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DEDICATION

To my wife – Mindy Lynn Mobra who has stood by me through over a decade of higher education. Without you, the ship sinks!

To my father – Joel Wesley Ward who as a coal miner and general construction worker provided me with the knowledge and work ethic to do anything I wanted. He said, "it is not in the state of mind it is the state your mind is in!" Even though we are not blood, I am honored to be your son.

To my mother – Lunna Gail Ward. You are the most resilient amongst all women! It is because of your strength and support that I continue to strive for excellence.

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Manuscript I

Abstract

The use of emergency certification for classroom teachers is meant to be a temporary measure that allows school districts to address pressing teaching vacancies in the short term. However, descriptive evidence indicates that the use of emergency certification is rising, and that it has become institutionally entrenched in many states. Given the evidence base indicating the importance of teachers to educational performance, emergency certification raises important questions about who is entering the profession through this pathway, how it influences traditional pathways to the teaching profession, and under what contextual circumstances emergency certification is most likely to be used. This three-paper dissertation explores the association between expanded provisions for emergency certification and enrollments in traditional teacher preparation programs; the contextual circumstances under which emergency certification is used; and the motivations of individuals entering teaching through the emergency certification. In the first paper, analyses show mixed results on the relationship between emergency certification and traditional teacher preparation enrollment. In the second paper, analyses indicate that emergency certified teachers are concentrated in rural and urban school districts. It was also found that emergency certified teachers are more commonly found in early childhood/elementary education, followed by non-core electives. In paper three, in-depth interviews with 30 emergency certified teachers suggested that many emergency certified teachers have a desire to serve youth with special needs, want to help schools in need, and have lifelong aspirations of becoming a teacher. However, individuals also used emergency certification as a contingency employment option, turned to teaching out of financial necessity, and wanted to test out the profession before fully committing to it. Considering the limited literature on emergency certified teachers, these three studies fill key gaps in scholarly knowledge on the use of emergency certification.

INTRODUCTION

Among all school resources, substantial evidence suggests that effective teachers are the most important school-based input for student success (Chetty, Friedman, & Rockoff, 2011; Cowan, Goldhaber, Hayes, & Theobald, 2016; Hanushek, 2011; Laczko-Kerr & Berliner, 2002; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004; Sutcher, Darling-Hammond, & Carver-Thomas, 2019; USDE, 2019b). Research finds that effective teachers may help their students achieve more than a full years-worth of learning compared to students taught by ineffective teachers (Hanushek, 1992; Nye, Konstantopoulos, & Hedges, 2004). Longitudinal studies also indicate that the positive effects of high-performing teachers may extend into adulthood by increasing college attendance, income, and wellbeing (Chetty et al., 2011).

Despite the importance of high-quality teachers, there appears to be a growing demand for effective teachers as shortages across the US appear to have steadily increased (Podolsky, Kini, Bishop, & Darling-Hammond, 2016; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Even more disconcerting is that unfilled teaching positions are reportedly sharpest in high-poverty urban and rural schools (Garcia & Weiss, 2019b) and critical subject areas (e.g. math and science) (Dee & Goldhaber, 2017). Adding to these challenges, the nation's large number of university-based teacher preparation programs produce the vast majority of certified teachers for the nation's schools, but many of these programs are experiencing declining enrollments, making them a less reliable source for filling important teaching vacancies (Sutcher et al., 2019).

To address the need for classroom teachers, policymakers have attempted different strategies. Some of these strategies allow military professionals (e.g. Troops to Teachers) or recent college graduates (e.g. Teach for America) to enter schools with teaching needs. Other

approaches attempt to use financial incentives, such as merit pay programs (e.g. DC Impact) or loan and debt forgiveness to encourage prospective teachers to fill teaching vacancies (Dee & Wycoff, 2013). Although an array of approaches has been attempted, the need for classroom teachers has remained high and particularly so in low-income urban and rural settings. Forty-two states now report persistent teacher shortages in math and 40 states report shortages in science (Sutcher et al., 2016). As a result, almost all states have some type of provision granting emergency credentials (USDE, 2019a). In recent years, the practice of using emergency certification has grown rapidly in states with the highest numbers of teaching vacancies (Sutcher et al., 2019).

The rising use of emergency certification for classroom teachers raises crucial questions for the public education system, but there is very little empirical research on emergency certification. Importantly, while there is evidence indicating that teacher vacancies are highest in high-needs urban and rural schools and math and science subject areas, the school contexts in which emergency certification is being used are largely unclear. In addition, very little is known about who is entering the teaching profession under emergency certification provisions and what the driving motivations might be for those entering the teaching profession through this non-traditional pathway. With teacher preparation programs already in decline, emergency certification may also have considerable ramifications for how teachers are prepared in states where emergency certification is expanding. University-based traditional teacher preparation programs have long been the predominant source of teachers for the public education system, but non-traditional pathways to becoming a teacher have increased dramatically. Emergency certification conceivably creates a disincentive to committing the time and resources needed to complete a traditional university-based teacher preparation program. Yet, no systematic research

has examined how increased use of emergency certification could be affecting enrollments in teacher preparation programs. As empirical research indicates that teachers are a highly influential component of student success, generating empirical evidence to understand these questions may be of considerable value.

Study Purpose

The purpose of this three-paper dissertation is to explore the contextual circumstances under which emergency certification is used; the motivations of individuals entering teaching through the emergency certification pathway; and the association between expanded provisions for emergency certification and enrollments in traditional teacher preparation programs. By addressing each objective in these three studies, this study seeks to develop a firmer understanding of how emergency certification is influencing students, teachers, and schools in the public education system from a district, state, and national level perspective.

Manuscript 1

Traditional teacher preparation programs and the field experience these programs offer can be a practical opportunity to gain an understanding of the teaching profession and working conditions in the schools (Parveen & Mirza, 2012). It is said to provide teachers with a greater understanding of professional demands and requisite qualifications (Parveen & Mirza, 2012). Traditional teacher preparation programs are also the main source of educators for the nation's public schools. However, traditional teacher preparation graduates from all colleges and universities have decreased from nearly 170,000 in 1999-2000 to under 120,000 in 2017-18 (USDE, 2019b). Some scholars have argued that the decline in enrollments in traditional teacher preparation programs is concerning. Empirical research indicates that traditionally prepared teachers stay in the profession longer than their alternatively certified teachers' peers (Van

Overschelde & Wiggins, 2020). Although some contend that there is no difference in learning outcomes between teachers of varying certification pathways after accounting for classroom experience (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005a), D. D. Goldhaber and Brewer (2000) find that in certain subjects, such as mathematics and science, students with emergency certified teachers do about the same or no worse than those with teachers that have standard teaching credentials. Emergency certification is supposed to be a temporary measure that some states use so districts can address shortages of certified teachers. It removes most barriers to entering the profession so long as a candidate for the classroom is a bachelor's degree holder. Moreover, emergency certification could discourage people from taking the traditional higher education route, bypassing the six-month non-paid field internship in a classroom that teacher preparation programs tend to require.

However, emergency certification has not been highly studied, and it is not understood if emergency certification is associated with traditional teacher preparation program enrollment. The purpose of this study is to investigate whether emergency certification provisions are associated with traditional teacher preparation program enrollment. The following research question is investigated:

> ***Research Question***. Are emergency certification provisions associated with enrollments in traditional teacher preparation programs?

The research design will be quantitative by conducting an interrupted time series analysis of before the dramatic use of the emergency certification policy was used to after the policy was heavily used. Data will come from a combination of the US Department of Education (USDE) and State data that can be found through internet searches. The USDE Higher Education Act Title II State Report Card System is open access data that provided traditional program

completers from every state dating back to 1999-00. Many states that are suffering from severe shortages such as California, Arizona, and Oklahoma are hiring emergency certified teachers in large numbers.

Manuscript 2

Teacher shortages appear to have become more acute in recent years but seem to be concentrated in specific school contexts. The first is in high-needs subjects, such as science, technology, engineering, mathematics (STEM), and special education, and the second is in urban and rural hard-to-staff schools which are schools that serve student populations with concentrated poverty (Dee & Goldhaber, 2017). Dee and Goldhaber (2017) describe differences associated with a school located in terms of rural and urban relative to suburban schools show differences in teachers who are taught teachers who lack a conventional license. The difference in urban schools is about eight percentage points higher and rural schools are also less likely to have a conventional license (Dee & Goldhaber, 2017). However, it is unknown what districts and schools employ the most emergency certified teachers in terms of these socio-demographic, geographic, school, and classroom factors because literature is lacking. This gap in knowledge could help address recruitment, and more importantly retention in the schools that house emergency certified teachers which are known to be one of the biggest problems with staffing in today's classrooms.

The purpose of this study is to understand the supply and demand issue of teachers in Oklahoma by looking at the distribution of emergency certified teachers in different school contexts.

> ***Research question***. What socio-demographic, geographic, school, and classroom factors are associated with the use of emergency certification?

The research design will be descriptive and quantitative by looking at the distribution of emergency certified teachers in different school districts across the state to see if the distribution of emergency certified teachers is irregular in different school contexts in Oklahoma. Emergency certification data will come from the Oklahoma State Department of Education which reports on the number of emergency certifications issued to school districts in the state, the number of teachers obtaining them, certification code of the subject area, school district identification number, city, and county identification number. The National Center for Education Statistics also has state school data which includes characteristics of locale, school size, and the number of teachers employed which will then be merged with the state data on the state district identification number. Oklahoma is a representative state that is suffering from severe teacher shortages and the increased hiring of emergency certified teachers since 2009 (Fuxa et al., 2019) reaching well over 3000 today.

Manuscript 3

Extensive evidence suggests that teachers are one of the most influential school-based inputs affecting student outcomes (Chetty, Friedman, & Rockoff, 2014a, 2014b; Cowan & Goldhaber, 2018; Goe, 2002; Hanushek, 2011; Nye et al., 2004; Rivkin et al., 2005; Rockoff, 2004). The decision to commit time and resources to become a teacher may also be suggestive of positive motivations and dedication to teaching. Prior research indicates that motivations for becoming an educator are strongly linked to teacher quality (Malmberg, 2006; Perlman, 2013). Much is known about the motivations of teachers and why they want to enter the teaching profession. Pre-service and traditionally certified teachers report that intrinsic rationales influence decisions to become teachers (Bakar, Mohamed, Suhid, & Hamzah, 2014; Fray & Gore, 2018; Massari, 2014; Reeves & Lowenhaupt, 2016; Thomson, 2013). Furthermore, studies

have reported that second career teachers articulate intrinsic motivations for wanting to teach (Chambers, 2002) with the most commonly cited motivational factors being civic duty and responsibility, work-family balance, personal influence, passion to teach, and being a change agent (Hunter-Johnson, 2015). However, little is known about individuals who decide to enter the profession under emergency certification.

The purpose of this study was to understand the motivations associated with entering the teaching profession through emergency certification.

> ***Research question***. How do emergency certified teachers decide to enter the teaching profession?

The study design is a qualitative interview study where I interviewed 30 emergency certified teachers new to the profession across Oklahoma in different school contexts within urban and rural locals. Oklahoma is a state that has seen a dramatic rise in the use of emergency certifying teachers which will be used to understand these teachers' motivations for entering the profession through this route. Data comes directly from emergency certified teachers that were categorized as either intrinsic or extrinsic motivation.

Overview of Studies

	Research Question	**Research Design**
Study 1	Are emergency certification provisions associated with enrollments in traditional teacher preparation programs?	Quantitative
Study 2	What socio-demographic, geographic, school, and classroom factors are associated with the use of emergency certification?	Quantitative
Study 3	How do emergency certified teachers decide to enter the teaching profession?	Qualitative

Study Contributions

Taken together, the three papers comprising this mixed-methods dissertation sought to shed light on the practice of emergency certification from a national, state, and district-level perspective. In light of the limited amount of literature on emergency certified teachers, these three articles fill in the gaps in knowledge on the relationship between the use of emergency certified teachers and enrollment in and completion of US traditional higher education teacher preparation programs which has decreased in recent years. Then, looking at a state level that has seen dramatic increases in the use of emergency certified teachers to understand the socio-demographic, geographic, school, and classroom factors that are associated with the use of emergency certification. Finally, the shift to understand the individual perspective of why emergency certified teachers are entering through this route to better understand if these teachers' rationales are intrinsically or extrinsically motivated which could have an association with student achievement.

While it is understood that most states' emergency certification provisions allow bachelor's degree holders to enter the profession through this route, it will help to understand if these provisions are influencing traditional preparation program enrollment and completion. It might shed light on whether it is necessary to do the six-month field experience that is unpaid as well as maybe gets a degree in another field that might pay better but resort to teaching. The second study was to try to see if the socio-demographic, geographic, school, and classroom factors that are associated with the use of emergency certification differ that much in terms of context. In other words, is the distribution of these teachers in the different school contexts the same or different? Finally, understanding the motivation behind why teachers decide to enter through emergency certification will help understand study one by getting an individual

perspective of the degree program chosen at the time of entry into higher education, the reason for entry into the teaching profession, (could be a second career), or if individuals just wanted to get into the profession faster. It will address the second paper by understanding where they are teaching and how they got there in that context and locality.

Overview of Dissertation

This three-paper dissertation is organized as follows. In Manuscript one, the purpose of the study was to investigate whether emergency certification provisions are associated with traditional teacher preparation program enrollment. In Manuscript two, the purpose of the study was to understand the supply and demand issue of teachers in Oklahoma by looking at the distribution of emergency certified teachers in different school contexts. In Manuscript three, the purpose of the study was to understand the motivations associated with entering the teaching profession through emergency certification.

These three studies connect by discussing the use of emergency teacher certification from a national view and how different states' traditional preparation programs might be affected by states using emergency certification at higher rates. Then it will shift to a critical state of Oklahoma that has suffered from a dramatic rise in the use of emergency teacher certification addressing the different contexts of shortages in school districts in different geographic locales. Finally, the dissertation will address individual perspectives to understand what motivates individuals who are new to the profession for why they want to enter through emergency teacher certification. By looking at a national, critical state, and individual perspective will help to understand the policy response of emergency certifying teachers.

MANUSCRIPT I

The Relationship between Emergency Teacher Certification on Enrollment and Completion of Traditional Teacher Preparation Programs

Introduction

Teacher shortages in K–12 schools have been a pressing concern in the US for some time. Scholars have argued that the decline in enrollments in traditional teacher preparation programs is concerning (Engledowl & Rutledge, 2020; Sloan, 2018) with shortages projected to increase based on this indicator and others (Cross, 2017; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Traditional teacher preparation programs have been the primary source of educators for US public schools (Barth, Dillon, Hull, & Higgins, 2016; Rico, Marshall, & Virgin, 2013; Zeichner, 2016) but enrollment and completion of these programs have steadily declined across the nation (Aragon, 2016; Barth et al., 2016; Sutcher, Darling-Hammond, & Carver, 2019). Graduates from all colleges and universities have decreased from nearly 170,000 in 1999-2000 to under 120,000 in 2017-18 (USDE, 2019b).

In conjunction with the increased use of emergency certified teachers, traditional teacher preparation enrollment and completion have seen sharp declines (Dee & Goldhaber, 2017; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Emergency certification is supposed to be a temporary measure that some states use to address shortages of certified teachers (Mobra & Hamlin, 2020; Williamson, 1984). Emergency certification is a policy that removes most barriers to entering the profession so long as the candidate holds a bachelor's degree and has a clean background (Mobra & Hamlin, 2020). Moreover, emergency certification could be considered a pathway to the profession that could potentially discourage people from taking the traditional preparation route or after being enrolled in a program not completing it. This would allow a person to bypass the six-month non-paid field internship in a K-12 classroom that teacher preparation programs tend to require that is not paid and go right to teaching (Mobra & Hamlin, 2020). Because emergency certification has not been highly studied, the purpose of this study is

to investigate whether emergency certification provisions are associated with traditional teacher preparation program enrollment and completion.

The study is looking at data from pre-COVID-19 to ensure declining enrollments and teacher shortages were not from the pandemic itself. The study will use a quasi-experimental design known as an Interrupted Time Series Analysis (ITSA). This analysis involves tracking a period before and after a point of intervention to assess the effects of the intervention. The intervention assessed with being the use of a state's emergency certification policy to understand if there is a relationship between the policy, enrollment in teacher preparation programs, and completion of those programs. Oklahoma and Oregon were chosen because they are in different regions of the US as well as both have increased use of their emergency certification policy. The following research question is investigated: Is emergency teacher certification associated with enrollment in traditional teacher preparation programs and completion?

Policy Context in Oklahoma and Oregon

In 2018, according to the national center for education statistics, Oregon operated 222 school districts, with a total of 1,256 public schools. Teaching staff totaled 30,152 full-time positions serving a total of 609,507 students enrolled in K–12. In the year 2000, there were 199 school districts, 1,263 public schools, 28,094 teachers, and 546,231 students.

Oregon is a state that has been suffering from an economic crisis since the early 2000s that exacerbates teacher shortages. Oregon schools use to be some of the best-funded and performing schools in the nation (Sheketoff, 2016). Unfortunately, that was said to end in the 1990s because of two ballot measures (Measures 5 and 50) that changed Oregon's property tax system which was the principal funding source of Oregon public schools (Sheketoff, 2016). In 2003, Oregon was said to have experienced the worst school funding crisis, "worse than any

other state in the nation (Conley & Picus, 2003).” Between 2002 and 2003 there was a 6.1% decline in K-12 funding per student, the largest annual percentage decline of any state measured and the second-largest since 1989-90 (Cohen, Dixon, Sampson-Gruener, & Shaw, 2008). In Portland, as part of an agreement to keep schools open in 2003, teachers agreed to work for two weeks without pay, but nearly 100 districts canceled teaching days (Brugger, 2009).

