas teacher workforce, as can be seen in Figure 3, percentages that have not changed significantly over the past ten years. For example, during the 2010-11 school year, 89.7% of teachers identified as White while just 8.7% identified as Black. The most recent school year's numbers are similar, with White teachers making up 88.4% of the workforce and Black teachers making up 8.8% (Arkansas Department of Education, 2021b). Consequently, data for teachers of other racial/ethnic groups (i.e., Hispanic, Asian American, Native American, Two or More Races, Other) are not included in the study due to limited licensure exam performance data provided by the state for racial/ethnic group groups with less than ten test-takers per exam per year. Thus, this data collection process limited any additional racial/ethnic subgroup to the study.
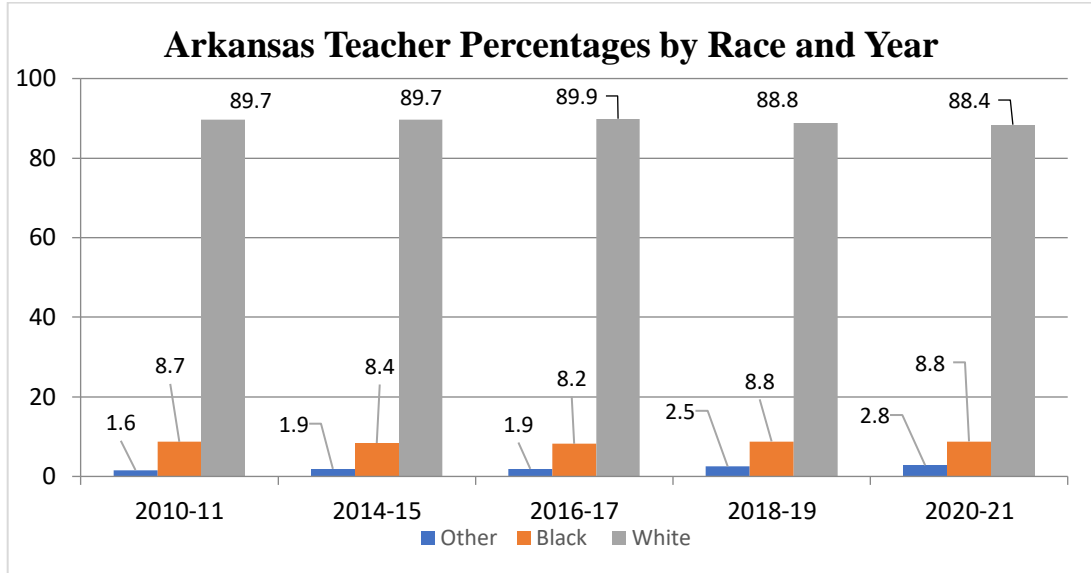
Figure 3 Arkansas Teacher Percentages by Race and Year[10], 2010-2021

Addressing the Policy Change. As indicated in Table 15, the implementation of change from 5022 to 5001 occurred during the 2015-16 school year; however, both exams were administered and scores accepted during that particular school year. Thus, this study aims to assess the impact of the licensure exam policy change before and after the 2015-16 school year, also referred to as the transition year. According to research, the policy change occurred due to national calls for a more rigorous K-6 exam to assess elementary teacher content knowledge properly. According to such calls, high-quality teachers were needed to adequately prepare elementary students to meet national standards. Thus, such exams as the Praxis 5001 multi-hurdle exam – in addition to a

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[10] 2012-13 data was omitted due to state data error.

science of reading exam (e.g., the Pearson administered Foundations of Reading exam) –

were introduced in several states and is now used in 24 states to license elementary

teachers (ETS, 2021; National Center on Teacher Quality, 2021a).

Table 15 Overview of the Chronological Changes in Exam Type

Year(s)	Exam Administered	Additional Notes
2010 & 2011	5022	Arkansas' K-6 exam is Praxis 5022
2012	5022	ETS adopts 5001; Arkansas continues to administer 5022
2013	5022	Arkansas adopts 5001(not data), continues to use 5022
2014	5022 and 5001	Arkansas continues to use 5022; No state data for 5001
2015	5022 and 5001	Final year using 5022; Data available for 5022 and 5001
Since 2016	5001	Arkansas administers 5001; ETS stops administering 5022

Examining the 5022 and 5001 Exams. As can be seen in Table 16, the new

exam was considerably different from the former. First, unlike the previous 5022 exam, a

single-hurdle assessment focusing on pedagogical delivery of content-areas (Language

and Literacy, Mathematics, Science, Social Studies, and Health and Physical Education

coupled with Creative and Performing Arts), the new 5001 multi-hurdle exam aimed at

measuring mastery of content knowledge within the four core subjects (Reading and

Language Arts, Mathematics, Social Studies, and Science). Notable was the complete

removal of the Health and Physical Education and Creative and Performing Arts sections.

Additionally, while the 5022 exam consisted of a single assessment with 120 questions and a total of 120 minutes for completion (ETS, n.d.), the new 5001 exam consisted of four separate exams totaling 245 questions with a total of 275 minutes allowed for completion (ETS, n.d.). Furthermore, not only did the new 5001 exam require a total additional 155 minutes of sitting time, it also increased the total number of exam questions by 135, a 53% increase. ETS does allow test takers to register for and take the 5001 exams in one sitting or separately. Another major difference was the increase in exam cost by $60. However, if the exams are taken separately, the cost more than doubles from $120 to $256 for test takers.