In 2008-09, the Great Recession hit, and funding was again cut causing working conditions to worsen from laying off teachers, janitors, and vice-principals, lowering school thermostats, canceling field trips, and rationing out supplies like paper (Murphy, 2009). Taking these types of measures causes class sizes to increase and other classes to be cut altogether like driver’s education, middle school art, industrial arts, study hall, and even some organized sports to budget money (Murphy, 2009). In 2014, school funding had yet to return to pre-recession levels in Oregon (Leachman, 2016).

In 2018, according to the 2018 Quality Education Model, Oregon is falling behind the rest of the country in school spending. The Commission creates an in-depth report every two years on the best practices and the funding that would be necessary to reach Oregon’s education goals. The 2018 report recommended the state needed to spend $10.7 billion in the next two years to fund a high-quality K-12 system, which is a $2.5 billion increase from the current fund. In the 2018-19 school year emergency certification was at its highest with 1,482 emergency certified teachers.

Oregon Higher Education

Between 2000-06, new teachers prepared in Oregon institutions in high shortage areas such as mathematics increased 401%, social studies, 153%, Language Arts, 104, special education, 93%, foreign languages, 64%, and sciences, 34% (Zanville & Initiative, 2006). This is

thought to be in large part because of a stepped-up effort in the recruitment of students to several different campus programs that were assisted by federal grants partnerships (Zanville & Initiative, 2006). In the early 2000s, many colleges and universities added or expanded cohort programs in different locations and offered tuition assistance to preservice teachers who would prepare for certification in shortage areas (Zanville & Initiative, 2006).

Oregon has cut funding for higher education overall per student in two and four-year colleges in the 2018 school year, lower than it was in 2008 after adjusting for inflation. Most states with teacher shortages increased preparation and licensing requirements which enacted system-changing policies that integrated alternative routes to certification (Bales, 2006). By 2009, many states issued these alternative licensing programs (59,000) except for Alaska and Oregon (Milner IV, 2013).

Teacher layoffs began roughly in 2009 and, in some school districts, continued through 2013. Between 2009 and 2014, 70% of graduates from teacher preparation programs did not get teaching jobs upon graduation because of reduced funding. Additionally, because of a lack of funding, teacher salaries were cut through freezes or furloughs, causing the profession to be less attractive (Chamberlain, 2015). Years of teacher layoffs had created a job market not desirable to new candidates which negatively affected the number of students that may otherwise want to enroll in teacher preparation programs (Oleaga, 2015). Both reductions in funding and layoffs can contribute to a lack of job security. However, even when the market demand side (K-12 students) is increasing there can still be a perception of limited opportunities in the teaching field making higher education teacher preparation less appealing.

Oklahoma K-12

Oklahoma employs 42,248 teachers in 1807 different schools in 597 different school districts that serve 698,891 students in K-12 according to the National Center for Education Statistics for 2018. In the 2003-04 school year there were 1,564 schools in 545 districts and 39,253 teachers serving 626,160 students. The state profile changed some, adding more districts, schools, students, and teachers.

In 1990, teachers marched on the Oklahoma capital for education reform that resulted in HB 1017 which lowered classroom sizes, equalize school funding, made changes to the tenure system, and increased teacher salaries. Prior to the bill being passed the state allowed rich and poor school districts. This reform did make great strides in the beginning but the state has not continued to put dollars into schools. When the Great Recession happened, Oklahoma implemented the most stringent education cuts in the nation. The primary source of funding for schools in Oklahoma has declined by 28.2% per student since before the Great Recession. Today, Oklahoma leads in inflation-adjusted cuts to state common education funding per student since 2008. Oklahoma has an economy that is closely tied to the energy sector but state revenues have been hurt by a variety of economic factors like declines in prices for oil and other natural resources, delayed sales of capital, and lethargic sales tax growth.

Like Oregon, Oklahoma's education funding cuts left schools no other option but to lay off teachers and other support staff causing working conditions to worsen. In another effort to budget money and try to recruit teachers some schools moved to a four-day school week. In 2018, teachers again marched on the capitol to strike for more education funding. The strike lasted nine days, where teachers called for pay increases for teachers and support staff after years of stagnant wages. Since the strike, state lawmakers passed a pay raise of $6,100 on average for

teachers and $1,250 for school professionals, funded by the first major tax hike in the state in nearly 30 years. Oklahoma teachers called for a $200 million increase in education funding, however, the state only passed an increase of $50 million. This has done little for the profession since it has passed.

Oklahoma Higher Education

Budget cutting in K-12 education seems to have made the teaching profession less attractive at all levels. Between 2008 and 2019 Oklahoma was one of six states that cut higher education funding by more than 30% (Hamby, 2021). Allocations were cut by 35.3% or $3,515, per student between 2008 and 2019 (Hamby, 2021). During that period, Oklahoma had the nation's third-largest percentage decrease in funding for higher education. Failure to invest in higher education has caused tuition prices to rise. Average tuition grew by 31.8% in Oklahoma public four-year institutions and by 47% in community colleges that serve a greater share of Pell Grant recipients. The national average increase is 37% (Hamby, 2021).

Enrollment in teacher preparation programs has seen a steady decline regardless of the graduating institution. Education majors have dropped 39% in a 10-year period in university-based preparation programs in Oklahoma (Fuxa et al., 2019). Another factor contributing to shortages is the education majors that are graduating themselves. The top four majors (Elementary Education and Teaching, Early Childhood Education and Teaching, Educational Leadership and Administration, Secondary Education and Teaching) account for more than half (51.6 percent) of the graduates (Lazarte-Alcalá & Miller, 2018). Subject area shortages are the result of an inadequate supply of teachers graduating in those fields.

Literature Review

Emergency teacher certification has been around for multiple decades (Certification, 1984; Herge, 1958; Jones-Castro, 2021; Stone, 1963; Williamson, 1984). Like decades before, researchers continue to cite supply and demand as contributing factors for the use of emergency certified teachers (Certification, 1984; Darling-Hammond & Sykes, 2003; Sutcher et al., 2016). However, there have been other factors that influence the supply and demand of highly qualified teachers. These factors can contribute to the number of qualified teachers capable, willing, and wanting to stay in the profession to teach (Maul & Chester, 1960; Podolsky, Kini, Bishop, & Darling-Hammond, 2016). One study finds that the current teacher shortage is driven by four main factors (Sutcher et al., 2016). Those factors include the decline of traditional teacher preparation enrollments, pre-recession pupil-teacher ratios, increasing student enrollment, and high teacher attrition and turnover (Sutcher et al., 2016). Other factors might include re-entrants and projected hires (Podolsky et al., 2016). Unfortunately, the supply of new traditionally trained teachers has been declining (Sutcher et al., 2016; USDE, 2019a) which is a cause for school districts to fill needed shortage positions with teachers by way of emergency certification.

De-professionalization of Teacher Profession

Teachers' perception of de-professionalization of the profession over the years has significantly increased from the 1990s to the late 2000s (Wronowski & Urick, 2021). There are three recent educational reform policies thought to be moving the teaching field to de-professionalization. Those reforms are policies that assess teachers based on annual standardized test score gains of students, specifically value-added assessment, fast-track teacher preparation and licensure, and scripted, narrowed curricula (Milner IV, H. R., 2013). The NCLB Act's federal mandates of high-stakes accountability systems for states represent the height of over

three decades of stronger accountability policy movement in the US. This piece of legislation attached consequences to failure of meeting required proficiency targets. It also attached consequences if required proficiency targets were not met. This led to many teachers narrowing their curriculum and drilling basic skills Altogether, the teaching field changed in work and morale with the passage of NCLB. This makes it important to understand how teachers perceive the profession might have changed at the height of the accountability movement.

Accountability is a broad policy term that commonly includes any public policy that incentivizes performance on standardized assessments. Incentives may either be in the form of rewards or sanctions and can be issued at the school or teacher level (Wronowski & Urick, 2021). These types of policies are engrained in a rational choice model of school reform with the notion that schools and teachers will reasonably react to rewards and or sanctions by improving instructional and organizational practices (Wronowski & Urick, 2021). By improving both practices the intent is that it will improve student performance that can in turn be measured as a standardized academic outcome (Diamond, 2012; Wronowski & Urick, 2021). Its intended purpose is to improve academic outcomes and reduce achievement gaps, but there can be unintended consequences for the teacher workforce that can be grouped into two areas, professional work and teacher morale (Wronowski & Urick, 2021). Because of the worry about schools being labeled as failing schools, teachers tend to lose time on curriculum and teach to tests. This may save the school from sanctions but it does not help students improve in the long term. Exchanging the good teaching and the ethic of the profession when almost being demanded to meet accountability goals may lead to teacher discouragement and overall feelings of worry, stress, and burnout which gives a negative perception of the profession which can ultimately lead to turnover. The perception of the profession has already shown signs of being negative.

According to a recent poll by Kappan Phi Delta (2019) 54% of parents in the U.S. do not want their children to become teachers.

Traditional Teacher Preparation Enrollment Trends

National data through 2019 show a severe drop in traditional teacher preparation enrollment and completion across the nation (USDE, 2019a). Enrollment for the 2008–09 school year is when enrollment numbers were first reported (Engledowl & Rutledge, 2020; USDE, 2019a). Engledowl and Rutledge (2020) looked at enrollment and completion and found that there were considerable decreases in traditional teacher preparation enrollment and completion over the past decade. When the No Child Left Behind Act of 2001 (NCLB) went into effect there was an expectation of high-stakes testing that placed a concentration on student performance. This Act could bar students from graduation for low scores in subjects like Algebra end of course exams, in addition, to replacing administrators and teachers if yearly progress were not met. Then in 2010, the Common Core State Standard (CCSS) was officially published starting the widespread adoption in part because of Race to the Top (RTT). RTT was a competitive grant created to motivate and reward innovation and reforms in K–12 education. Implementation of the standard began almost immediately because of the NCLB high-stakes testing requirement that had to be tied to CCSS. Although, adequate support was not there for schools and more importantly teachers who did not understand the standards or design curriculum that would align with them (Engledowl & Rutledge, 2020; Liebtag, 2013). This could be seen as an economic factor of why teacher candidates enrolling and completing traditional teacher preparation programs began to decline at the beginning of 2010. Overall, the majority of states suffered decreases in teacher enrollment, with a few observed in the 50% or greater range like Michigan, Oklahoma, and Idaho (Engledowl & Rutledge, 2020). By using the shift from the NCLB to the

RTT era as reference points, the percent change average in teacher candidate completion from 2001 to 2010 was an increase of 5.4% and completion from 2010 to 2017 was a decrease on average of 29.7% across the US. As a comparison, the percent change on average in enrollment from 2010 to 2017 was an overall decrease of 37.7% (Engledowl & Rutledge, 2020). Unfortunately, enrollment data is not available before 2008 so a comparison is not possible. Engledowl and Rutledge's (2020) research provides some evidence that policies put into place may have a substantial effect on traditional teacher education programs' capacity to maintain and train teacher candidates for the teaching profession. However, at the same time, these accountability measures at all levels for K-12 schools, teachers, and students made individual states start implementing accountability procedures for assessing higher education programs. For example, entrance and exit exams became the new normal for attaining a license to teach which usually requires six months of fieldwork with a teacher already in the classroom and that work is unpaid. However, it should be noted that some researchers report between one-quarter and one-half of teacher preparation completers might not go on to teach after graduating (DeMonte, 2016). With a shortage of teachers and a decline in traditional teacher preparation enrollment, other alternative pathways to the profession are used to fill the gap during shortages (Bowling & Ball, 2018; Ingersoll, 2003).

Alternative Certification

Recruitment and retention of highly qualified teachers have been a major challenge in the US (Sutcher et al., 2016). To attract new teacher candidates to the profession and fill the demand in teacher shortage positions, alternative routes to the profession had to be considered (Bowling & Ball, 2018; Ingersoll, 2003). Alternative teacher certification is a pathway for individuals to obtain a teaching certification and teach who do not hold a degree in education but have a

bachelor's degree from an institution of higher education but have subject matter expertise (e.g. math and science) and pass all the state-required tests before teaching in a classroom (Ruhland & Bremer, 2002). However, the term "alternative route" has also been used for unstructured help for people on emergency certification status to well-designed programs (Bowling & Ball, 2018; USDE., 2004). These are pathways that do not follow the traditional way of becoming certified to teach in the US. The major difference in routes to certification is the experience traditionally prepared preservice teachers gain during their course work in instructional experience, unlike alternatively certified teachers who get little to no experience until they are teaching full time (Birkeland & Peske, 2004). This means most alternatively certified teachers acquire their classroom experience while on the job (Constantine et al., 2009). The major difference between emergency certification and alternative certification is that emergency certified teachers do not have to take all state-required tests before teaching and emergency certified teachers do not have to have subject matter expertise.

Through the years, as the difficulty of hiring qualified teachers persists new forms of alternative routes emerged like Teach for America (TFA). TFA was established to recruit college graduates to commit to teaching for two years in low-income hard-to-staff public schools (Carter, Amrein-Beardsley, & Hansen, 2011). However, some research suggests that attrition and turnover are high reporting nearly 50% of TFA teachers leave the profession after two years, and over 80% leave after three years (Heilig & Jez, 2010). Other literature finds that about 60.5% continue beyond their initial two-year obligation and 43.6% stay in their initial assigned low-income school (Donaldson & Johnson, 2011). TFA teachers can also be hired under emergency certification so they can begin teaching as soon as possible. Most of the time they must complete the requirements of the state by passing the required state tests to become alternatively or fully

certified which is usually only a difference in certification renewal time. However, TFA teachers do go through a five-to-eight-week summer training program.

Emergency Certification

Among the many pathways into the profession, emergency certification has seen a sharp rise in recent years (Mobra & Hamlin, 2020; USDE, 2016b). The upward trend has 42 states now reporting some type of uncertified teacher or emergency credential (USDE, 2016b). To acquire an emergency credential a teacher generally needs a clean record and a bachelor's degree in any major then they can apply to teach without formal training or passing required state tests (Certification, 1984; Laczko-Kerr & Berliner, 2002; Mobra & Hamlin, 2020). This credential seems to be the least restrictive route into the profession (Mobra & Hamlin, 2020). Some researchers warrant problems with these teachers. For instance, a study in California by Goe (2002) suggests that teacher shortages are not equally distributed across all districts and schools with some facing more hiring difficulties than others. Low-income urban and rural districts seem to be more severe than others when it comes to hiring emergency certified teachers (Laczko-Kerr & Berliner, 2002; Miles & Katz, 2018). Hiring emergency certified teachers in response to teacher shortages to limit vacancies may further inadequacies in staffing by having students taught by the least experienced when they may need the most qualified (Aragon, 2016; R. M. Ingersoll, 1994).

Emergency certification is the issuing of substandard credentials to individuals who do not have an education degree and have not fulfilled all state requirements for standard certification or alternative certification processes (Certification, 1984; Chin & Asera, 2005). They are usually issued in the event of a lack of applicants in general or qualified teachers in a given subject area (Cross, 2017). Emergency certificates are typically only granted for a limited

period of time ranging from a year to three (Chin & Asera, 2005). However, some states such as Oklahoma actively use emergency certification as a teacher pipeline to recruit individuals to teach in their districts (Hinchey, 2020). In this case, participants would first file for emergency certification through the state, and then do a summer training program with the district where they would begin teaching the next school year after their summer training. The district hopes that the candidates fulfill the requirement of becoming alternatively certified within the one-to-three-year time frame depending on state time frames (Hinchey, 2020). One reason that enrollment in traditional teacher preparation has declined is that non-institution of higher education (IHE) alternative certification programs saw almost a 60% increase in enrollment (Yin & Partelow, 2020). Schools, districts, and regional education service agencies are said to run the largest number of non-IHE alternative certification programs in the US (Yin & Partelow, 2020). They enroll collectively about 17% of students (Yin & Partelow, 2020). One such grow your own program in a school district got legislation passed by the state board of education to become a provisional certification provider on the road to full certification who actively seek teachers through emergency certification (see Oklahoma, SB 217). Emergency certification is not used in all states or states do not report on their uncertified or emergency teacher status (Institute, 2018). States like South Dakota do not have emergency or provisional certifications (Institute, 2018). Other states like Florida and Montana do not report their uncertified teachers but just classroom vacancies (Institute, 2018).

Economics of Teacher Profession

Economics covers a wide range of factors that includes labor supply and demand, law and policies at the national, state, and local level, wages, politics, and governmental activities to name a few (Hanushek, Machin, & Woessmann, 2016). Economics concentrates on the behavior

and interactions of different economic agents and how economies work. Economics can affect the educational landscape at all levels and these factors seem to feed off of each other that can help drive people's decisions to enter or leave a profession.

Politics and Governmental Activities

This paper takes into consideration laws like the NCLB Act of 2001 that increased the federal role in holding school districts accountable for the academic progress that had indirect consequences on teaching, learning, and overall school improvement. Seeing a need to remedy the law the federal government created a grant program Race to the Top which was a push for the controversial Common Core State Standards movement. The movement was controversial because it affected teachers by evaluating them using student test scores (Shober, 2016). Both of the laws promised federal tax dollars with unrealistic goals coupled with the Great Recession. After the Great Recession, federal spending on public schools fell and continued to fall which could contribute to other economic factors (supply/demand, teacher wages, etc.) in school districts which may make individuals not want to enter the teaching field or cause teachers to leave the profession.

Teacher Compensation

Wages or financial hardships also affect the teaching profession (Allegretto & Mishel, 2018; García & Weiss, 2019a). Literature suggests that teachers are paid less than other comparable four-year degrees (Allegretto & Mishel, 2018) which may deter possible entrants into the field or encourage teachers to leave to find better-paying jobs. Low pay has also been shown to lead to moonlighting among teachers already in the profession (García & Weiss, 2019a). Moonlighting in some states has become commonplace in the profession (García & Weiss, 2019a). Research has shown that 18.2 percent of schoolteachers take on jobs outside of

the school system (Allegretto & Mishel, 2018). In 2018, non-teaching peers' weekly wages were 21.4% higher than teachers' after accounting for experience, education, and other factors known to affect earnings (Allegretto & Mishel, 2018). Research suggests that low salaries and quitting have a direct relationship and teachers are more likely to moonlight outside the school system the year before leaving the profession Allegretto & Mishel, 2018).

Teacher Supply and Demand

Economics affects the supply and demand of teachers. As mentioned before many conditions influence supply and demand, factors such as compensation, working conditions, turnover, and attrition rates to name a few which can all be very different for states, regions, and districts (Sutcher et al., 2019). Teacher shortages occur when the demand exceeds the supply increases the demand or decrease in supply and in many cases both concurrently (Donitsa-Schmidt & Zuzovsky, 2014; Guarino, Santibanez, & Daley, 2006). Labor demand can be defined as the number of available job positions offered for a certain compensation (Donitsa-Schmidt & Zuzovsky, 2014). Supply is the number of qualified individuals able and willing to be hired in the line of work, in this case as a teacher depending on compensation (Donitsa-Schmidt & Zuzovsky, 2014; Ehrenberg & Smith, 2016). Almost every state is reporting subject area shortages and is resorting to hiring teachers under emergency certification or those not fully certified (Sutcher et al., 2019). The Learning Policy Institute did a review of the state of the teacher workforce and the report reveals that 87,000 positions in the 36 states that reported such data were filled by teachers that were not fully certified or under emergency certification in 2016-17. If it was assumed the same rates of the remaining states the national total of emergency certified teachers or uncertified teachers would be around 109,000 (Sutcher et al., 2019).

Methods

Data

Title II of the Higher Education Act of 1965 (HEA), as amended in 2008 by the Higher Education Opportunity Act (HEOA) has each state report annually on elements of their teacher preparation programs for both traditional and alternatively certifying requirements for initial teacher credentialing as well as program completion on a State Report Card (Rico et al., 2013). This data serves to improve student achievement, the quality of teachers, hold institutions accountable for preparing certified teachers, and recruitment of highly qualified teachers into the profession (Rico et al., 2013). The data used in this study is the traditional teacher program enrollment that started in the 2008-09 school year (Engledowl & Rutledge, 2020; USDE, 2019) and traditional program completion data that started in the 1999-00 school year (USDE, 2019) ending in the 2017-18 school year. It was determined to stop at the 2017-18 school year because of the Covid-19 pandemic. Excluding the pandemic data takes away the virus variable which may exacerbate teacher shortages and skew data based only on the pandemic.

Some states have an emergency credential that is typically a temporary measure to address local teacher shortages. This measure is enacted by districts in some states to expedite the entry of individuals without an education degree to fill teacher vacancies (ESS, 2021). Some states make this data available on their website, others the data has to be requested and, in some cases, paid for. While the researcher wanted to get states in different regions of the country, some states do not have emergency credentials. Four of the states attempted all have an emergency certification policy, are experiencing teacher shortages having to use the policy, and are in three different regions which make them excellent for understanding emergency certification. Out of the many states attempted a convenience sample was gathered by four states

Oklahoma, Arizona, Washington, and Oregon for the school years 2000-01 to 2017-18. Because of different time frames of the introduction of the intervention (in this case emergency certification policy), two states (Arizona and Washington) data did not provide enough time before the high use of the policy to run the analysis, therefore these two states were dropped from the study leaving Oklahoma and Oregon.

Dependent Variables

The dependent variables will be both enrollment and completion in traditional teacher preparation programs. Traditional teacher preparation programs are those held in Institutions of Higher Education. Title II of the HEA authorizes grants for improving teacher education programs, strengthening teacher recruitment efforts, and providing training for prospective teachers. The title, more importantly, includes requirements for states to report on their IHE's quality of teacher education programs. Two of the reporting requirements are enrollment in teacher preparation programs and completion of those programs. There are specific enrollment data that starts in the 2008-09 school year and completion data that start in the 2000-01 school year. These two variables will represent the dependent time variables. Additionally, these two variables will be looked at to see if there is a relationship between the two.

Independent Variables

The total number of emergency certified teachers each school year from 2000-01 to 2017-18 will be used as the independent variable in the data set. Emergency certification is the policy response to teacher shortages that will be looked at to understand if there is an association between enrollment and completion in traditional teacher preparation programs. This independent variable or policy response will be considered the intervention at a certain time period to see if there is a difference in pre-intervention and post-intervention. The intervention

placement year will be right before the policy started to move in an upward trend. This means that the policy was introduced and then started to be highly used. Additionally, a linear trend will also be shown.

Data Analysis

An interrupted time series (ITS) analysis was used to see if there is an association between emergency certification, enrollment in teacher preparation programs, and program completion. ITS analysis can be considered a quasi-experimental experimental design used to evaluate longitudinal effects of interventions, through the use of regression modeling (Kontopantelis, Doran, Springate, Buchan, & Reeves, 2015). In this study, the time series is the number of enrollments in teacher preparation programs and completion of programs over time and the intervention is the introduction of the emergency certification policy usage at a certain timeframe which is the controlled influence. The timeframe for the intervention is chosen when emergency certification is at a low usage point right before it is heavily used. The effects of emergency certification numbers are evaluated by changes in the level and slope of the enrollment and completion of teacher preparation programs time series and the statistical significance of the intervention emergency certification parameters. The standard ITSA regression model takes on the following form (Linden, 2015):

$$Y_t = \beta_0 + \beta_1 T_t + \beta_2 X_t + \beta_3 X_t T_t + \epsilon_t$$

Yt is the aggregated dependent variable measured at each proportionately spaced time point *t*. *Tt* is the time since the start of the study. *Xt* represents the intervention or introduction of the emergency certification policy (preintervention periods 0, otherwise 1). *XtTt* is just an interaction term. β_0 represents the starting level or intercept of the dependent variable. β_1 is the trajectory or slope of the dependent variable pending the introduction of an intervention. β_2 signifies the

change in the level of the dependent variable that occurs after the introduction of the intervention. β_3 signifies the difference between preintervention and postintervention slopes of the dependent variable. Therefore, a significant p-value is looked for in β_2 to indicate an immediate treatment effect, or in β_3 to indicate an effect over time (Linden & Adams, 2011).

Table 1.1

States Descriptive Data

Year	State	Emergency Certifications	TPE	TPC
2019-20	Oklahoma	No Data	No Data	No Data
2018-19	Oklahoma	No Data	No Data	No Data
2017-18	Oklahoma	2153	3635	1314
2016-17	Oklahoma	1319	3971	1398
2015-16	Oklahoma	1209	4222	1438
2014-15	Oklahoma	572	4943	1545
2013-14	Oklahoma	247	4371	1597
2012-13	Oklahoma	109	7357	1629
2011-12	Oklahoma	33	7328	1708
2010-11	Oklahoma	41	7937	1680
2009-10	Oklahoma	72	7808	1731
2008-09	Oklahoma	60	23631	1802
2007-08	Oklahoma	69	No Data	1793
2006-07	Oklahoma	67	No Data	1939
2005-06	Oklahoma	55	No Data	3311
2004-05	Oklahoma	46	No Data	2053
2003-04	Oklahoma	18	No Data	2058
2002-03	Oklahoma	22	No Data	1956

Year	State	Emergency Certifications	TPE	TPC
2001-02	Oklahoma	30	No Data	1971
2000-01	Oklahoma	37	No Data	1954
2019-20	Oregon	No Data	No Data	No Data
2018-19	Oregon	1482	No Data	No Data
2017-18	Oregon	1266	2190	1645
2016-17	Oregon	1078	2519	1584
2015-16	Oregon	796	2290	1411
2014-15	Oregon	591	2137	1332
2013-14	Oregon	490	2013	1410
2012-13	Oregon	516	1891	1595
2011-12	Oregon	602	3416	1884
2010-11	Oregon	852	4413	2073
2009-10	Oregon	1140	4451	2240
2008-09	Oregon	1455	4203	2239
2007-08	Oregon	1452	No Data	1909
2006-07	Oregon	1250	No Data	2375
2005-06	Oregon	No Data	No Data	2870
2004-05	Oregon	No Data	No Data	2237
2003-04	Oregon	No Data	No Data	2031
2002-03	Oregon	No Data	No Data	2243
2001-02	Oregon	No Data	No Data	1881
2000-01	Oregon	No Data	No Data	1537

Note. Consolidated data for both Oklahoma and Oregon for emergency certification, enrollment, and completion of traditional teacher preparation programs. Also, TPE stands for Traditional program enrollment and TPC stands for Traditional program completion.

Results

Table 1.2

Results for Single Group Interrupted Time Series

States	Emergency Certification	Enrollment in Teacher Preparation Program	Completion of Teacher Preparation Program
Oklahoma			
Preintervention Trend	3.86*	-7847**	-31.23
	(1.51)	(2427.02)	(24.7)
Intervention	-307.96	9615.38	-123.52
	(179.47)	(5073.07)	(203.56)
Trend Change	344.06***	7204.14*	-33.15
	(45.99)	(2443.98)	(24.86)
Cons	27.68	20972.33	2178.72
Post Intervention	347.92	-642.85	-64.39
Linear Trend	(46.43)	(125.96)	(1.96)
Oregon			
Preintervention Trend	-160.89**	-565.9*	-3.55
	(37.34)	(209.83)	(33.58)
Intervention	36.85	105.5	-728.8
	(128.47)	(698.05)	(263)
Trend Change	368.52***	639.5*	75.75*
	(37.93)	(221.79)	(33.48)
Cons	1520.82	4806.6	2107.02
Post Intervention Linear	207.62	73.6	72.2
Trend	(9.77)	(46.21)	(17.41)

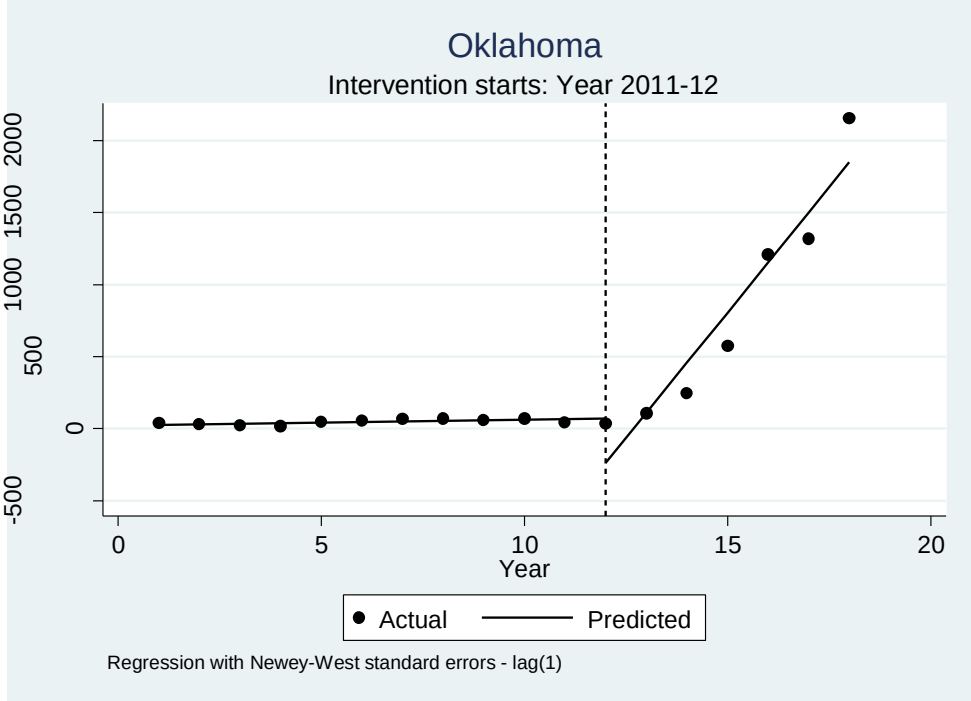
Note. *p \ .05. **p \ .01. ***p \ .001 after coefficients. Standard errors are in parentheses. This compares the two states' emergency certifications, enrollment, and completion in teacher preparation programs.

The average number of emergency certifications each school year starting in 2000-01 in Oklahoma was estimated at roughly 28 emergency certifications and appeared to increase significantly ($P < .05$) every school year prior to 2011-12 (policy introduction or intervention year) by roughly 4 emergency certifications. In the first school year of the intervention (2011-12), there appeared to be a decrease of around 308 emergency certifications followed by a significant increase (relative to the preintervention trend) of 344 ($P < .001$) emergency

certifications per school year. It also shows the linear trend estimate increased yearly at a rate of 348 emergency certifications in Oklahoma. Figure 1.1 provides a visual display of these results.

Figure 1.1

Oklahoma Emergency Certification Linear Trend

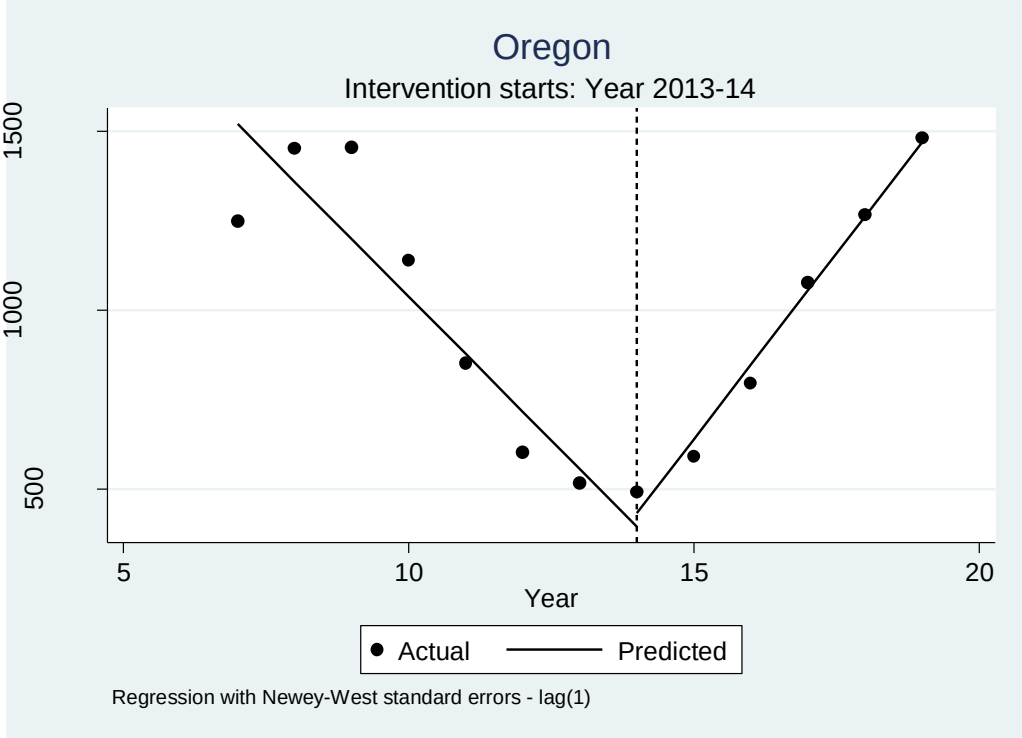


Note. The linear trend of emergency certification rises after the intervention year.

In Oregon, the average number of emergency certifications each school year starting in 2006-07 was estimated at roughly 1521 emergency certifications and appeared to decrease significantly ($P < .05$) every school year prior to 2013-14 (policy introduction or intervention year) by roughly 161 emergency certifications. In the first school year of the intervention (2006-07), there appeared to be an increase of 37 emergency certifications followed by a significant increase (relative to the preintervention trend) of 369 ($P < .001$) emergency certifications per year school year. We also see, from the linear trend estimate increased yearly at a rate of 208 emergency certifications in Oregon. Figure 1.2 provides a visual display of these results.

Figure 1.2

Oregon Emergency Certification Linear Trend

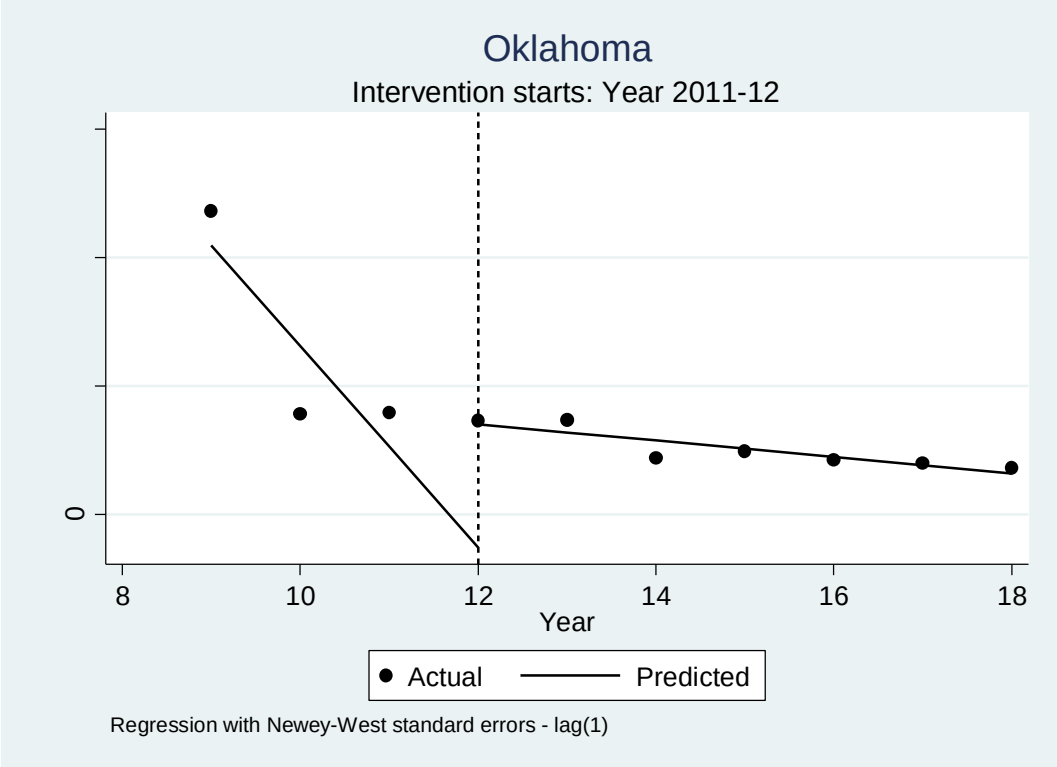


Note. The linear trend of emergency certification rises after the intervention year.