Table 16 Descriptive Overview of the 5022 and 5001 Exam(s)

Exam	Praxis 5022 Early Childhood: Content Knowledge (P-4)	Praxis 5001 Elementary Education: Multiple Subjects (K-6)
Administered	2010* – 2015	2015 – Current
# of Exams	One Exam "Single-Hurdle"	Four Exams "Multi-Hurdle"
# of Questions	120	245
Cost	$120	$180 (one sitting); $64 (individually)
Time Allotted	2 hours (120 minutes)	4 hours 35 minutes (275 minutes)
Exam Content	• Language and Literacy (36 questions) • Mathematics (30 questions) • Science (17 questions) • Social Studies (17 questions) • Health and Physical Education (10 questions) • Creative and Performing Arts (10 questions)	• 5002: Reading and Language Arts (80 questions) • 5003: Mathematics (50 questions) • 5004: Social Studies (60 questions) • 5005: Science (55 questions)
Passing Score	157	5002: 157; 5003: 157; 5004: 155; 5005: 159
Exam Type	**Pedagogy Focused**	**Content Focused**
Example	**Civics and Government** *Civic participation in the context of classroom, community, nation, and world (e.g., raising an issue, making an informed decision, considering other perspectives, balancing individual and group needs)*	**Citizenship** *Understands the nature, purpose, and forms (e.g., federal, state, local) of government; Knows key documents and speeches in the history of the United States (e.g., United States Constitution, Declaration of Independence, Gettysburg Address); Knows the rights and responsibilities of citizenship in a democracy*

Research Question 2: Data Analysis and Procedures

To answer the second of the study's two research questions, what is the

relationship between a licensure exam policy change and the Black teacher workforce in

Arkansas?, the DD method and the following formula was implemented to calculate the

impact of the change in exam type in Arkansas on the pass rates of Black test-takers:

$$y_{it} = a_0 + \beta_1\ Treat_1 + \ \beta_2\ Post_{it} + \ \beta_3(Treat\ x\ Post)_{it} + \ \mathcal{E}_{it}$$

In this formula, y_{it} is the outcome or average pass score for unit i - the Black or White

test-takers group in year t. The traditional intercept, 2015, is presented by a_0 in the

formula and serves as the transition year. In the model, a_0 equals the pre-treatment

outcome mean for White teachers, β_1 equals the mean difference in y between Black and

White test-takers in the pre-treatment period, β_2 equals the White test taker's pre- and

post- treatment differences, and β_3 equals the estimated treatment effect of comparing

the two groups over both time frames.

Additionally, for this study, $Treat_1$ is equal to 1 for test takers of the treatment

group, those identifying as African American/Black, and 0 for those in the control group,

those identifying as White. Regarding the pre and post year data, 1 indicates all exams

taken before 2015. For this study, pre exams are documented as 5022ECCK under

variable exam name. The $Post_{it}$ exams vary depending on the subject of the exam (e.g.,

5002ELA, 5003Math, etc.) and include all exams taken in the years following 2015. For

the exams administered before 2015 (5022ECCK), they post = 0. Thus,

$(Treat\ x\ Post)_{it}$ becomes equal to 1 for test-takers (treatment group) in post-treatment

years (0 otherwise). Findings will be shared in the next chapter.

Reliability

According to Ary et al. (2009), "an obvious way to estimate the reliability of a

test is to administer it to the same group of individuals on two occasions and correlate the

two sets of scores" (p. 242). Regarding the Praxis exam, its administrator, the Education

Testing Service (ETS), publishes national reliability procedures and statistics. In addition,

the organization computes decisions reliability statistics (DRS) for several combinations

of test takers groups and subsequent passing scores to decrease the likelihood of test taker

numbers being misclassified. According to ETS, this is highlighted by the DRS

increasing in value (ETS, 2021).

However, more recent studies and reports have investigated and, at times,

questioned the reliability and validity of licensure exams such as the Praxis (e.g.,

Clotfelter et al., 2006; Cowan et al., 2020; Goldhaber, 2015; Hanushek, 1997; King Rice

& Schwartz, 2015, National Center on Teacher Quality, 2021b). For this study, however,

reliability is based upon the non-traditional format of the DD test. Unlike traditional

studies using a difference-in-differences (DD) method with one treatment and one control

group, this study will use the DD method to measure the impact of a policy change on

differences between two groups (White and Black test-takers) within the same treated

state or period. For this study, treatment status depends on the race of each test taker

coupled with their scores. The DD thus estimates the difference between White and Black

test takers' performance brought about by the policy change. In essence, this study compares the pass rates of all test takers, by race, before and after the change in exam type, controlling for their differences beforehand. Thus, this study and the methodology used to examine it are reliable, given that the two occasions note a change in time. Furthermore, although the scores are collected from two different groups, the scores are from the same exam, administered to both groups during the same period.

Validity

The American Educational Research Association [AERA]'s 2014 edition of the *Standards for Educational and Psychological Testing* defines validity as "the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests" (p. 11).

The group adds that validity is essentially "the most fundamental consideration in developing tests and evaluating tests" (p. 11). Thus, to establish validity within research, evidence is necessary in order to make decisions, in this case, Praxis exams and their subsequent pass scores. Praxis exams administered by the Educational Testing Service are computer-based exams administered at testing centers throughout the country. As stated, nearly all exams are in a completely selected-response (multiple-choice) format or include a constructed response (essay) section. According to ETS, an analysis is completed within one week to assess any red flags when a new exam is created. Examples of such possible issues include: "low average item scores, low correlations with criterion, possible double keys, and possible incorrect keys" (ETS,

2021, p. 26). The company then utilizes a differential item functioning (DIF) mechanism to ensure each question "meets ETS's standards of fairness" based upon the comparisons of subgroups (Sanford, 2013). ETS (n.d.) disclosed the validity of its exams is based upon standards used throughout the country and national, representative samples of teachers. According to the organization, "the validation process used to justify the interpretation of Praxis scores is consistent with the technical guidelines presented in the *Standards for Educational and Psychological Testing*" (p. 3). Hence, when a question is flagged for having a "very high DIF", a panel of fairness experts is convened to discuss the particular test item(s). Statistical equating and scaling are performed three weeks after the test is administered, after which reports are compiled and shared with institutions (Sanford, 2013). ETS note their validity standards are also based upon various sources of validity, as noted in Table 17. These mechanisms for validity are highlighted in the organizations' self-published *Validity for Licensing Tests: A Brief Orientation* (ETS, n.d.).