The average number of traditional program enrollments in Oklahoma each school year starting in 2008-09 was estimated at roughly 20,972 and appeared to decrease significantly ($P <$ .01) every school year prior to 2011-12 (policy introduction or intervention year) by roughly 7847 enrollments. In the first year of the policy introduction (2011-12), there appeared to be an increase of 9615 enrollments followed by a significant increase (relative to the preintervention trend) of 7204 ($P <$ .05) enrollments per year. From the post-intervention linear trend estimate, we also see that enrollment decreased yearly at a rate of 643 enrollments. Figure 1.3 provides a visual display of these results.

Figure 1.3

Oklahoma Enrollment in Teacher Preparation Linear Trend

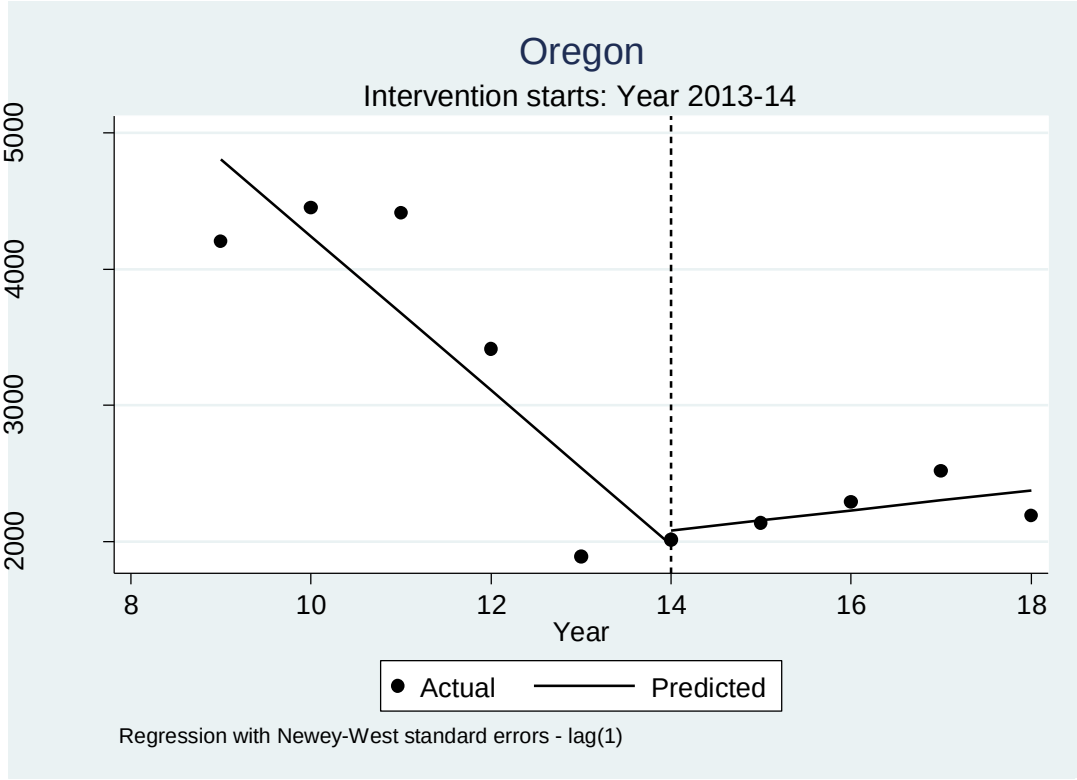


Note. The linear trend of traditional program enrollment declines after the intervention year.

The average number of traditional program enrollments in Oregon each school year starting in 2008-09 was estimated at roughly 4807 and appeared to decrease significantly ($P <$ .05) every school year prior to 2013-14 (policy introduction or intervention year) by roughly 566 enrollments. In the first year of the policy introduction (2013-14), there appeared to be an increase of 106 enrollments followed by a significant increase (relative to the preintervention trend) of 640 ($P <$ .05) enrollments per year. From the post-intervention linear trend estimate, we also see that enrollment increased yearly at a rate of 74 enrollments. Figure 1.4 provides a visual display of these results.

Figure 1.4

Oregon Enrollment in Teacher Preparation Linear Trend

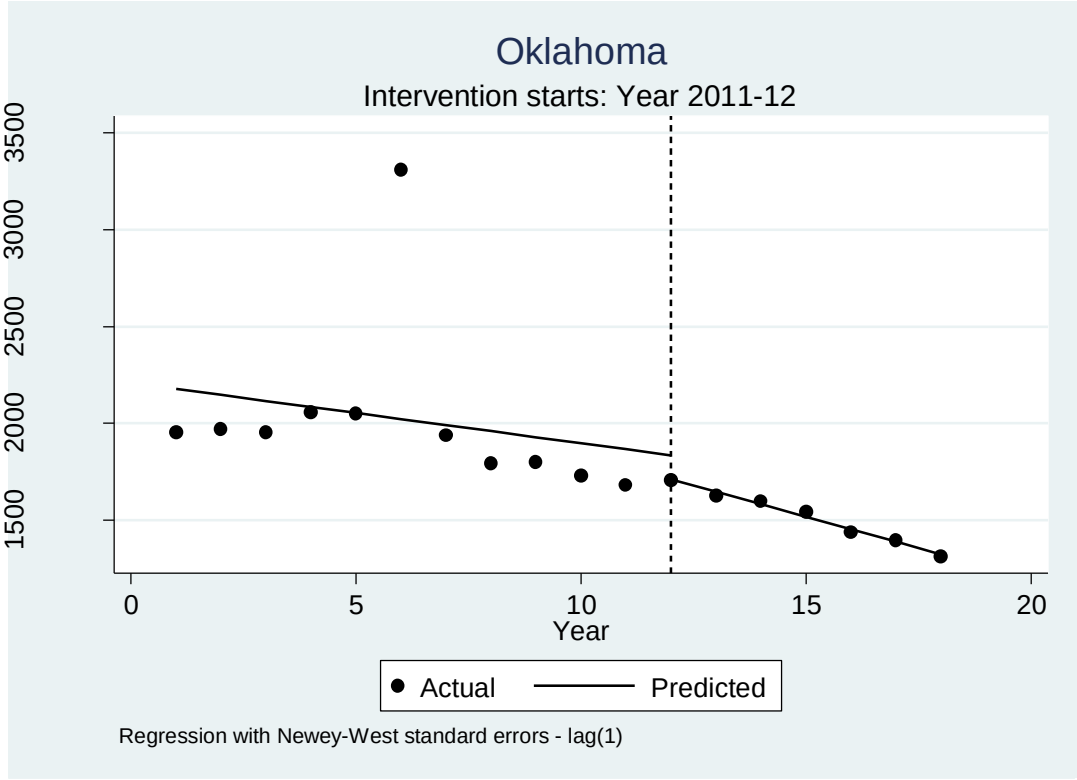


Note. The linear trend of traditional program enrollment rises after the intervention year.

Traditional program completion in Oklahoma on average each school year starting in 2000-01 was estimated at roughly 2,179 and appeared to decrease every school year prior to 2011-12 (policy introduction or intervention year) by roughly 31 enrollments. In the first year of the policy introduction of emergency certification (2011-12), there appeared to be a decrease of 124 enrollments followed by a decrease (relative to the preintervention trend) of 33 enrollments per year. From the post-intervention linear trend estimate, we also see that program completion decreased yearly at a rate of 64 completers. Figure 1.5 provides a visual display of these results.

Figure 1.5

Oklahoma Completion of Teacher Preparation Linear Trend

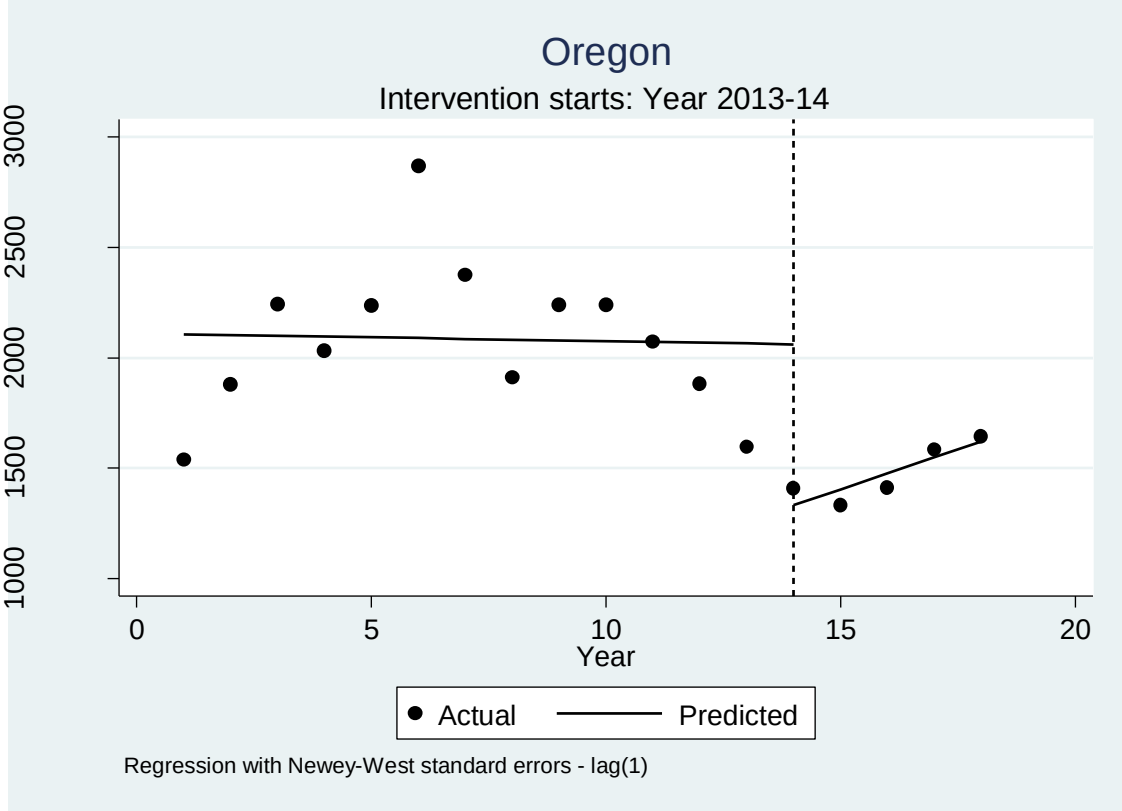


Note. The linear trend of traditional program completers declines after the intervention year.

Traditional program completion in Oregon on average each school year starting in 2000-01 was estimated at roughly 2,107 and appeared to decrease every school year prior to 2013-14 (policy introduction or intervention year) by roughly 34 enrollments. In the first year of the policy introduction of emergency certification (2013-14), there appeared to be a decrease of 4 enrollments followed by a decrease (relative to the preintervention trend) of 729 enrollments per year. From the post-intervention linear trend estimate, we also see that traditional program completion increased yearly at a rate of 72 completers. Figure 1.6 provides a visual display of these results.

Figure 1.6

Oregon Completion of Teacher Preparation Linear Trend



Note. The linear trend of traditional program completers declines after the intervention year.

When looking at both Oklahoma and Oregon's data and running a correlation analysis between the three variables, there is a moderate negative correlation between emergency certification and traditional program enrollment that is significant at t ($r = -.45$, $p < .05$). Traditional program enrollment is also negatively correlated but not significant.

Table 1.3

Oklahoma and Oregon Combine Correlation

Variables	Emergency Certification	Traditional Program Enrollment	Traditional Program Completion
Emergency Certifications	1		
Observations	31		
TPE	-0.45	1	
	0.04*		
Observations	20	20	
TPC	-0.21	0.22	1
	0.26	0.36	
Observations	30	20	36

Note. Significance *p \ .05. **p \ .01. ***p \ .001.

Individual correlation data for Oklahoma shows a moderate negative correlation t (r = -.47) of emergency certification and enrollment in teacher preparation programs that is not significant. However, emergency certification and traditional program completion is moderately negatively correlated and significant t ($r = -.52$, $p < .05$). Oklahoma's enrollment and completion are strong positively correlated and significant ($r = .69$, $p < .05$).

Table 1.4

Oklahoma Correlation Data

Variables	Emergency Certification	Traditional Program Enrollment	Traditional Program Completers
Emergency Certifications	1		
Observations	18		
TPE	-0.47	1	
	0.17		
Observations	10	10	
TPC	-0.52	0.69	1
	0.02*	0.02*	
Observations	18	10	18

Note. Significance *p \ .05. **p \ .01. ***p \ .001.

Individual correlation data for Oregon shows a moderate positive correlation (r = .50) of emergency certification and enrollment in teacher preparation programs that is not significant. However, emergency certification and traditional program enrollment is strongly positively correlated and significant t (r = .62, p < .05). Oregon's enrollment and completion are very strong positively correlated and significant (r = .94, p < .001).

Table 1.5

Oregon Correlation Data

Variables	Emergency Certification	Traditional Program Enrollment	Traditional Program Completers
Emergency Certifications	1		
Observations	13		
TPE	0.50	1	
	0.14		
Observations	10	10	
TPC	0.62	0.94	1
	0.03*	0.0***	
Observations	12	10	18

Note. Significance *p \ .05. **p \ .01. ***p \ .001.

Discussion

The teaching profession is an urgent topic for policymakers and the public as teacher shortages persist and uncertified or emergency certified teachers are being hired in the absence of certified teachers. At the same time enrollment and completion of traditional teacher preparation programs continues to decline (García & Weiss, 2019b). Alternative certification has not been taking up the slack as it was intended for when teacher shortages occur (Adcock & Mahlios, 2005; Bowling & Ball, 2018) causing emergency certification to rise in many states across the country. There has also been no empirical work to see if there is a relationship between

emergency certifying teachers, enrollment in traditional teacher preparation programs, and completion of those programs. This study sought to understand if emergency certification is associated with enrollment and completion of traditional teacher preparation programs. With 42 states now reporting some type of emergency credential of uncertified teachers (USDE, 2016b) this study offers valuable empirical contributions to the teacher shortage literature by looking for a connection between enrollment in and completion of traditional teacher preparation programs of some states to the use of emergency certification policy.

In this study, Oklahoma's emergency certification of teachers had a significant change from pre-to-post intervention with a positive linear trend. There was also a significant change in enrollment in teacher preparation programs with a negative linear trend. Completion of preparation programs was not significant but also had a negative linear trend. The correlation data show a significant negative correlation with enrollment but not completion of programs. This state's data seems to be an open book of why the outcome is on a negative trend. There has been some policy implementation to try to combat shortages such as H.B. 1206, H.B. 2157, and S.B. 428. These bills are not for the recruitment of teachers in traditional teacher programs but are for retired individuals to come back to the profession, individuals who have only passed subject area exams to teach, and retention pay not in contracts for paraprofessionals to continue to be paid while student teaching. As the data show it has done little to combat teacher shortages, reduce emergency certification use, or increase enrollment in traditional teacher preparation programs.

There are incentive programs like the Oklahoma Teacher Shortage Employment Incentive Program (TSEIP) created in 2001-02 by Oklahoma legislation that was implemented to reimburse eligible student loan expenses or cash benefit to those who graduate from accredited

Oklahoma traditional teacher preparation program and receive a certification in math or science and agree to teach in in a secondary school in the state for at least five years. There is also the Urban Teacher Preparation Academy (UTPA) is a program at the University of Central Oklahoma for teacher candidates already in the teacher preparation program and offers a tuition waiver, scholarship opportunities, and financial stipends from the Oklahoma City Public Schools (OKCPS) Foundation for each active semester in the program to make a difference in the lives of Urban students in participating schools. There is also the University of Oklahoma Jeannine Rainbolt College of Education Debt-Free Teachers Program. This is a debt forgiveness program for incoming teacher education students. It is designed to recruit and retain the nation's best students. The program is a merit and need-based assistance initiative directed toward exceptional students in the college with substantial debt associated with their education. It is intended to target high need areas and will forgive up to $5,000 of their student loans for each year they teach in the state for up to four years which totals up to $20,000 of qualifying student loans.

The most recent program is Tulsa Teacher Corps. which recruits candidates specifically under emergency certification for a specific district. It provides a six-week training program working directly with students in summer school classrooms. The following school year, after meeting all program requirements, recruits begin teaching in either elementary, early childhood, or special education. The program calls emergency certification a pathway to a teaching career. This program was approved by the state school board to allow participants to receive provisional certification on a journey to becoming fully certified. Emergency certification seems to be the least restrictive way into the profession, bypassing the mandatory field experience that is not paid. This could be another reason why enrollment in teacher preparation programs are declining along with completion.

The negative perception of the teaching field makes it difficult for anyone economically to think the profession will benefit them financially or be able to pay back their student loans on a teacher's salary. As a result of many factors, Oklahoma's ITSA of emergency certification shows the steady low use of the emergency certification policy until 2012-13 when it started and continued to rise while enrollment continued to decline.