Table 17 Overview of ETS' Exam Validity Measures

Mechanism	Description
Job Analysis	"A large-scale survey of educators is also conducted to collect independent judgments of the job-relatedness (or occupational importance) of the defined content domain" (p. 3).
Item Writing and Reviewing	"Test development committees, which also include practicing teachers and teacher educators, work with ETS subject experts to write, review, and revise test items to align with the defined specifications" (p. 3).
Standard Setting Studies	"When a new test is developed, or an existing test has been substantially revised, a standard-setting study is scheduled. A primary objective of the study

(Establishing Cut Scores)	is to recommend a minimum test score that a prospective educator needs to earn to be considered qualified to enter the teaching profession" (p. 4).
Test Reviews	"The purpose of a test review is for representatives of the state or licensing agency to examine the content covered by a test and to determine if it satisfactorily represents content believed to be important in satisfying that state or licensing agency's professional educator credentialing requirements" (p. 4).
Ongoing Reviews	"Standing Committees review the test specifications for each Praxis test annually to determine whether the content of the test continues to represent knowledge and skills relevant and important for beginning practice... If the test specifications are deemed to be in need of revisions, ETS revisits the content of the test" (p.4)

Threats to Validity. According to Cunningham (2018), there are four threats to validity in the DD method: non-parallel trends, compositional difference, long-term effects vs. reliability, and functional form dependence (p. 272-3). For this particular study, a closer look at non-parallel trends, compositional difference, and the long-term impact vs. reliability of the change in exam type are essential to ensuring the validity of the exam, a necessary next step to conduct future and further research of the topic.

First, for this study, there is no violation of **parallel trends** given that pass scores for both racial demographic groups on the previous exam (5022) were relatively close in range, all above 90% for each of the years included in the study. Nonetheless, a robustness check such as a falsification test with test takers of *Other* races could serve as a helpful confirmation of the study's validity. Second, despite **compositional differences** between exams and test-takers, all test takers of a single exam are administered the *same* exam regardless of race. Thus, no known data dictating test takers of different races are likely to have a higher or lower chance of passing the exam based on the exam itself. Third, regarding the **long-term impact and reliability** of the study, the outcomes will

serve as reliable data for current policy and practice and future research as long as exams, and this exam, in particular, is used as a means for certifying teachers within the profession. Finally, **functional form** threats to the validity are unlikely given the data set only includes the number of test-takers for each exam and performance data for each of the two racial groups included. Unfortunately, additional variables (e.g., EPP, gender, education level, major) that could positively impact the significance of the model are not available for analysis.

Limitations

There are a few ways in which this study is limited. First, the sample size of Black test-takers, though statistically significant for the years included in the study, is small compared to White test-takers. However, unlike many previous studies on Praxis performance, this study does not couple all minority groups opting to focus on Black test-takers who have underperformed all racial demographic groups since the exam's inception. Second, test-taker data does not include any demographic information other than race. Thus, test taker prior education, EPP type, parents education, employment status, socioeconomic status (SES), teaching status – variables that would make for a more fruitful study are unavailable. However, this sample of test-takers – because of its statistically significant size and general data allows for the results to be generalizable, which could prove to be helpful to states with similar demographics or those using the same exam (e.g., Alabama, Louisiana,

Mississippi, and Tennessee). Third, because the variables mentioned above are unavailable to analyze for this study, making a correlative connection between test-takers performance and prior education, EPP type, parents' education, employment status, SES, or teaching status is not possible.

Summary

This chapter analyzed the barriers to entry for Black pre-service teachers in Arkansas at the four EPPs most likely to train them. Descriptive in nature, this chapter addressed the characteristics of the four EPPs in the areas of coursework, field experience, and licensure exam support. An introduction to the data collection and analysis used to measure the impact a licensure exam policy change on test takers in the state were presented. Inferential in nature, the findings of the study's second research question will be addressed in Chapter 4.

CHAPTER 4: **RESULTS**

This chapter briefly revisits the findings of the first research question, and it presents the results of the study's second research question: What is the relationship between a licensure exam policy change and the Black teacher workforce in Arkansas? Specifically, this chapter presented an analysis of performance outcomes of Black and White test-takers before and after the state's 2015 licensure exam policy change using statewide panel data and an application of the difference-in-differences (DD) estimator. Subsequent sensitivity checks to test the reliability and validity of the study and the results are also highlighted.

Research Question 1

The study's first research question seeks to identify the barriers to entry for Black pre-service teachers in Arkansas. To answer this question, a series of collected programmatic and instructional data was used to formulate an analysis of the EPP landscape at four (top 10%) Arkansas EPPs tasked with training the largest numbers of Black candidates. The analysis was based upon the three primary EPP mechanisms: coursework, field experience, and licensure exam support (see Table 12 and 13). Despite non-existing national EPP completer data by race, EPPs in Arkansas reported such data in 2014 and 2016. They found that Black completers were likely to be enrolled in one of the four EPPs mentioned above. Hence, an instructional data analysis of these programs is helpful to understanding the barriers to entry for the state's Black EPP candidates.

The analysis revealed several findings: Black candidates were more likely to enroll in alternative EPPs, alternative EPPs lacked content-based course requirements, mentorship, observations, and feedback opportunities were lacking in two of the alternative EPPs, and none of the four EPPs offered licensure exam support outside of external links included on the program' website. Given the national calls for a more diverse teacher workforce, this study's findings add helpful knowledge to the existing literature on barriers to entry for Black EPP candidates. Recommendations for policy and practice are presented later in the chapter.

Research Question 2

The study's second research question investigated the performance outcomes of a licensure exam policy change on test-takers in Arkansas using an application of the DD estimator framework. Specifically, in 2015, Arkansas required prospective K-6 teachers to begin taking a multi-hurdle, content-based exam (5001), opting to no longer use a single-hurdle, pedagogy-based exam (5022). As a result, the exams differed in several ways, including the number of questions, time allotted, and cost (see Table 16). Because Arkansas did not adopt the new exam immediately, the testing year 2015-16 is referred to as the *transition* year. The following is an overview of the findings.

Change Linked to Test Taker Performance. According to Nguyen (2019), the DD framework "relies strongly on the common-trends assumption, whereby the outcome variable would follow similar trends for treated and untreated units if it were not for the intervention" (p. 576). Thus, this study was designed to measure whether or not the

change in exam type affected the performances of test-takers using the DD estimator.

Before the policy change, pass rates for Black and White test takers on the single-hurdle

exam (5022) were above average between 2010-11 and 2014-15. As such, Black and

White test-takers posted consistent 90+% pass rates between 2010 and 2015, as portrayed

in Figure 4.

Arkansas Praxis 5022 Pass Rates by Race
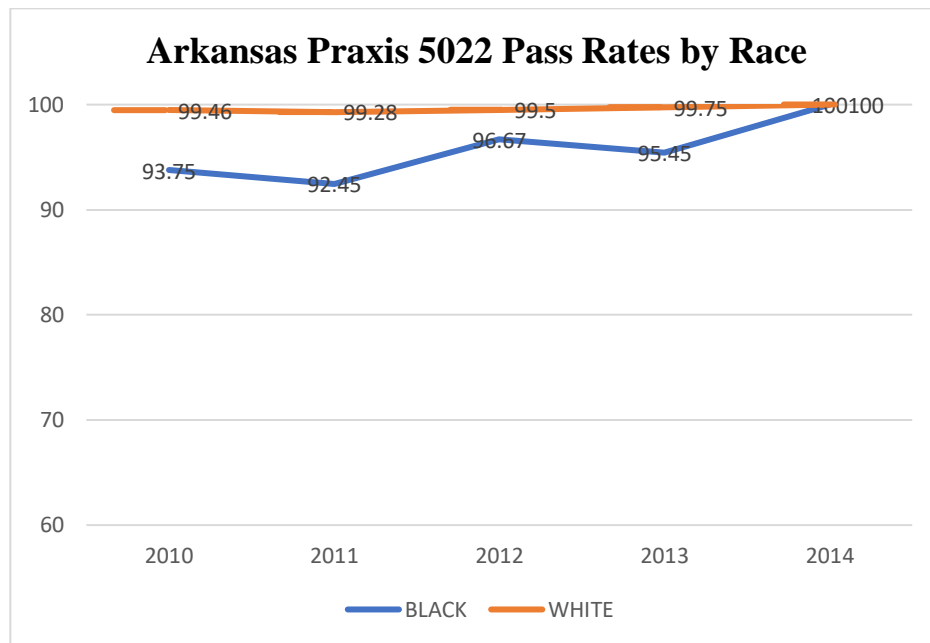
Figure 4 Arkansas Praxis 5022 Pass Rates by Race and Year, 2010-11 to 2014-15

Although the DD estimator results showed a decline in the pass rate for Black and

White test-takers, the performance declines were particularly significant for Black test-

takers, as underscored in Figure 5. The DD estimator revealed a difference between the

performance rates of Black and White test takers after the exam change to be -22.67, a

statistically significant finding as indicated by the findings' *p-value* of 0.006 (see Tables

18 and 19). Additionally, results revealed a sharp increase in exam retakes by Black test-takers (see Table 14).

Arkansas Praxis Performance K-6 Test Takers by Race
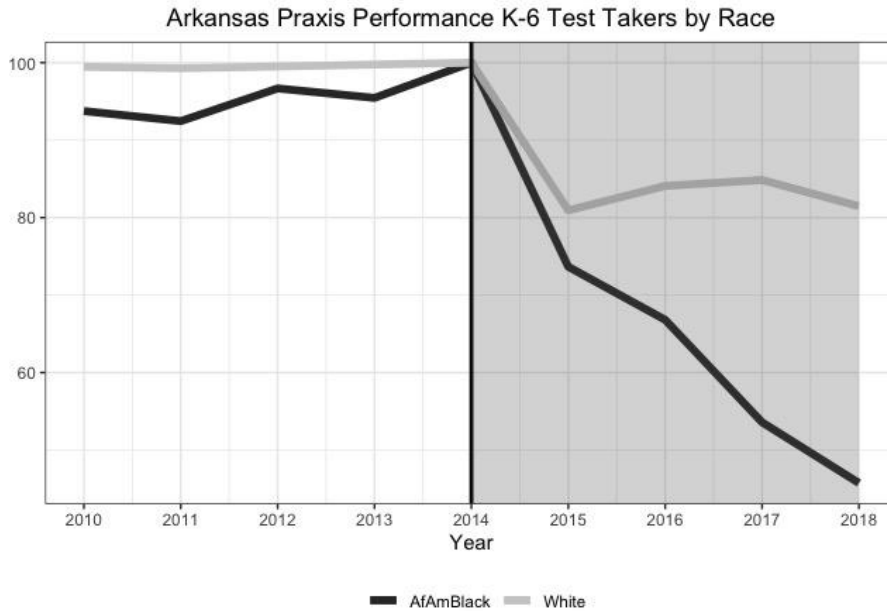
Figure 5 Arkansas Pre and Post Performance Results by Race and Year, 2010-2019