Oregon's data in this study tells a much different story. Oregon started tracking emergency certification in 2006 when the state already had an increased use of the policy and was declining steadily until 2014 when it began to increase again. One reason for the high number of emergency certified teachers could be because projected retirement years were between 1999-2004 and retirements did occur by 2004 (Zanville & Initiative, 2006). Another issue in the early 2000s is the turnover rate which could have been because of the property tax law. In 2005-06 there was a 9.4% turnover rate with 3,368 licensed educators that left an Oregon public school district (Zanville & Initiative, 2006). Attrition rates might have been another factor for high emergency certification use. In 2002-03 attrition was 9.5% or 3,143 licensed staff (Zanville & Initiative, 2006). By 2005-06 attrition was at 7.1% or 2544 licensed teachers (Zanville & Initiative, 2006). As the emergency certification policy use was heavily used, teacher shortages persisted, with retirements expected, and when turnover and attrition elevated the state seemed to step up recruitment efforts for traditional preparation programs on many campuses that were assisted by federal grants and contracted with school districts to retain teachers in high needs areas (Zanville & Initiative, 2006).

Recruitment efforts in teacher preparation programs have increased with policy enactment in Oregon. In 2013, the Educators Equity Act or HB 3375 was enacted which requires public universities, school districts, and education service districts to establish equity plans with

clear goals, strategies, and deadlines to recruit, hire and retain diverse educators. In 2017, the state enacted S.B. 182 which requires research to be conducted by the chief education office on teacher work conditions, supply, and demand to aid in increasing the supply of diverse candidates to recruit effective teachers to teach in high-need schools and subjects (Aragon, 2018). The enrollment data show that from 2013 to 2017 enrollment increased until 2018.

Empirical research suggests that during economic downturns, like the Great Recession, graduation rates drop in all majors resulting in lower wages in fields leading to public school positions (Blom, Cadena, & Keys, 2015). In Oregon, spending on education trended downward after the Great Recession from 2009 to 2013 (Hammond, 2015). School funding had yet to return to pre-recession levels by 2014 (Leachman, 2016). Because of the reduction in funding and layoffs, the lack of job security, and poor pay may be significant factors in high emergency certification use. Surrounding states such as Washington offer significantly more pay annually to teach (Manning, 2018) which can make it tempting to leave the state of Oregon which could be another reason for high emergency certification use. It could also be a reason for enrollment numbers to slightly increase but not teach in Oregon schools.

Conclusion

In the United States, one of the most pressing issues facing policymakers is the shortage of certified teachers in classrooms (Berry & Shields, 2017; Podolsky et al., 2016). To mitigate these shortages an emergency certification policy has been used in many states to fill a shortage need. At the same time, traditional teacher preparation program enrollments have dramatically declined (Risko & Reid, 2019; Ward, 2019). With teacher shortages happening across the US this study creates a strong rationale for examining if there is a relationship between the use of emergency certification and enrollment and completion of teacher preparation programs.

Emergency certification seems to be a policy used frequently to remedy teacher shortages although a limitation to these results is that they may not be generalizable to all states. Some states do not formally have a clear policy of emergency certified teachers or do not report their uncertified teacher numbers despite reporting subject matter teacher shortages such as mathematics and science (Institute, 2018).

States in need of filling teacher positions are usually the result of at least one if not more of the factors the economic lens offers. Working conditions and pay are at the top of the list of why teachers leave either to work at other schools or leave the profession altogether (Geiger & Pivovarova, 2018). It can also be a reason why teachers are not wanting to enter the profession, go through a traditional teacher preparation program, or finish a program. One of the most recent Phi Delta Kappan (PDK) Poll shows that teachers are dissatisfied with pay (60%), school funding (75%), about 50% indicate wanting to leave the profession and 55% of teachers reported they would not want their children to go into the teaching profession (Kappan, 2019).

One of the least restrictive ways into the teaching profession is through emergency certification (Mobra & Hamlin, 2020). Emergency certification requires only a bachelor's degree of any type, so college students can switch from a teacher preparation program and get a general studies degree and go right to teaching after graduation (Mobra & Hamlin, 2020), skipping the mandatory field experience that is usually unpaid. When looking at the pay a teacher may make in their career it is significantly less than most other fields with a four-year degree (S. A. Allegretto & Mishel, 2016; García & Weiss, 2019a). Because of these economic factors, the teaching profession seems to be less appealing unless there are quick entry routes. This would make the job more extrinsically motivated by being able to be employed for a year or two until a job that appeals to them comes available.

MANUSCRIPT II

In What Contexts are Teacher Shortages Most Severe?

Evidence from Oklahoma

Introduction

Mentions of teacher shortages in rural areas have persisted in much of the U.S. for the better part of two decades (Dee & Goldhaber, 2017). Much has been studied nationally on teacher shortages that have found conflicting arguments on being a national or individual state issue (Cowan, Goldhaber, Hayes, & Theobald, 2016). A teacher shortage can be defined as the inability to fill teacher vacancies at current wages with qualified individuals to teach the subjects needed (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). A teacher shortage area can be calculated according to Cross (2017) by a combination of unduplicated full-time equivalents (FTE) as well as the percentage of total FTEs in a state: (a) teacher positions unfilled; (b) teacher positions filled by those who are irregular, provisional, temporary, or emergency certified; and (c) teacher positions filled by those who are certified but are teaching out of their area of preparation.

The response to teacher shortages recently has been to fill needed teacher positions with emergency certified personnel in the absence of qualified teachers (Sutcher et al., 2016). Hiring emergency certified teachers has been a policy response kept by most states for teacher vacancies across the U.S. for decades (Carver-Thomas & Darling-Hammond, 2017; Certification, 1984; Darling-Hammond, 2000a; Sutcher et al., 2016) but alternative certification has, for the most part, filled the void of teacher shortages mainly for hard-to-fill subject areas like math and science (Feng & Sass, 2018; Shaw, 2008). The difference between emergency certification and alternative certification is that alternatively certified personnel have taken and passed all state-required tests before teaching making them highly qualified, emergency certified teachers start teaching before any state test has been taken classifying them as unqualified and untrained. Those entering the profession through emergency certification in most cases only require a

bachelor's degree that may or may not be in the subject area they might teach and can teach for two years before having to pass all state-required tests.

There are many reasons why schools report hiring emergency certified teachers. The main reasons reported are a lack of qualified applicants in general or a lack of qualified teachers in a given subject area (Cross, 2017; Murphy, DeArmond, & Guin, 2003). While the use of emergency teacher certification continues to rise, one question is always at the forefront of this type of policy response, what context are teacher shortages/vacancies most severe by looking at emergency certification? Reporting subject area shortages does not necessarily tell how many teachers a school is short but emergency certification can tell the number of actual shortages and how many teachers are needed. Emergency certified teachers whether credentialed or non-credentialed show how many teachers are needed to fill vacancies with highly-qualified teachers. Previous research has lacked because there is not a standard framework for states to define what a shortage area is and some states do not report the number of uncertified or emergency certified teachers (Institute, 2018; McVey & Trinidad, 2019). If a state reports a subject area shortage, they are not required to report how significant the need is (McVey & Trinidad, 2019). For example, they may need one teacher or 100. Most analyses on teacher shortages specify subject area shortages but not the number of teachers actually needed. That means emergency certified teachers may determine true teacher shortages in schools and help schools customize specific needs to specific schools and contexts (McVey & Trinidad, 2019).

The purpose of this study is to understand what context teacher shortages/vacancies are most severe by looking at emergency teacher certification in different district geographic locales and the subject areas being certified. Many rural locales have experienced a rise in the use of emergency certification. As seen in many districts across the US, school leaders are faced with

determining how to best fill teacher vacancies given the specific economic and community realities within the regulatory contexts along with the leading narratives about teacher shortages (e.g., media, national research, and policy). Unfortunately, district leaders are faced with trying numerous strategies to fill vacancies, often through the use of less-than-ideal practices which include the hiring of teachers under emergency certification and placing teachers in subjects outside their certification areas under emergency certification (Podolsky & Sutcher, 2016). By looking at teacher vacancies filled by emergency certified teachers in different school contexts and what subject matter is being emergency certified may help to better understand what contexts are most severe.

Oklahoma Landscape and Rural Schools

Oklahoma is a state that has reported both phenomena of a lack of qualified applicants in general and a lack of qualified teachers in a given subject area (Cross, 2017). Emergency teacher certification has been on the rise in Oklahoma for the better part of a decade (Mobra & Hamlin, 2020; Sutcher, Darling-Hammond, & Carver-Thomas, 2019) and has increased from around 30 emergency certified teachers in 2011 to over 3000 in 2019 (Fuxa et al., 2019). Oklahoma is a state that employs 41,047 teachers in 1795 different school sites according to the Oklahoma State Department of Education Public Records for 2017-18 and more than 70% of Oklahoma districts are rural (Lazarev, Toby, Zacamy, Lin, & Newman, 2017). However, the state has almost double the number of certified teachers that maintain certification that are not teaching in Oklahoma schools (Fuxa et al., 2019). In most cases where emergency certification is widespread, it is commonly the result of a combination of things such as low teacher pay, inadequate funding, poor working conditions, and unequal funding systems for education (Darling-Hammond &

Podolsky, 2019). In Oklahoma, it is unclear what context is most impacted by the use of emergency certified teachers.

Oklahoma has always had the option of emergency certification, though alternative certification has filled the void of teacher vacancies until around 2009 (Fuxa et al., 2019). After the 2008 recession, economically the teaching profession took a detrimental hit in Oklahoma where funding was cut causing some schools (mostly rural) to go to a four-day school week to try and save money (Griffith, 2011; Morton, 2021) and to recruit and retain high-quality teachers (Thompson, Gunter, Schuna, & Tomayko, 2021). Other schools reduced programs and teachers which creates working conditions that are potentially unfavorable (Sutcher et al., 2016). To make matters worse, teacher pay in Oklahoma is among the lowest in the nation (National Education Association, 2018). In 2018, the state gave teachers a pay raise that did little for the profession in terms of recruitment and retention (Carter, 2021). Pay is based on the state minimum teacher salary schedule outlined in 70 O.S. § 18-114.14 which is updated yearly. Other states such as Arkansas and Texas actively recruit Oklahoma-certified teachers who offer significantly higher pay and better working conditions. As a result, Oklahoma has relied heavily on emergency certification to fill classroom vacancies. Unfortunately, as these quick pathways to the classroom have increased, education majors have dropped 39% in a 10-year period in university-based programs in Oklahoma (Fuxa et al., 2019).

Literature Review

Teacher Shortages

The challenge of filling teacher vacancies in the U.S. has gained the attention of school administrators, and local, state, and national officials alike (Barth, Dillon, Hull, & Higgins, 2016; García & Weiss, 2020). While shortages persist, colleges and universities have decreased

enrollments in university-based programs by around 35% from 2010 to 2018 (Partelow, 2019). Almost every state in the U.S. reports the supply of new entrants into the profession is declining which could be the onset of a shortage crisis (Partelow, 2019; Partelow & Baumgardner, 2016). Nearly all US states have had a decline in university-based teacher preparation enrollment but some states like California, Illinois, Indiana, Louisiana, Michigan, Oklahoma, Oregon, and Pennsylvania have been affected worse (Partelow, 2019; Partelow & Baumgardner, 2016; Sutcher et al., 2019). While university-based teacher preparation program enrollment numbers have decreased, primary and secondary student enrollment has increased (National Education Association, 2018). With the continued growth of K-12 student enrollment and the expectation of retiring baby boomer teachers, schools could experience more severe teacher shortages in the coming years (Gordon, 2011; Partelow & Baumgardner, 2016). Many states report teacher shortages, but some are more subject-specific (e.g., science, technology, engineering, math, and special education) along with certain types or schools serving disadvantaged students (Cowan, Goldhaber, Hayes, & Theobald, 2016; Sutcher et al., 2019). These schools are considered to be hard to staff with gaps that continue to persist between high and low-minority as well as high and low-poverty schools (Barth et al., 2016; Wiggan, Smith, & Watson-Vandiver, 2021). This suggests that policies aimed at confronting teacher shortages must be targeted to these specific context (Castro, Quinn, Fuller, & Barnes, 2018; Cowan et al., 2016).

Teacher Qualifications

Many agree that placing highly skilled and effective teachers in every classroom is the key to a better public education system (Darling-Hammond, 2010; Pollock & Tolone, 2020). Unfortunately, the growing attention of the distribution of high-quality teachers in the US has also become a topic of concern (Darling-Hammond, & Podolsky, 2019). By every measure of

qualifications, less qualified teachers tend to be found in schools serving greater numbers of low-income minority students (Adamson & Darling-Hammond, 2011; Carver-Thomas & Darling-Hammond, 2017; Ingersoll, 2002; Lankford, Loeb, & Wyckoff, 2002; Socias, Chambers, Esra, & Shambaugh, 2007).

After considerable attention, the top-down approach of congress included a provision in the No Child Left Behind Act of 2002 that said states should ensure all students have access to highly qualified teachers. A highly qualified teacher is defined as a teacher who holds a bachelor's degree, demonstrated competence in the subject matter they teach, and has full certification in the state they teach (Hanushek & Rivkin, 2010; Garcia & Weiss, 2019b; USDE., 2009). Existing empirical literature has shed light on the distribution of highly qualified teachers across different kinds of schools (Adamson & Darling-Hammond, 2012; García, & Weiss, 2019b; Rice, 2013). Research has consistently shown that less advantaged schools typically have more underqualified staff (Darling-Hammond, 2000b; Garcia & Weiss, 2019b; Lankford et al., 2002) and has documented that schools serving minority, low-income students have the most difficulty recruiting and retaining effective and experienced teachers (Ascher & Fruchter, 2001; Darling-Hammond, 2018; Garcia & Weiss, 2019b; Mangiante, 2011; Scott Krei, 1998).

Teacher shortages in rural areas may be worse than in urban as teachers are less likely to move between schools but are more likely to leave the profession altogether (Goodpaster, Adedokun, & Weaver, 2012; Lavalley, 2018). This can create a "revolving door" of emergency certified teachers as recruitment of traditionally certified teachers could be more difficult in geographically-isolated rural districts that do not likely have a higher education institution or non-profit partner close in proximity (McHenry-Sorber & Campbell, 2019). Because rural schools have such difficulty hiring teachers this leaves school administrators the inability to hire

the most qualified teachers in most cases and have to hire whoever walks through the door (Maranto, 2013; Tran, Hardie, Gause, Moyi, & Ylimaki, 2020). As the supply of teachers continues to decline and rural school districts make up the majority of districts in most states (Lazarev et al., 2017), rural schools would seem to be most affected by emergency certification, but literature is lacking making it unclear who may suffer the most.

Emergency Certification

Among the many pathways other than the traditional route into the profession, emergency certification has been on the rise in the US in recent years (Bowling & Ball, 2018; USDE, 2016b). The upward trend has 42 states now offering some type of emergency credential (USDE, 2016b). Emergency certification seems to be the least restrictive route into the profession (Mobra & Hamlin, 2020). To become an emergency certified teacher, generally, anyone with a clean record and a bachelor's degree can apply without any formal training (Certification, 1984; Laczko-Kerr & Berliner, 2002; Mobra & Hamlin, 2020). Some researchers warrant problems with these types of teachers. For example, a study of emergency certified teachers in California by Goe (2002) shows that teacher shortages are not equally spread across all districts and schools with some struggling more than others with hiring difficulties. Urban districts across the US face similar difficulties hiring qualified teachers resulting in placing uncertified or emergency

certified teachers in their place (Fideler, Foster, & Schwartz, 2000; Goe, 2002; Ingersoll, 2020). However, some studies show that rural districts are also affected by teacher shortages requiring emergency certifying individuals with some states worse than others (Brownell, Bishop, & Sindelar, 2018; Lazarus, 2003). Hiring emergency certified teachers as a response to shortages may limit teacher vacancies, but it may also further staffing inadequacies where students are being taught by the least experienced that may need the most qualified (Aragon, 2016; R. M. Ingersoll, 1994).

Teacher Pipeline

The education profession has struggled to attract, train, and retain new teachers from traditional teacher preparation programs (Barth et al., 2016; Clark, McConnell, Constantine, & Chiang, 2013; Guha, Hyler, & Darling-Hammond, 2017; Partelow, 2019), a problem that may be contributing to teacher shortages that results in the hiring emergency certified teachers in states such as Oklahoma (Mobra & Hamlin, 2020). Nationally, more teacher licenses are being awarded but 20 states have all seen decreases (Barth et al., 2016; García & Weiss, 2019bc Partelow, 2019). Some have seen teacher certificates drop drastically by one-third to almost one-half in states like Oklahoma, Washington, Minnesota, Virginia, and New York (Barth et al., 2016 Partelow, 2019). It is evident that both traditional and alternative program enrollment has declined but it should be noted that some report between one quarter and one-half of teacher preparation completers may not go on to teach right after graduating (DeMonte, 2016). Partelow, (2019) found that there are fewer new entrants in teacher preparation programs with enrollment dropping by 35%. Sutcher et al. (2016) say in earlier literature that if the current trends continue

there could be as few as 200,000 available teacher hires each year nationally by 2025. This would result in a gap of more than 100,000 teachers annually (Sutcher et al., 2016).

School Context Teacher Issues

Research suggests that urban and rural schools are faced with more challenges regarding resources, funding, teacher supply, and quality, as well as disciplinary problems more than suburban schools (Knoblauch & Chase, 2015). In the US, urban inner-city school districts tend to be top-down bureaucracies that are larger with a high percentage of low-income students (Darling-Hammond, 2006; Knoblauch & Chase, 2015; Leonardo & Grubb, 2018). Urban districts often have disproportionate amounts of low-income and at-risk students as well (Buddin & Zamarro, 2009; Faden, Faxon, Anderson, Wahl, & Collins, 2020). These types of students are frequently isolated in these neighborhoods and schools, and that means those students have little interaction with more affluent peers (Buddin & Zamarro, 2009; Roksa & Kinsley, 2019). Teachers most often desire to work near their homes, so they tend to move towards more affluent suburbs and wealthier neighborhoods in urban districts to teach (Boyd, Lankford, Loeb, & Wyckoff, 2005; Feng & Sass, 2017). Literature suggests that novice teachers do not feel well prepared to teach in urban schools and districts (Knoblauch & Chase, 2015; Ladson-Billings, 2000; McKinney, Haberman, Stafford-Johnson, & Robinson, 2008; Rushton, 2000).