Data highlight that while there were just 15 (or 6%) exam retakes between 2010 and 2015, Black test-takers retook 252 (or 47%) exams between 2015 and 2019. For White test takers, just 21 (<1%) retakes were completed on the 5022 compared to 2,937 (36%) retakes on the 5001 exam. Notable was the sharp decline in pass rates. Black test takers saw a drop in pass rates from 96% to just 60% compared to White test takers who experienced a drop of 99% to 83%

Table 18 Conditional Means Results by Exam and Year, 2010-2018

Group	Pre (5022)	Post (5001)	Difference
Black	85.88	55.38	-30.5
White	91.30	83.47	-7.83
Difference	-5.42	-28.09	DD = -22.67

Sensitivity Checks. In addition to the primary analysis, two sensitivity checks were employed to determine the robustness of the findings. First, once two covariates – the number of test-takers and exam retakes – were added to the model, sensitivity checks confirmed the results to be even more statistically significant with a new outcome of -32.09 and a *p-value* of < 0.001. Second, the fixed effect (year) was added to the model for an additional sensitivity check. Again, results indicated a statistically significant finding of -29.44 and a *p-value* of < 0.001, as captured in Table 19 below. Consequently, after three runs of the model, the sensitivity check results confirmed earlier DD findings.

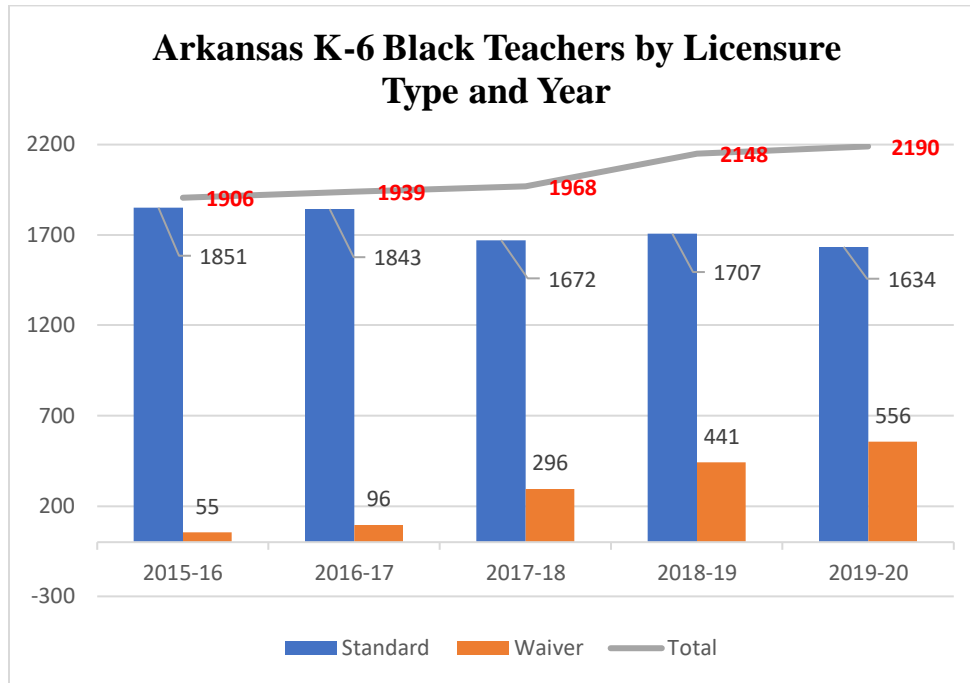**Table 19 Sensitivity Analysis to Primary Model**

Effect	Estimate	*SE*	*p-value*
Original DD Coefficient	-22.67	7.72	< 0.05**
Covariates DD Coefficient	-32.09	7.91	< 0.01***
Fixed Effect DD Coefficient	-29.44	7.52	< 0.01***

Note. Number of exams taken = 15,824. Number of test takers = 12,599. The number of exam retakes = 3,225. The number of fixed effects (years) = 9. ****p < 0.01, **p < 0.05, *p < 0.1*.

In addition to confirming test-retest reliability, ensuring the validity of said results was also necessary. As such, the DD estimator accurately measured performance rates of Black and White test takers on two different ETS administered Praxis exams before and after the transition year 2015 in Arkansas. That year, a change in exam type resulted in statistically significant findings of test-taker performance before and after the exam change.

Possible Explanation: Black Teachers and The Act 1240 Waiver

Despite the sharp decline in Black test-taker pass rates on the new K-6 exam, the total number of Black K-6 teachers in Arkansas increased after the policy change in 2015, as seen in Figure 6. Research notes this was likely the result of another policy change, the Act 1240 waiver. In Arkansas, school districts can apply for one of six waivers to hire non-licensed teachers or those teaching a course outside of their licensure area (Arkansas Department of Education, 2020a). The Act 1240 waiver, also introduced in 2015, requires teachers to be degree holders with at least 18 hours in the content area to be taught (no required pedagogy courses). The waiver recipients are given three years to pass the required licensure exams and earn a standard license (Van Dyke, 2021).

Arkansas K-6 Black Teachers by Licensure Type and Year

Figure shows bar chart with values:

- 2015-16: Standard 1851, Waiver 55, Total 1906
- 2016-17: Standard 1843, Waiver 96, Total 1939
- 2017-18: Standard 1672, Waiver 296, Total 1968
- 2018-19: Standard 1707, Waiver 441, Total 2148
- 2019-20: Standard 1634, Waiver 556, Total 2190

Legend: Standard, Waiver, Total

Figure 6 Arkansas K-6 Black Teachers by Licensure Type and Year, 2015-2020

After introducing Act 1240, waiver use increased dramatically in districts with higher percentages of Black teachers. Additionally, 2020 ADE data showed Black teachers made up nearly 35% of teachers using waivers despite being less than 10% of the workforce, as seen in Table 20 below (Arkansas Department of Education, 2021b).