Rural schools also face many challenges when it comes to geographic isolation, lower base salaries, and managing workload requirements which could be why new teachers fail to apply for careers in school districts located in these settings (Jimerson, 2003; Martin & Mulvihill, 2016; Monk, 2007; Tran & Smith, 2019; Viadero, 2018). Teacher recruiting can also

be challenging in rural schools because suburban and urban schools usually offer better pay, career prospects for spouses and partners, and other life amenities (Gagnon & Mattingly, 2015). Research shows that rural areas are much more likely than metropolitan districts to experience greater rates of poverty, intergenerational poverty, and concentrated poverty (Lavalley, 2018; Mattingly, Johnson, & Schaefer, 2011). Evidence suggests that teachers on average in rural schools are more likely to teach out of field and be a novice (Azano, Brenner, Downey, Eppley, & Schulte, 2020; Gagnon & Mattingly, 2015). According to National Center for Education Statistics (2013), "over half of all operating regular school districts and about one-third of all public schools were in rural areas, while about one-quarter of all public-school students were enrolled in rural schools." Rural schools in the US seem to receive less scrutiny than urban schools but rural schools can face various complex issues as well. Like urban schools, hard-to-staff rural schools have comparable problems and sometimes more with teacher shortages and teacher turnover (Hanushek, Kain, & Rivkin, 1999; McHenry-Sorber & Campbell, 2019). R. M. A large number of qualified teachers leave or depart their jobs for motives other than retirement which can be costly to the district (Carver-Thomas & Darling-Hammond, 2019).

Teacher Recruitment and Retention

In some states, people are maintaining their teacher certification but are not teaching in the state (Fuxa et al., 2019). This means that there is not a shortage of certified teachers but a shortage of qualified teachers applying for teaching jobs. In the teaching profession, it is harder to recruit new highly qualified teachers for subject-specific shortages in hard-to-staff schools because public school systems are generally restricted by collective bargaining agreements or

state laws that offer differential compensation (Goldhaber, Krieg, Theobald, & Brown, 2015). Because teacher salaries lag behind other occupations that require a degree, new teachers find themselves accruing a large amount of debt to prepare for the occupation that is hard to pay back and live on once on the job (Podolsky & Kini, 2016). Low salaries have led to recruitment and retention incentives such as scholarships and loan forgiveness programs in exchange for teaching in certain schools such as hard-to-staff high-needs schools and high-needs subject areas. Studies have shown that these programs were effective at attracting new teachers to low-performing schools and retaining them in these schools at higher rates than the states average retention rate (Henry, Bastian, & Smith, 2012; Podolsky & Kini, 2016; Steele, Murnane, & Willett, 2010). However, if a program is not structured well which is said to be the case for the federal teach grant, these programs may not be as effective (Nowicki, 2015).

Teachers that choose to work in rural districts are often faced with challenges that are unique to rural areas (Oyen & Schweinle, 2020). For example, a teacher in a rural setting may have to teach more than one subject (Oyen & Schweinle, 2020) which can take more preparation time for the teacher who may have inadequate preparation that can lead to a significant workload (Dixon, 2012; Ingersoll, 2020). Rural settings can be isolating making teachers feel like they have a lack of social support systems which may also contribute to recruitment issues (Allen, Kern, Vella-Brodrick, Hattie, & Waters, 2018; McNabb, 2011; Montgomery, 2010).

Theoretical Lens

The labor economic theory of "supply and demand," will serve as the theoretical lens for this paper. Labor demand can be defined as the number of available job positions offered for a

certain compensation whereas supply is the number of qualified individuals able and willing to be hired in the line of work, in this case as a teacher depending on compensation (Donitsa-Schmidt & Zuzovsky, 2014; Ehrenberg & Smith, 2016). Compensation can be defined as wages, bonuses, and possible future earnings or other reward types (Donitsa-Schmidt & Zuzovsky, 2014; Ehrenberg & Smith, 2016). As people self-select into job markets, they are thought to choose one that is expected to give them the compensation and earnings they desire based on their assessment of the skills they possess or will possess by the demands of the job (Borjas, 1987; Roy, 1951). When a teacher shortage occurs in the labor market the demand exceeds the supply which results in an increase in the demand, or a decrease in the supply, or possibly both simultaneously (Donitsa-Schmidt & Zuzovsky, 2014; García & Weiss, 2019c; Guarino, Santibanez, & Daley, 2006).

Methods

To understand what context teacher shortages are occurring in Oklahoma, pre-pandemic data was collected at the height of emergency certification use. This data was chosen because data after 2019 might not give the most accurate measures of teacher shortages when adding in the variable of a pandemic. The Covid-19 pandemic created a scenario that is not normal for education that could skew teacher shortage results given the severity of the pandemic. The data was also district-level data, not school level which does pose as a limitation to understanding the distribution of emergency certified teachers in the school context within districts. The scope of this paper does not include sex, gender, race, ethnicity, or any other identifying means of teachers as that data was not available. The rationale is to understand teacher shortage severity in different

geographic locales by using emergency certification as a proxy, but not specifically to see what types of teachers are applying for emergency certification at this time. It is also to see shortages before the Covid-19 pandemic which could add another variable that could add to the shortage.

Data Sources

Data were retrieved from the Oklahoma State Department of Education (OSDE) and the National Center for Education Statistics (NCES). In 2017-18 the number of emergency teacher certifications was reported by OSDE that contained the number of emergency certifications issued to school districts in Oklahoma, the number of teachers obtaining them, certification code of the subject area, school district identification number, city, and county identification number. This was at the height of emergency teacher certification in Oklahoma. The NCES also has state school district data which includes characteristics of geographic locale, number of schools in districts, and the number of students and teachers employed. The NCES data was merged with the state data on the state district identification number. District poverty level was retrieved from the state low-income report of 2017-18 which is the same year as the emergency certification state and national data to add as a control for school districts in the state. There is a total of 545 school districts with a total of $n = 2119$ emergency certified teachers that were reported for the year. The state did not report which subject certification code went with each emergency certification or school district. When the subject area data was reported the emergency certification number was higher ($n = 2153$) which is more certifications than the data of emergency certifications assigned to districts. However, the total number of each subject

certification code of emergency certifications will be looked at to see where subject area shortages are occurring.

Variables

The variables in the data are the geographic locales of urban, suburban, and rural, along with emergency certificates, students, teachers, schools, and average district poverty that were standardized. Variables created for the analysis are students divided by emergency certification, and teachers divided by emergency certification. These variables are simply the original variable divided by the total number of emergency certifications. By taking the student and teacher totals and dividing them by the total emergency certification creates a ratio of the distribution of emergency certified teachers to students and teachers in each locale.

Analysis

The first part of the analysis is to explore what subjects are being issued emergency certificates to teach. The list of subjects (see Table 2.1) was condensed from Appendix A, B, C, and D and then categorized by core, non-core, and non-teaching in major subject fields regardless of grade level. Descriptive statistics were used to see what subject matter is being emergency certified the most in Oklahoma during the 2017-18 school year.

The second part of the analysis is to understand what context is most severe in terms of the geographic locale where emergency certified teachers are teaching. To understand where emergency certified teachers are most severe a condensed list of locales (see Table 2.2) was broken down into urban, suburban, and rural geographic locations with the total number of emergency certified teachers in each locale, the percentage of emergency certified teachers per

locale, students, teachers, schools, and district. Table 2.2 was synthesized from the NCES definitions of locales (see Appendix A). After reviewing the data, it was determined that taking the total number of teachers and students per geographic locale and dividing it by the total number of emergency certified teachers to create two new variables would be better at addressing somewhat of the distribution of the emergency certified teachers to total teachers and students in each geographic locale. Average district poverty for the same school year 2017-18 was also added to address and control for the socioeconomic status of districts and then standardized.

Results

Early childhood and elementary education had the most emergency certifications with n = 828 or 38.46% which is classified as core teachers. The total for all core subjects is n = 1652 certifications followed by non-core with n = 378 or 17.56%. Non-teaching emergency credentials such as a principal, psychologist, or counselor credentials total n = 123 emergency certifications. Table 2.1 shows the general description of emergency certifications by subject area and percent of the total number of emergency certifications for each certification area.

Table 2.1

Emergency Credential Certification Area's

Certification Area	Core/Non-Core Emergency Credentials	Emergency certificates issued by Certification Area Code	Percent of Total Emergency Certifications Issued (%)
Early Childhood & Elementary Education	Core	828	38.46
English	Core	120	5.57
Math	Core	207	9.61
Science	Core	339	15.75
History	Core	158	7.34
Electives	Non-Core	378	17.56
Principle	Non-Teaching	13	0.60
Librarian	Non-Teaching	8	0.37
Psychologist Counselor	Non-Teaching	102	4.74

Note. Table 2.1 shows a list of subject areas consolidated from Appendix B, C, and D into categories of core, non-core, and non-teaching from every grade level. It also shows the number of emergency certifications by subject area and the percent of total emergency certificates per subject area.

To understand what contexts are most severe, Table 2.2 shows most emergency certified teachers for the school year 2017-18 are employed in the rural locale with $n = 1107$ or 52.24% of the total emergency certifications issued in the state of Oklahoma. In the rural locale, there are 1305 total schools, 24,240 teachers, and 369,523 students. This is followed by the urban locale with $n = 677$ emergency certifications followed by suburban with $n = 335$. The rural locale has more students, teachers, and schools. However, the urban locale has more schools per district on average. For example, Tulsa Public School District (TPS) has 74 different schools with $n = 263$ total emergency certified teachers. Oklahoma City Public School District has 59 schools within

the district and $n = 224$ total emergency certified teachers in the district. These two schools account for 71.93% of the total emergency certified teachers in the urban locale and 23% of the total emergency certified teachers in all locales.

Table 2.2

Sum and Percent of Variables by Locale

Locales	Variables	Sum	% Emergency Certificates
Urban	Districts	24	3.55
	Emergency Certificates	677	31.95
	Students	151658	0.45
	Teachers	8700	0.45
	Schools	227	33.53
Suburban	Districts	28	8.36
	Emergency Certificates	335	15.81
	Students	182811	0.18
	Teachers	10354	3.24
	Schools	260	77.61
Rural	Districts	493	44.53
	Emergency Certificates	1107	52.24
	Students	369523	0.30
	Teachers	24240	0.30
	Schools	1305	117.89

Note. The table above shows the consolidated geographic locales of urban, suburban, and rural, the number of emergency certificates, students, teachers, schools, and percent of the total emergency certificates for each locale, students, and teachers.

To account for the distribution of emergency certified teachers in each locale, the total number of teachers and students was divided by the number of emergency certifications in each locale. With the data being district level and emergency certified teachers not being linked with individual schools, dividing each locale's total certified teachers and students by emergency

certifications in each locale creates two new variables that provide some means of accounting for differences in the number of emergency certified teacher distribution between teachers and students in each locale. Table 2.3 shows the regression model of total locale teachers divided by locale emergency certified teachers in each locale while controlling for the standardized average district poverty. By looking at the coefficients, there are 14 fewer certified teachers to emergency certified teachers in rural districts compared to suburban districts. There are also 20 fewer certified teachers to emergency certified teachers in urban districts than in suburban districts. That is a difference of six certified teachers to emergency certified teachers less in urban districts than rural which all are statistically significant.

Table 2.3

Regression of Teachers/Emergency Certification Predicting Locale

Teacher/ Emergency Certification	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Rural	-14.56	4.95	-2.94	0.003**	-24.30	-4.82
Urban	-20.02	7.06	-2.83	0.005**	-33.90	-6.14
ZAverage District Poverty	-1.37	1.09	-1.26	0.209	-3.529	0.77
Constant	30.27	4.82	6.28	0***	20.80	39.74

Note. Teacher/Emergency Certification significance. *p \ .05. **p \ .01. ***p \ .001.

Table 2.4 below shows there are 279 fewer students to emergency certified teachers in rural districts compared to suburban districts and 344 fewer students to emergency certified teachers in urban districts compared to suburban districts. That is a difference of 65 students to emergency certified teachers less in urban districts than rural districts.

Table 2.4

Regression of Student/Emergency Certifications Predicting Locale

Student/Emergency Certification	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Rural	-279.92	79.67	-3.51	0***	-436.43	-123.41
Urban	-344.12	113.52	-3.03	0.003**	-567.13	-121.11
ZAverage District Percent Low Income	-21.59	17.58	-1.23	0.22	-56.13	12.94
Constant	515.60	77.46	6.66	0***	363.43	667.78

Note. Student/Emergency Certification significance. *p \ .05. **p \ .01. ***p \ .001.

Discussion

Emergency certifying teachers has been on the rise in Oklahoma for the better part of a decade (Fuxa et al., 2019). Previous literature finds that emergency certified teachers tend to be concentrated in schools with high percentages of minority students, English learners, low standardized test scores, and high percentages of students with free or reduced-price lunch status mainly in urban and rural locations (Carroll, Reichardt, Guarino, & Mejia, 2000; García, & Weiss, 2019b; Goe, 2002). The purpose of this study was to try and understand what context in Oklahoma teacher shortages/vacancies are most severe by looking at the geographic locale of where emergency certified teachers are teaching and the subject area being emergency certified before the COVID-19 pandemic. From state and national data, it was found that rural districts significantly outnumber urban and suburban district locales in emergency certifications which follows previous research (McHenry-Sorber & Campbell, 2019). Average district poverty did not offer much in terms of a control in district-level data because schools' socioeconomic status can

change significantly from school to school, especially in urban areas. However, regardless of locale, almost all schools in Oklahoma are classified as Title I schools (OSDE, n.d.) except for two.

The theory of supply and demand offers a lens through which this study can be viewed by thinking about it in different aspects of education. When a teacher shortage occurs in the labor market the demand exceeds the supply which results in an increase in the demand, or decrease in the supply, or possibly both. One factor that is contributing to teacher shortages that have been found in the last 10 years is the number of enrollments in traditional teacher preparation programs which has decreased by one third (Engledowl & Rutledge, 2020). Many states have seen sharp declines in teacher preparation enrollment (Partelow & Baumgardner, 2016). States like Oklahoma have seen sharper declines of around 39% in the last 10 years (Fuxa et al., 2019). Without a new supply of teachers enrolling in traditional preparation programs fewer traditionally trained teachers are available to enter the job market causing alternative pathways to the profession to increase like emergency certification. A decrease in trained teachers and an increasing student population further exacerbate teacher shortages. Teacher shortages can also be thought of from a recruitment and retention standpoint in the teaching profession. Literature suggests that rural areas suffer more in terms of recruitment because rural areas are generally geographically-isolated and likely do not have a higher education institution or non-profit partner close in proximity (McHenry-Sorber & Campbell, 2019). This might be one major cause for rural locales to have more emergency certified teachers than other locales other than the fact that rural locales outnumber urban. Some may attribute teacher shortages to the de-

professionalization of the teaching profession (Milner IV, 2013; Wronowski & Urick, 2019). This might be because of the accountability movement that accounts for the narrowing of standards, high-stakes testing, sanctions, control of teacher qualifications state and federally, and evaluation (Milner IV, 2013; Santoro, 2011). Regardless, teacher pay does not compare to other occupations that require a four-year degree (Allegretto & Mishel, 2016). Research shows that weekly wages were 17% lower for teachers than other comparable workers in 2015, but in 1994 it was only 1.8% lower (Allegretto & Mishel, 2016). Oklahoma teachers are among the lowest paid in the US which could be a contributing factor to both the supply and demand making recruitment and retention tough especially for rural locales.

This study shows that rural and urban locales have higher numbers of emergency certified teachers which is consistent with research but rural outnumber urban. One reason rural districts might have higher numbers of emergency certified teachers is that teachers who do go through teacher preparation programs tend to complete their mandatory fieldwork at schools close to their institution of higher education. Institutions of higher education also may not target rural schools' specific needs (Latterman & Steffes, 2017). Research suggests that across the nation rural locales are faced with more severe teacher shortages than those in suburban and urban areas (Lazarev et al., 2017) but urban locales are more publicized in media. One specific study indicated that from 2006-07 to 2011-12 rural districts had lower rates of success in recruiting teachers than districts in other locales (Lazarev et al., 2017). This could be why there are more emergency certified teachers in rural areas than others in this study.

When condensing the subject areas to understand the core, non-core, and non-teaching the early childhood and elementary education certifications were determined to be left separate from other core subject areas because these teachers usually have one class of students and teach several different fundamental subjects like mathematics, science, social studies, language arts, music, art, and reading. Because of low income, work pressure, and managing relationships with parents (Al-Adwan & Al-Khayat, 2017; Hamlin & Flessa, 2018), these teachers might be leaving the profession at higher rates than other teachers causing teacher shortages and a rise in emergency certifications for this subject area. Some districts have developed programs initially for recruiting elementary teachers that consisted of emergency certified teachers who went through a type of summer training then teaching for two years until completing the requirements for standard certification (Hinchey, 2020) that could be called a build your own approach. This may be where many of the elementary education subject area certifications went as TPS had 263 total emergency certifications. Math and science subjects have historically been shown to have shortages in almost all states (Cross, 2017) and Oklahoma is no different. These critical subject areas are one of the main reasons for allowing alternative certification opportunities in many states (Hawley, 1990). In this paper, they come in second and third in core course subject areas.