Table 20 Arkansas Teacher Licensure Waiver Use by Race, 2020-2021

Race/Ethnicity	Total Teachers	% of All Teachers	% Using Waivers
White Teachers	29,633	88.37%	62.42%
Black/African American	**2,964**	**8.84%**	**34.27%**
Other	935	2.79%	3.30%

80

In essence, despite pass rates for Black K-6 test-takers declining following the licensure exam policy change in 2015 (see Figure 5), the number of Black K-6 teachers increased. However, standard licenses decreased, and waiver (or emergency licenses) increased, likely due to the increased use of Act 1240 waivers. This finding raises concerns regarding teacher quality and the growing number of uncertified teachers in the state's lowest-performing schools.

Summary

This chapter reviewed the results of a descriptive analysis of the instructional methods used at the four Arkansas EPPs most likely to train Black candidates in coursework, field experience, and licensure exam preparation. Additionally, the DD estimator was employed to analyze the performance outcomes of a licensure exam policy change on Black and White test-takers. Finally, subsequent sensitivity checks were conducted to test the reliability and validity of the study. Discussion, recommendations, and conclusions will be presented in the following chapter.

CHAPTER 5: CONCLUSION

In 2001, a bipartisan group of legislators created and passed the No Child Left Behind Act (NCLB; 20 UNITED STATESC. § 6301), in part, to improve teacher quality throughout the United States. Referred to as NCLB, the Act introduced a new wave of reform efforts that have shaped present-day teacher education policy by requiring teachers to pass licensure exams, in many states, for the first time. Interestingly, Black test takers of teacher licensure exams have underperformed other demographic groups consistently since the inception of the exams (DeMauro, 1989; Goertz & Pitcher, 1985). While some research has noted the gaps in pass rates between Black test takers and their White counterparts, few have assessed performance outcomes after a licensure exam policy change. Hence, this chapter will conclude this study by summarizing the findings of the study's two research questions which aimed to investigate the barriers to entry for Black pre-service teachers and their performance outcomes after a policy exam change in Arkansas. Recommendations for policy, practice and further research will also be presented.

DISCUSSION

Consistent with previous research on the ineffectiveness of current EPPs in training future teachers (e.g., Darling-Hammond, 2000a, 2006; Darling-Hammond, Chung, & Frelow, 2002; Imig, Wiseman, & Imig, S., 2011; Zeichner, 2006), this study aimed to highlight the gaps in teacher preparation at four Arkansas EPPs. Tasked with training the state's largest number of Black candidates, this study identified potential

barriers to entry in coursework, field experience, and licensure exam support. As

highlighted in Chapter 3 (see Table 13), data revealed the three alternative EPPs lacked

content-based course requirements. Additionally, mentorship, observations, and feedback

opportunities were lacking within two of the alternative EPP curriculums. Additionally,

none of the four EPPs offered licensure exam support outside of external links on the

program's website. In essence, alternative EPPs, of which Black candidates are

overrepresented and more likely to enroll, are even more unlikely to adequately prepare

Black candidates for licensure exams due to their lack of required content coursework.

The study's second research question investigated the impact of a K-6 licensure

exam policy change in Arkansas on test-takers using an application of the DD estimator

framework. Similar to previous reports and studies (e.g., DeMauro, 1989; Goertz &

Pitcher, 1985; Nettles et al., 2011; Steinberg et al., 2014; Tyler, 2011), this study found

that Black test-takers in one state underperformed their White counterparts on a content-

related Praxis II exam. The study's analysis found that pass rates for all test takers on the

single-hurdle 5022 exams were well above average in the five years preceding the change

in the exam type (see Figure 4). Conversely, the DD estimator results discovered a

decline in the pass rate for Black and White test-takers after the change in exam type,

with a particularly significant decrease for Black test-takers (see Figure 5 and Table 18).

Similar to studies finding Black test-takers to perform less well on content-centered

college admissions exams (e.g., Toldson & McGee, 2014), this study investigated and

found similar results. When a state implemented a licensure exam policy change from a

pedagogy-based (5022) to a content-focused exam (5001), Black test taker pass rates

declined significantly. Subsequent sensitivity checks were statistically significant (see Table 19).

Despite the sharp decline in Black K-6 test-takers pass rates on the new 5001 exams, the number of Black K-6 teachers in Arkansas increased after implementing the new exam in 2015 (see Figure 6). This finding is likely associated with another policy change: the introduction of the Act 1240 waiver. The Act 1240 waiver allows districts to hire unlicensed teachers who are degree holders with at least 18 hours in the content area. Waiver recipients have three years to pass the Praxis II and earn a standard license (Van Dyke, 2021). Soon after its adoption, the use of Act 1240 ballooned in districts with higher percentages of Black teachers. This finding is supported by recent ADE data showing Black teachers make up nearly 35% of waiver users despite being less than 10% of the workforce, as seen in Table 20 (Arkansas Department of Education, 2021a). Thus, as the pass rates for Black K-6 test-takers declined immediately following the licensure exam policy change, the number of Black K-6 certified (those with standard licenses) also declined as the number of Black K-6 teachers with licensure waivers increased (Figures 5 and 6).

RECOMMENDATIONS

Policy

Increasing the number of Black EPP candidates who become completers and teachers will likely require rethinking licensure exam support. Though these supports will vary based upon EPP type and their candidate characteristics, innovative, intentional

policy recommendations can assist in increasing the pass rates of Black test-takers. Such recommendations include but are not limited to acknowledgment and understanding of the causes for lower pass scores, consideration of financial support for exam registration costs, support for Historically Black Colleges and Universities (HBCUs), and the consideration of additional measures for licensure.