Limitations

It is important to address limitations to the available data. First, the data was at the district level and not the school level. School-level data would allow for a better understanding of individual school shortages/vacancies by seeing what schools employ emergency certified teachers, how many, and would allow for linking individual school poverty. Within a district,

each school can drastically be different from another in terms of school poverty. Another limitation to the data is not being able to link emergency certifications to individual teachers. This means that it is not known if the teachers were new to the field or if they were emergency certified in another subject out of field. The final limitation was not being able to link each subject area emergency certification assignment to a district or school. Data provided only gave the sum of each subject area certification. By having both the emergency certification subject area being certified and the ability to link it to a school within a district would allow for the researcher to better understand the distribution of emergency certification within the district and what subject matter each locale may be suffering from more or less.

Conclusion

While this paper's district-level data have scraped the surface of where emergency certifications are going in terms of geographic locale, data at the individual school level would be more beneficial to understanding the severity of teacher shortages in individual district schools. For example, if the Tulsa Public School district has 77 schools and 263 emergency certified teachers the distribution of those teachers in each school could make a significant difference in inexperienced teachers at each school if spread between the 77 schools. If distributed evenly that would be around three to four emergency certified teachers per school in the district. However, if not distributed evenly one school could have significantly more emergency certified teachers than another school in the same district. Individual school data would also be better to understand the distribution of emergency certifications and school poverty as individual school poverty can be significantly different from other schools in the same

district. This study makes a valuable contribution to the literature given the lack of investigation on understanding what context in Oklahoma teacher shortages/vacancies are most severe. This study presents questions for future research on emergency certification. In future work, comparison at the school level would shed more light on understanding the different contexts in which teacher shortages/vacancies are most severe. In addition, knowing what schools are hiring these teachers and what subject they are being emergency certified in at each school would be a more in-depth description of the context. This could offer true shortage/vacancy numbers in each school within each locale and potentially offer strategies for unfilled teaching positions that appear likely to continue for many schools across the country. Nevertheless, school-level data and emergency certificate subject areas linked to the schools would be the next step to better understand the state-specific context that could be used to understand true shortages and how to address those shortages. Other future research would be to see if there is a relationship between emergency certification and enrollment and completion of traditional teacher preparation programs.

MANUSCRIPT III

Emergency Certified Teachers' Motivations for Entering the Teaching Profession: Evidence from Oklahoma

Introduction

Extensive evidence suggests that teachers are one of the most influential school-based inputs affecting student outcomes (Chetty, Friedman, & Rockoff, 2014a, 2014b; Cowan & Goldhaber, 2018; Hanushek, 2011; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). Some estimates indicate that students of an effective teacher may achieve more than a full year of learning when compared to students taught by an ineffective teacher (Nye, Konstantopoulos, & Hedges, 2004). Scholars have also found that the benefits of an effective teacher translate into higher college attendance rates and greater income in adulthood (Chetty et al., 2014b). Despite the importance of teachers to student success, recruiting and retaining effective teachers has remained a persistent challenge for many schools across the country (Barth et al., 2016; Barton, 2012; Dee & Goldhaber, 2017). A majority of states also report difficulty filling teaching positions in critical subject areas with 42 states reporting teacher shortages in math and 40 states reporting shortages in science (Sutcher et al., 2016).

To fill pressing teaching vacancies, the hiring of teachers through emergency certification has become a growing phenomenon (Carver-Thomas & Darling-Hammond, 2017; Darling-Hammond, 2000a). Emergency certification generally allows bachelor's degree holders to become classroom teachers without any other formal training aside from an expectation to meet alternative certification requirements at a point in the future (Laczko-Kerr & Berliner, 2002). Although the precise number of emergency certified teachers currently teaching in public schools is uncertain, a large proportion of the over 100,000 teachers in the United States who are not fully certified are thought to have entered the teaching profession through the process of

emergency certification (Learning Policy Institute, 2018). While emergency certified teachers appear to represent an increasing segment of the teaching force, the estimated proportion of emergency certified teachers is approximately one percent of all teachers in the public education system (US Department of Education, 2018; NCES, 2018). Still, many questions exist on the use of emergency certification and how it may influence educational experiences. One concern is that individuals who enter teaching by gaining emergency certification may not possess adequate training in instructional methods, classroom management, and approaches to student behavior (Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005). Emergency certification also appears to be slightly more prevalent in schools serving socioeconomically disadvantaged students in rural and urban areas (Darling-Hammond, 2010; US Department of Education, 2016). Schools serving students with considerable educational needs may then be those that are more likely to hire teachers lacking experience and training (Cosentino de Cohen, Deterding, & Clewell, 2005; Goe, 2002).

In addition to questions related to formal training, it is unclear why individuals decide to enter the teaching profession through the process of emergency certification. Understanding the motivations of emergency certified teachers may be important as effective teachers are thought to be motivated by intrinsic factors that include a desire to inspire youth, an interest in learning processes, and strong service orientation (Bakar, Mohamed, Suhid, & Hamzah, 2014; Fray & Gore, 2018; Massari, 2014; Reeves & Lowenhaupt, 2016; Thomson, 2013). Intrinsic motivation in teachers has been linked to student learning (Carson & Chase, 2009; Malmberg, 2006; Perlman, 2013; Retelsdorf, Butler, Streblow, & Schiefele, 2010) and may help to create

conditions in schools that foster student-teacher relationships, student engagement, and positive school climate (Forsyth et al., 2011; Hamlin, 2021 Ryan & Deci, 2000). Teachers who value the intrinsic rewards from teaching are also more likely to stay in the profession over a long duration (Taylor et al., 2014). However, very little research has explored the motivations of emergency certified teachers who can enter the teaching profession without investing substantial time and resources.

This study explores emergency certified teachers' motivations for entering the teaching profession. Specifically, this study asks, how do emergency certified teachers decide to enter the teaching profession? To address this question, 30 semi-structured interviews were performed with emergency certified teachers in schools in Oklahoma. Oklahoma is an important setting for investigating emergency certified teachers' rationales for entering teaching as the state has experienced considerable growth in the use of emergency certification (Maiden & Reynolds, 2019; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). In 2011, 32 teachers entered classrooms by gaining emergency certification in Oklahoma, but as of 2019, over 3,000 emergency certified teachers gained teaching positions in the state (OSDE, 2018). This study aims to contribute to the literature by exploring rationales for entering the teaching profession for a subgroup of teachers that have received little attention in prior scholarship. The findings may also offer additional insight into emergency certification as a policy response to filling teaching vacancies.

Literature Review

Teaching Vacancies in Public Schools

Many studies have found strong effects of teachers on a range of student outcomes (Clotfelter, Ladd, & Vigdor, 2010; Cowan & Goldhaber, 2018; Goldhaber, 2002; Goldhaber, Brewer, & Anderson, 1999; Hanushek, Kain, & Rivkin, 1999; Nye, Konstantopoulos, & Hedges, 2004). Despite a sizable body of work indicating the importance of teachers, finding certified teachers to fill vacant positions, particularly in math and science, has been a recurring challenge for many school districts (Darling-Hammond & Podolsky, 2019; Pennington-Mcvey & Trinidad, 2019). This difficulty is considered to be driven by a combination of factors, including inadequate compensation, poor working conditions, macroeconomic conditions, and population trends (Darling-Hammond & Podolsky, 2019; Levin et al., 2015). Teacher attrition rates are also estimated to account for nearly 90% of demand in teacher labor markets (Carver-Thomas & Darling-Hammond, 2019). Unfilled teaching positions seem to be more commonplace in high-poverty rural and urban schools (Darling-Hammond, 2015). Federal reports indicate that the proportion of emergency certified teachers may, on average, be approximately two to three percentage points higher in high-poverty rural and urban schools (US Department of Education, 2016). In these settings, schools are more likely to experience comparatively high rates of teacher turnover that may exacerbate shortages (Carver-Thomas & Darling-Hammond, 2019; Rosenholtz, 1985; Scafidi, Sjoquist, & Stinebrickner, 2007). Future projections suggest that struggles to fill teaching positions in subject areas such as math and science will continue with

some researchers predicting annual shortages to be over 100,000 a year over the next five years (Sutcher et al., 2019).

To address teaching vacancies in public schools, policymakers have used a wide array of strategies, but research is generally inconclusive on what approaches are most effective (Berry & Shields, 2017). Studies find that financial incentives (e.g. pay increases, expansion of benefits, loan forgiveness), as well as improvements to working conditions in schools, may help to decrease teacher attrition and improve the efficacy of recruitment efforts (Borman & Dowling, 2008; Geiger & Pivovarova, 2018; Harris et al., 2019; Russel, 2019). In a study of teachers in Texas, Hendricks (2014) found evidence of a link between increased compensation and teacher retention while Feng and Sass (2018) also reported that a loan forgiveness program in Florida reduced attrition among middle and high school math and science teachers. In addition, a review of 34 studies indicates that working conditions may be a factor in increasing teacher retention (Borman & Dowling, 2008). Conditions, such as class size, school facilities, student characteristics, allotted preparation time, and school leadership appear to affect teachers' decisions to remain at a school (Hanushek et al., 1999; Ladd, 2011; Loeb et al., 2005). For new teachers, there is modest evidence that mentorship and administrative sup may help to improve retention rates (Crook et al., 2011; Ingersoll & Strong, 2011). In spite of these different approaches to teacher retention and recruitment, the problem of teaching vacancies has remained a challenge for many schools.

Non-Traditional Pathways for Entering the Teaching Profession

One of the primary strategies for responding to teacher vacancies has been to ease the requirements for entering the teaching profession. The majority of teachers enter the teaching profession by obtaining a bachelor's degree through an accredited teacher preparation program at a four-year university, and then, passing a series of licensing examinations (NCES, 2018). In contrast to this traditional pathway, alternative certification programs allow bachelor's degree holders to earn a teaching license within one to two years by completing an accelerated teacher preparation program, state certification examinations, and, in some states, a mentorship program (Rickenbrode, et al., 2018). These programs often seek to bring those desiring a career change into teaching, but other non-traditional alternative programs aim to recruit recent college graduates without education degrees. Teach for America (TFA) is a well-known example. TFA recruits commit to two years of teaching in low-income urban and rural schools where there are teaching vacancies (Teach for America, 2020). TFA recruits must complete a five-to-eight-week summer training session before entering a classroom and are then expected to work toward full certification while teaching (Teach for America, 2020). There are also non-traditional pathways that focus on specific subgroups, such as Troops to Teachers, Four-Year Old's and Younger Certificate, Title I Paraprofessional Teaching, Career Development Program, and Non-Traditional Special Education Certification Program (Every Student Succeeds Act, 2015; OSDE., 2019). Each of these programs tend to have training and educational requirements that must be met before an individual can enter the classroom. Among existing pathways to the teaching profession, emergency certification is one of the least restrictive approaches to

becoming a teacher. Emergency certification generally allows anyone with a bachelor's degree to become a teacher without any other formal training or education (Laczko-Kerr & Berliner, 2002). Its use has trended upward across the country in recent years with 42 states now offering different forms of emergency teaching licenses (US Department of Education, 2016).

Motivations for Entering the Teaching Profession

There are many questions about the desirability of emergency certification as a strategy for filling teaching vacancies (Mcvey-Pennington & Trinidad, 2019). When examining factors that constitute an effective teacher, researchers have tended to analyze characteristics of teachers recorded in administrative datasets, such as teaching experience, degree type, degree level, and certification status (Goldhaber, 2002; Goldhaber & Anthony, 2007; Kane, Rockoff, & Staiger, 2008; Rivkin, Hanushek, & Kain, 2005; Rockoff et al., 2011). Evidence is largely mixed on whether any of these factors are associated with student learning (Goldhaber, 2002; Goldhaber & Anthony, 2007; Goldhaber & Brewer, 2000; Hanushek, 1986, 1997). In the case of certification pathways, for example, there appears to be little difference in student learning between traditionally certified teachers and alternatively certified teachers (Boyd et al., 2006; Kane et al.,2008). In New York City, Kane, Rockoff, and Staiger (2008) find little difference in the effectiveness of certified, uncertified, and alternatively certified teachers. As a high-profile alternative route, researchers have examined results for TFA teachers and have tended to report that TFA teachers are slightly more effective than traditionally certified and uncertified teachers (Decker, Mayer, & Glazerman, 2004; Kane et al., 2008; Raymond, 2001). It is important to note that few empirical studies have specifically investigated how emergency certified teachers

compare with other teachers. In one existing study, teachers holding emergency, provisional, and temporary certification in North Carolina exhibited a negative association with math (-0.03 to -0.06 SDs) and reading (-0.01 to -0.02 SDs) achievement (Clotfelter et al., 2010).

Beyond observable characteristics available in administrative datasets, scholars have found that intangible factors that are more difficult to observe in administrative datasets may be important (Schiefele & Schaffner, 2015). One of these factors is intrinsic motivation (Katz & Shahar, 2015; Keller, Neumann, & Fischer, 2017; Watt & Richardson, 2013). Intrinsically motivated teachers reportedly exhibit a strong dedication to teaching and learning, enthusiasm for instructional content, and an ability to foster trusting relationships with students (Hein et al., 2012; Malmberg, 2006; Perlman, 2013; Radel et al., 2010). These factors have also been tied to student engagement and learning (Givens Rolland, 2012; Radel et al., 2010; Schiefele & Schaffner, 2015; Urdan, 2010; Wild, Enzle, Nix, & Deci, 1997; Wolters, 2004).

Compared with many occupations requiring a college degree, teaching is a career that is often characterized by relatively few opportunities for advancement, low pay and prestige, and challenging work conditions (Haggard, Slostad, & Winterton, 2006). In the case of traditionally certified teachers, the decision to commit time and resources to complete these programs could be partly indicative of intrinsic motivations for wanting to teach. Previous research documents specific factors underlying intrinsic motivation in educators. In the literature, these underlying factors include a desire to serve others (Fray & Gore, 2018; Osguthorpe & Sanger, 2013; Yüce, Şahin, Koçer, & Kana, 2013); to help struggling students (Chung & Huang, 2012; Jungert, Alm, & Thornberg, 2014; Pop & Turner, 2009; Struyven, Jacobs, & Dochy, 2013); to become a

change agent (Afrianto, 2014; Gao & Trent, 2009; Gu & Lai, 2012; Struyven et al., 2013); to make a contribution to society (Azman, 2013; Chong & Low, 2009; Flores & Niklasson, 2014; Mtika & Gates, 2011); and to answer a calling (Bullough & Hall-Kenyon, 2011; Chong & Low, 2009). However, this research has predominately focused on the rationales of preservice teachers in traditional teacher preparation programs. Very little research has sought to understand emergency certified teachers' motivations for entering teaching.

Methods

Study Setting

To understand emergency certified teachers' motivations for entering the teaching profession, 30 semi-structured interviews with emergency certified teachers in the US state of Oklahoma were conducted. To receive emergency certification in Oklahoma, prospective teachers must have a bachelor's degree and must pass a background check (OSDE, 2019). After being hired as an emergency certified teacher, the individual has a two-year time limit to earn alternative certification by passing three state certification exams. Emergency certification was rarely used in Oklahoma until 2009, but the state has since experienced substantial growth in the use of emergency certification with over 3,000 emergency certified teachers gaining teaching positions in the state in 2019 (Fuxa et al., 2019; Kauffman, 2019). Oklahoma requires schools to make every possible effort to hire a certified teacher before turning to emergency certification (OSDE, 2019). In recent years, approximately 17 percent of new traditionally certified teachers in the state have taken higher-paying positions in neighboring states that offer higher compensation for teachers (OSSBA, 2019). Enrollment in teacher preparation programs has also

plummeted by 39% in the past ten years (Fuxa et al., 2019). These trends have dramatically decreased applicant pools for open teaching positions in Oklahoma.

Participants

For this study, emergency certified teachers were recruited across varying subjects, school levels, and geographical settings in Oklahoma. A combination of purposeful and convenience sampling was used during the recruitment process. The researcher attended teacher professional development conferences where emergency certified teachers were recruited for interviews. The researcher also placed recruitment flyers at schools and toured schools as part of recruiting emergency certified teachers. As a precondition for interviews, all participants needed to have been emergency certified and have no prior teaching certification. As state policy requires schools to exhaust all efforts to find a certified teacher before hiring an emergency certified teacher (OSDE, 2019). Sixteen of the emergency certified teachers interviewed were hired within two weeks of the start of the school year, two were hired in the middle of the school year, and four completed a boot camp before being hired in the summer before the following school year.

Participants completed a brief demographic survey at the end of each interview. This form asked participants their age, ethnicity, highest level of education, university major, marital status, household size, and household income. Table 3.1 presents a profile of each emergency certified teacher who was interviewed. Of the 30 participants, 25 were females and five were males. Twenty-one participants taught core subjects (i.e., math, science, English, and history) and nine taught non-core courses (e.g., art, music, and physical education). Participants taught in

elementary, middle, and high school in urban, suburban, and rural areas. After the interviews were complete, they were transcribed using Trint audio transcription software. Copies of transcriptions were offered to participants, allowing them an opportunity to revise or correct their transcripts. None of the participants elected to make revisions to their transcripts.