Acknowledge the Gaps. Meeting the national calls for a more diverse teacher workforce will require policymakers to acknowledge the disproportionate impact teacher licensure exams have on Black test-takers. For Black EPP candidates, rigorous and well-delivered coursework is necessary for passing licensure exams on the first try. Unfortunately, Black candidates are more likely to enroll in college with lower ACT and SAT scores (Toldson & McGee, 2014), a known correlative data point for Praxis pass rates (Nettles et al., 2011). Additionally, long-standing K-12 inequalities (Wright, 2019), lack of access to advanced placement (A.P.) courses (Patrick et al., 2020; United States Department of Education, 2014), and over assignment into remedial courses (Hanford, 2016; Vandal, 2016) has resulted in an even larger knowledge gap upon entry into an EPPs for Black candidates. Furthermore, lack of access to rigorous content courses during the EPP process or misaligned content courses (National Center on Teacher Quality, 2019) has resulted in a sizable percentage of Black candidates being ill-prepared for licensure exams. Thus, simply addressing these factors can assist policymakers in creating solution-driven policy that will support Black test-takers facing the daunting task of passing licensure exams.

Consider the Cost. For Black candidates, taking licensure exams multiple times is common (Dodson, 2007) and a very costly endeavor for students more likely to come from low-income families (Nathenson et al., 2019) and are less likely to have disposable income to cover the costs of exams. This study, for example, found Black test-takers in one state spend $43 more, on average than their White counterparts due to a 42% increase in the new exam's cost. Additionally, Black test-takers were more likely to take the new exam multiple times. Thus, policymakers working alongside EPPs to ensure Black candidates have adequate access to preparation materials (e.g., books, online resources, and tutoring) may increase the group's first-time pass rate on licensure exams. Moreover, this level of collective support may decrease the number of exam retaking by Black test-takers. Moreover, setting aside funding to assist Black test takers with exam costs is an additional recommendation for policymakers intent on increasing teacher diversity.

Utilize Historical Black Colleges and Universities (HBCUs). HBCUs are producers of half of all Black teachers (NAEOHE, 2008) and more than half in several states (Freeman, 2001). In addition, Black candidates enrolled at HBCUs, according to research, are more likely to learn in a supportive environment and have positive experiences (Allen, 1992; Fleming, 2001; Irvine & Fenwick, 2011). Consequently, research shows HBCU trained teachers are more prepared, more likely to succeed, and remain in the profession than their non-HBCUs peers (Collins et al., 2013). Thus, providing HBCUs with the funding for additional resources to improve licensure exam pass rates would be a substantial step in the right direction for improving Black teacher recruitment and retention. This recommendation is significant given that most HBCUs

are located in the South, where most Black EPP candidates are trained and Black teachers serve.

Consider Additional Assessment Types. According to Darling-Hammond (2000), multiple-choice formatted licensure exams, for example, are not good indicators of either teacher effectiveness or teacher preparation. However, many licensure exams (e.g., the Praxis) are completely multiple-choice formatted. In addition, new measures are being introduced to license teachers because teacher licensure exams have increasingly served as a barrier to entry for teachers of color, especially Black teachers. Some states have introduced alternative assessments such as the edTPA (Carver-Thomas, 2018), and others are creating their own exams. In Arkansas, for example, current teachers who score within one standard deviation of the state's required cut score are allowed to enroll in an Alternative Assessment Plan (AAP) and complete assignments for one year to prove mastery of teaching. After completing the required tasks, the teacher is granted a standard teaching license (Arkansas Department of Education, 2020b). Such policy changes may be a step in the right direction for states struggling to meet teacher diversity goals.

Practice

EPPs. According to Chen and colleagues (2017), data show that the strategy used and time spent preparing for exams are good indicators of pass rates. Unfortunately, according to the ETS, the producers of the Praxis exam, "more than half of all Praxis candidates did not prepare in any way for the tests" (Dodson, 2008). Moreover, Nettles et

al. (2011) found education majors scored the lowest on Praxis exams. Thus, preparation is an essential first step for Black test-takers who often perform better when they feel more prepared (Petchauer, 2018). Unfortunately, for low-income Black students, access to test preparation materials and the disposable time to prepare is unlikely available to Black pre-service teachers who are likely to have a job and take a full course load (St. Amour, 2019; Carnevale & Smith, 2018).

School Districts. For school districts that hire uncertified teachers who are tasked with passing licensure exams within a certain number of years, setting aside time for test preparation during the summer or incorporating licensure exam support into the current professional development schedule is pertinent. This is especially true for non-traditional Black test-takers who are likely to enroll in alternative EPPs and less likely to have retained the content knowledge required to pass exams on the first try. Thus, structural, programmatic changes are also recommended based on data (e.g., pre and post-assessments).

HBCUs as Examples. According to research, HBCUs have prepared Black test takers for licensure exams by creating support systems within their schools of education. For example, one HBCU in Maryland created a one-hour Praxis course that increased the pass rates of participating students (Nugent, 2005). Moreover, several HBCUs have Praxis Labs (e.g., the University of Arkansas at Pine Bluff, Jackson State University, and Norfolk State University), specialized spaces for future educators to enhance licensure exam performance (Norfolk State University, n.d.). In essence, data-driven and

innovative preparation strategies are necessary if Black test-taker first-time pass rates on teacher licensure exams are likely to improve.

Further Research

Despite both the NEA and ETS's 2011 commitment to "improving interventions for prospective [minority] teachers ... to help candidates gain knowledge and skills to better prepare them for success on teacher licensure assessments …" (Tyler, 2011, p. 4), little improvement has been made in the past ten years. Thus, additional research - both qualitative and quantitative - would add to the overall body of literature and aid in better understanding the challenges Black test takers face in preparing for licensure exams.

Qualitative. Understanding the impact of licensure exams on Black test takers through the voices and experiences of test takers themselves provides an opportunity for literature to connect individual stories to national data. This, in part, can be accomplished by conducting rich research in the form of case studies supported by interviews and focus groups with Black test takers at both HBCUs and PWIs. Because much of the existing literature on Black test taker experiences with licensure exams has been conducted at HBCUs outside of the South (e.g. Nugent, 2005; Petchauer, 2018), conducting qualitative studies on Black test-takers at HBCUs located in Southern states (e.g., Arkansas, Louisiana, and Mississippi) given their low K-12 academic achievements, would benefit the existing body of literature. Furthermore, just one known study included the Praxis experiences of Black and Latino students at a Predominantly White Institution (PWI) (Bennet et al., 2006), of which the Black participant count was

very small. Thus, despite "African American students [making] up only 6.2% of teacher education students in all non-historically-Black-institution teacher education programs" (Zumwalt & Craig, 2005, p. 118), additional studies of Black test-taker experiences and performance at PWIs would add much significance to the overall body of literature.

      Quantitative. Regarding Black Teacher experiences with licensure exams, few quantitative studies have specifically investigated this topic and existing national reports on licensure exam performance (e.g. National Council on Teacher Quality, 2021; Nettles et al. 2010, Steinberg et al., 2014) habitually includes performance rates of all demographic groups, a missed opportunity to spotlight the disproportionate impact licensure exams have on Black teachers specifically. Thus, there are several opportunities to expand the research on this topic. First, a study similar to this one would benefit neighboring Southern states grappling with this challenge. For example both Louisiana and Tennessee require the Praxis 5001 exam for all prospective K-6 teachers. Second, an intervention similar to the one conducted by Michael A. Nugent (2005), in which test taker performance was measured before and after attending a course dedicated to preparing test takers at an HBCU for the three Praxis I exams, would offer an opportunity to measure the impact of such practices of Praxis II test takers today.

      Third, as noted in the study, the financial burden of licensure exams takes a particular toll on Black test takers who are more likely to enrolling college as members of low-income families and require employment to meet basic needs while in schools. Thus, a quantitative study calculating the financial impact of licensure exam (and certification

costs) on Black test takers would be quite beneficial to the overall literature specifically as it relates to the aforementioned policy and practice-based research recommendations.

Finally, national survey data historically used to collect licensure data (e.g., Schools and Staffing Survey (SASS); National Teacher and Principal Survey (NTPS)) no longer include specific questions regarding licensure exam performance (National Center for Education Statistics, 2012, p. 27; National Center for Education Statistics, 2016, p. 18), opting to ask only general certification questions. Thus, a national survey on the experiences of test-takers would be essential to the overall literature.

LIMITATIONS

There are a few ways in which this study is limited. First, the sample size of Black test-takers, though statistically significant for the years included in the study, is small compared to White test-takers. However, unlike many previous studies on Praxis performance, this study does not couple all minority groups opting to focus on Black test-takers who have underperformed all racial demographic groups since the exam's inception. Second, test-taker data does not include any demographic information other than race. Thus, test taker prior education, EPP type, parents education, employment status, socioeconomic status (SES), teaching status – variables that would make for a more fruitful study are unavailable. However, this sample of test-takers – because of its statistically significant size and general data allows for the results to be generalizable, which could prove to be helpful to states

with similar demographics or those using the same exam (e.g., Alabama, Louisiana, Mississippi, and Tennessee). Third, because the variables mentioned above are unavailable to analyze for this study, making a correlative connection between test-takers performance and prior education, EPP type, parents' education, employment status, SES, or teaching status is not possible.

CONCLUSION

The share of Black teachers in schools nationwide has declined significantly since the passing of *Brown* in 1954. As such, Black teachers are the slowest growing demographic group within the profession as of 2018. However, despite calls for more minority teachers in Arkansas (Holtmeyer, 2018; Wright, 2018), the state's largest minority group, Black teachers, are the least likely of all demographics to pass teacher certification exams, an essential component in the pipeline to becoming.

And although Black teachers are not the only demographic group strugglingly to pass licensure exams (Wexler, 2019), their failure rates are the highest of all groups despite attending similarly selective colleges and universities. Moreover, Black test-takers who had a parent with comparable educational attainment and achieved similar undergraduate GPAs... "were still likely to have a score seven points lower…[than] their White contemporaries" (Nettles et al., 2011, p. 48). Thus, the goal of this study was to identify barriers to entry for Black teachers and measure the impact of a licensure exam policy change on the overall Black teacher workforce in one state. This study's findings provide the first evidence of performance outcomes on Arkansas' state-wide change in

exam type and adds new results to the growing body of literature acknowledging teacher licensure exams as a barrier to entry for Black EPP candidates.

As seen by the historical outcomes of legal actions and mixed research regarding the accuracy, legitimacy, reliability, and validity of teacher licensure exams, legislation nor legal action is likely to admonish licensure exams in the near or far future. However, as education scholar Linda Darling-Hammond shared in a 2015 New York Times interview, to accomplish the goal of increasing the number of teachers of color, policymakers must "...be clear about what skills are necessary, rather than just trying to eliminate people from the pool". According to Hammond, throwing a test at the teacher quality problem is more harmful than beneficial to the teacher workforce (Harris, 2015).

Consequently, licensure exams will likely continue to serve as the gateway into the teaching profession despite landmark shortages in recent years due to COVID-19 and retirement. Hence, Black test-takers, who have been historically underserved by the K-12 education systems, will likely require resources, tools, and intense support to pass licensure exams such as the Praxis successfully. Therefore, from creating Praxis preparation courses and supplying tutors to providing financial support and additional resources, policymakers, district leaders, and teacher educators, in particular, must consider tangible and practical ways to support Black test takers if they are intentional about improving teacher diversity. Doing so is the most logical step to successfully recruiting and retaining future and current Black teachers.

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