Table 3.1

Characteristics of Participants

Age	Gender	Race Ethnicity	College Degree	Teaching Experience	Course Teaching	Grade Level Teaching	School Locale
25-34	Female	White	Recreation Management	Yes	Core	Kindergarten	Urban
35-44	Female	White	Journalism	No	Core	1st	Urban
25-34	Male	Black	Psychology	No	Core	2nd	Urban
25-34	Female	White	General Studies	No	Core	3rd	Urban
35-44	Female	White	Marketing	Yes	Core	2nd	Rural
35-44	Female	Native American	Business Administration	Yes	Non-core	1st-6th	Rural
25-34	Female	White	Criminal Justice	Yes	Core	Kindergarten	Suburb Large
25-34	Female	White	Psychology	No	Core	Kindergarten	Suburb Large
35-44	Female	White	Liberal Arts	Yes	Core	4th	Suburb Large
35-44	Female	Hispanic	Animal Science	No	Core	7th	Suburb Large
35-44	Male	White	Psychology	No	Core	8th	Suburb Large

Age	Gender	Race Ethnicity	College Degree	Teaching Experience	Course Teaching	Grade Level Teaching	School Locale
25-34	Female	Black	English and Masters in Librarianship	Yes	Non-Core	9th-12th	Suburb Large
35-44	Female	White	Vocal Music and Theater	Yes	Core	11th	Suburb Large
21-24	Female	Native American	Psychology	No	Non-Core	9th-10th	Suburb Large
35-44	Female	Black	General Studies	No	Non-Core	10th-11th	Urban
45-54	Female	Black	Business	Yes	Core	9th-12	Urban
45-54	Female	Black	Biology & Chemistry	Yes	Core	6th-8th	Urban
45-54	Female	White	Criminal Justice	Yes	Core	9th-12th	Urban
55-64	Male	Black	Music Education Masters	No	Non-core	6th-8th	Urban
45-54	Male	Black	Liberal Arts General Studies/ Masters Business	No	Core	2nd	Urban
35-44	Female	White	Geology	No	Core	1st	Urban
21-24	Female	Hispanic	Public Health	No	Core	7th	Urban
21-24	Male	Black	Speech Pathology Audiology	No	Core	6th-7th	Urban
25-34	Female	Middle Eastern	Psychology	No	Core	1st	Urban
45-54	Female	Black	Criminal Justice Masters Social Work	Yes	Non-core	9th	Urban

Age	Gender	Race Ethnicity	College Degree	Teaching Experience	Course Teaching	Grade Level Teaching	School Locale
35-44	Female	White	Apparel Design and Production	No	Core	4th	Urban
55-64	Female	Black	Psychology	No	Core	Kindergarten	Urban
21-24	Female	White	Psychology	No	Non-core	K-6th	Urban
21-24	Female	White	Deaf Education	No	Non-core	9th-12th	Urban
25-34	Female	White	Deaf Education	No	Non-core	9th	Urban

Note: There are more 35–44-year-olds in the sample with a total of 10 participants followed by 25-34 with eight, and five each of 21-24 and 45-54. There are only two participants in the 55-64 age bracket. There is also more racial diversity in the sample with 18 participants reporting ethnicity as something other than White.

Interview Procedures

Semi-structured interviews were carried out in the summer and fall of 2018 and spring and summer of 2019. Each interview was done in person and interviews were approximately 30 minutes in duration. Prior to the interviews, the purpose of the study was explained and requested that participants sign a consent form to participate in the study. The focus of the interviews was primarily on why participants had decided to enter the teaching profession. As responses to this main question unfolded, questions about aspirations and future professional plans, prior experience and training, previous occupations, and educational background were also asked to probe participants' primary motivations for entering teaching and to provide additional context to their rationales. Appendix F presents a list of questions comprising the semi-structured interview questionnaire.

Data Analysis

The data analysis was conducted beginning with a list of 20 codes derived from a substantial body of theoretical and empirical literature covering teachers' intrinsic and extrinsic motivations for entering teaching (Brookhart & Freeman, 1992; Kyriacou & Coulthard, 2000; Padhy, Emo, Djira, & Deokar, 2015; Rots et al., 2010; Watt et al., 2012). Appendix G presents these *a priori* codes. During initial rounds of analysis, the author applied these *a priori* codes to interview transcripts, labeling participants' main rationales for deciding to enter teaching through emergency certification. The author then reviewed labels used on transcripts for a subset of interviews and identified areas of disagreement/agreement. After reaching a consensus on a refined set of codes, an additional round of labeling of transcripts was performed. In subsequent analyses, codes on the transcripts were collected and placed in an Excel spreadsheet alongside representative quotations from interview transcripts. Codes were combined into broader categories, and then, refined into themes over three rounds of analysis. Themes were classified as representing either intrinsic or extrinsic motivations for deciding to become a teacher. The researcher selected representative quotations to illuminate each of the themes.

Findings

By exploring emergency certified teachers' motivations for entering teaching, the participants articulated a range of intrinsic and extrinsic motivations. It was found that emergency certified teachers who had unaccredited postsecondary teacher training or were transitioning to a second or new career in teaching tended to stress intrinsic motivations for wanting to teach. However, many other emergency certified teachers also emphasized extrinsic

motivations. These motivations included using teaching as a contingency employment option, wanting to try out the profession before committing time and resources to become certified, and turning to teaching out of financial necessity.

Intrinsic Motivations for Deciding to Enter Teaching

A Lifelong Aspiration to Teach

Many aspiring teachers reported using emergency certification as a way to fulfill a lifelong dream of becoming a teacher. In this study, ten emergency certified teachers reported that they had used emergency certification to switch careers or have a second career. All of these career changers mentioned that they had long wanted to pursue teaching but had been inhibited by perceived barriers to entry, such as what they felt were lengthy and cost-prohibitive teacher preparation programs. Seven of the ten career changers reported that they had always wanted to teach but had originally made different career choices because of financial and family considerations. For these teachers, emergency certification provided a pathway to pursue their dreams to teach without having to return to school. One career changer represented this sentiment when describing her move from working at a company to a school as a classroom teacher:

> *I had always wanted to teach, and then, the opportunity came with emergency certification. I was working in human resources for a while, and then I was like, I'm going to go back to do what I really wanted to do.*

Two emergency certified teachers had previously retired from the military and decided to begin a second career in teaching. These two participants cited a long-held aspiration to support youth

and give back to society by teaching in the public education system. One of these teachers mentioned how the ease of entry into teaching allowed him an opportunity to help youth and give back to his community:

> *I said, man, this [emergency certification] would be a perfect opportunity for me to reach out to the younger generation coming up and try to groom and mold them as a way of giving back for what educators had done for me over the years. It's pretty much what I've done for the past twenty-three years as I've taught soldiers.*

Wanting to Help Schools Meet an Immediate Need

To help schools fill immediate needs for classroom teachers, several emergency certified teachers mentioned that they used emergency certification to make a temporary role transition within districts where they had been working. Three emergency certified teachers, for example, had worked as a paraprofessional, teacher assistants, or substitute teachers. One emergency certified teacher who had formerly been a substitute teacher described how the process unfolded:

> *I had been subbing for the past five years and I became a paraprofessional. This year they asked me to come in and be a paraprofessional at the middle school and while I was over there, my principal asked if I would come over here and teach second grade, so I said yes. That's how I came into the profession.*

These emergency certified teachers reported that they were trying to help out under difficult circumstances by filling pressing teaching vacancies in schools where they had worked in varying capacities. These teachers said that they were willing to be moved at the discretion of the principal based on school needs. These role transitions to the classroom also appeared to ensure

that districts were employing emergency certified teachers with more knowledge of and experience working with children as opposed to hiring an emergency certified teacher who had little or no experience working in schools or with children. These teachers also had a known presence and existing relationships in the school, which seemed to make it convenient for the principal to hire these individuals. In her role transition from paraprofessional to a classroom teacher, one teacher reasoned that she had made the transition because she worried about the poor educational experiences of children in the district where she worked and wanted to make a difference. On the whole, the willingness of teachers to undertake transitions to full-time classroom teachers seemed to be driven by a desire to ensure that children had reliable classroom teachers.

A Strong Desire to Serve Youth with Special Needs

Two emergency certified teachers interviewed for this study had hoped to enter teaching as traditionally certified teachers through a university-based teacher preparation program. However, these two teachers' university program lost accreditation one year before they were able to graduate. Even though these two teachers did not receive traditional certification through their program, they invested the time and resources that other traditionally certified teachers must invest to complete a traditional teacher preparation program. Their rationales for wanting to teach seemed to align with those commonly voiced by traditionally certified teachers (Manuel & Hughes, 2006). These two teachers also described having a strong desire to serve children with special needs, explaining that they had always wanted to be teachers and that they loved working with children who had special needs. These interests initially compelled both of these teachers to

enroll in a traditional teacher preparation program while specializing in special education. One teacher articulated this reasoning for wanting to teach based on her experience with a deaf child:

> *My degree is in deaf education, so as a kid, I met a girl that was my age that signed, and I fell in love with it. So, after that, all I wanted to do was find a way to be able to teach kids.*

Both teachers had hoped to become teachers and decided to enter the profession by using the emergency certification route after their programs had lost accreditation. One of these teachers mentioned that there were ten people in her graduating class that were in the same situation as her and many more underclassmen who had not yet graduated. The president of this institution reported that as many as 200 students would be affected by the accreditation loss (Eger, 2017). Among the 30 emergency certified teachers that were interviewed in this study, these two teachers were the only ones to have passed all three state certification tests. Nonetheless, they were unable to gain traditional certification unless they repeated coursework at an accredited institution. Furthermore, apart from these two participants, these two participants were also specialists in deaf education, which is an area with high teacher shortages in Oklahoma.

Extrinsic Motivations for Deciding to Enter Teaching

In this study, many emergency certified teachers that were interviewed also stressed extrinsic motivations for deciding to become an educator.

Contingency Employment Option

Choosing to teach as a contingency employment option seemed to give some individuals who needed work in the short-term an employment option when they did not have one in their desired field. For instance, four emergency certified teachers had other professional aspirations outside of teaching but decided to enter teaching as a contingency option after other hoped-for opportunities did not come to fruition. Three of the four who noted using teaching as a fallback occupation also made it clear that their employment would be temporary. The four teachers emphasizing teaching as a contingency option mentioned that they were pushed into teaching to gain employment, income, and health benefits until positions opened in their desired fields. Under emergency certification provisions, having a bachelor's degree created an employment option that would otherwise not have been available. Each of these teachers seemed to enter teaching with extrinsic rationales in mind. One participant mentioned that she planned to move after her husband received an expected promotion and that she needed "something to keep her busy" in the near term. She explained how the teaching shortage coupled with emergency certification provisions gave her an opportunity to "do something" while waiting for her husband's anticipated promotion:

> *My husband was transferred for a promotion into this area and so we started looking at certain companies for me to work for because I have a background in food science and there's just not a lot of food science companies in the area, but since I do have a degree in animal science, my husband suggested I take a look at teaching… I was hired immediately the day that we started school.*

Trying Out Teaching Before Committing

Teachers in this study mentioned that emergency certification provided a pathway that allowed them to try out the teaching profession, thereby giving them an opportunity to determine whether or not they could live off a teacher's salary and benefits before committing to the profession over the long term. Four participants had previously held a range of jobs in lower-paying occupations, such as a behavioral interventionist, convenience store employee, and non-profit administrator. For these individuals, the teaching profession provided improved income and benefits while allowing them to decide if teaching was a profession they wanted to do over the long term. Another emergency certified teacher had been a stay-at-home mom and felt that emergency certification presented an opportunity to test out teaching and to figure out if she liked the profession before investing the time to complete alternative certification requirements. Three recent college graduates also wanted to test out teaching before fully committing to it. These three individuals were not able to find jobs after graduation, so they decided to see if they could make a career out of teaching given the minimal prior investment needed to enter the profession and the availability of teaching positions in schools. Neither of them was sure whether they would continue teaching into the next academic year.

Turning to Teaching out of Financial Necessity

Financial necessity played a powerful role for four teachers interviewed in this study. One individual explained that the need for health insurance, in particular, had propelled her into teaching because her spouse had been severely hurt and financial responsibilities had fallen to her within her family. Teaching under emergency certification let her enter the classroom, gain

crucial benefits for her family, and continue working toward certification in the meantime. In describing her family circumstances, she noted:

> *Whenever we saw changes with our family financial situation going the way they were, I just started applying for anything they [schools] had open that I might be qualified to get because I needed insurance for myself.*

Two recent college graduates explained how financial concerns had led them to change from being enrolled in teacher preparation programs to different academic majors so that they could skip an unpaid student-teaching internship required by their respective teacher preparation programs, graduate faster, and begin earning a salary as emergency certified teachers. Both of these students were also non-traditional students who mentioned that they had to work to support their families. As a single mother of seven children, one explained how she could not afford to do an unpaid internship for six months:

> *So, I started out trying to do an education degree. I have seven kids so I have a lot of things that tend to come up. So, I did the whole entire process and every time I would start to take my state testing something major would happen with one of my children… I needed to find a better route that was more feasible for me and that was faster.*

Under emergency certification provisions, she described how she could teach for two years and work on completing state certification requirements in the meantime. The other participant was also the primary caregiver for her mother who was battling progressive health issues. She reasoned that emergency certification provided a route to the classroom that was financially expedient.

Discussion

Emergency certification allows bachelor's degree holders to fill teaching vacancies in schools without any other formal training. Although previous research documents why traditionally certified teachers decide to enter the teaching profession, very little is known about the motivations of emergency certified teachers. The purpose of this study was to illuminate emergency certified teachers' motivations for entering the teaching profession in a jurisdiction that has experienced a sharp rise in the use of emergency certification in recent years. From in-depth interviews with 30 emergency certified teachers, it was found that many emergency certified teachers emphasized intrinsic motivations that included a desire to serve youth with special needs, wanting to help schools in need, and lifelong aspirations of becoming a teacher. However, emergency certified teachers also stressed extrinsic motivations for deciding to enter teaching. For instance, a large number of teachers interviewed in this study reported using teaching as a contingency employment option, turning to teaching out of financial necessity, and wanting to test out the profession before fully committing to it.

This study's findings make a valuable contribution to literature given the lack of empirical research investigating emergency certified teachers and their rationales for becoming educators. Previous studies indicate that intrinsic motivation in teachers is associated with student learning, engagement, and positive student-teacher relationships (Bakar et al., 2014; Carson & Chase, 2009; Malmberg, 2006; Perlman, 2013; Retelsdorf, Butler, Streblow, & Schiefele, 2010). Intrinsic motivation in teachers may also contribute to strengthening school climate and culture (Forsyth et al., 2011; Ryan & Deci, 2000). In this study, a number of

emergency certified teachers stressed intrinsic rationales for wanting to teach. These individuals articulated a strong interest in youth development, teaching and learning, and the common good that were similar to rationales identified among traditionally certified teachers in prior scholarship (Bakar et al., 2014; Fray & Gore, 2018; Massari, 2014; Reeves & Lowenhaupt, 2016; Thomson, 2013). In these cases where intrinsic rationales drive decisions to teach, it is possible that emergency certification removes barriers to the classroom for individuals who end up becoming valuable teachers in schools.

Many emergency certified teachers also stressed extrinsic motivations for entering teaching. Motivations reported by emergency certified teachers, such as a need for short-term employment or a desire to test out the profession, appear to be less commonly cited among those who obtain traditional certification (Fray & Gore, 2018; Osguthorpe & Sanger, 2013). One potential concern is that individuals focused on short-term personal rewards from teaching may not deliver a quality educational experience in the classroom. Emergency certified teachers who reported deciding to teach in the short-term while waiting for positions to open in their desired fields might be less inclined to invest time and resources to improve their practice, develop relationships with students and their families, and meet training and certification requirements necessary to become alternatively certified. High turnover in these cases is also plausible, which may hurt continuity, curricular coherence, and collaboration within schools (Smith & Ingersoll, 2004).

There are several limitations to this study that must be noted. In the study setting of Oklahoma, teaching vacancies are among the highest in the country, and the use of emergency

certification to fill these vacancies has increased rapidly in recent years. Considering this context for teacher labor markets, findings from this study may not be generalizable to states where teaching vacancies are not as severe. Social desirability bias is another limitation that suggests a need for cautious interpretation of the trends presented in this study. During interviews, emergency certified teachers may have felt the need to respond to questions in ways that were expected of new teachers entering the profession (Grimm, 2010). In addition, a known limitation of qualitative research using interview data is the potential for selection bias (Hamlin, 2018). For example, emergency certified teachers who were willing to participate in interviews may have had more positive experiences and motivations for wanting to teach than those who did not participate in interviews.

Future Directions and Policy Considerations

This study raises questions for future research on emergency certification. In future work, statistical comparisons of the motivations for entering teaching between emergency certified teachers and their peers would help to build on the findings of this study. Statistical analysis is needed to understand retention rates among emergency certified teachers and to examine further the effectiveness of emergency certified teachers relative to other classroom teachers. The findings in this study also inform a broader set of questions for state policy on emergency certification. Unfilled teaching positions seem likely to continue for many schools across the country. Nevertheless, it is uncertain which combination of targeted policies based on state-specific needs might reduce the need for emergency certification as a way of filling persistent teaching vacancies. There are also questions about how schools can effectively incorporate

emergency certified teachers once they are hired (Darling-Hammond, 2000a, 2000b; Darling-Hammond et al., 2005). Novice teachers who have had little teaching experience or time to learn subject matter may face considerable barriers to delivering effective instruction. Some school districts have responded by carrying out short-term boot camps and summer certification programs that emergency certified teachers attend (Tulsa Public Schools, 2020), but how effective these types of strategies are at integrating emergency certified teachers is unclear.

In addition, emergency certification appears to be emblematic of ongoing changes to the teaching profession and the nature of entry into it. Alternative certification programs, for instance, have been growing for years and districts are increasingly launching their own training and certification programs for teachers. These trends place pressure on enrollments in university-based teacher preparation programs as there are growing disincentives for prospective educators to devote the time and resources needed to complete traditional certification (e.g. unpaid internships) when they can enter the classroom through pathways requiring fewer resources and less time. Exactly how teacher preparation programs should adapt to the current environment is a topic of much debate, but trends suggest that changes to these programs of some kind may be needed. At the same time, official efforts seem to be mostly focused on addressing needs for teachers in the short term although projections indicate that the demand for teachers in certain subject areas (e.g. high school math and science) will continue to outpace the supply of certified teachers into the future (Sutcher et al., 2019). Therefore, it would seem that the energies of policymakers may be needed to consider long-term strategies that can address the root causes of specific types of shortages in schools.

CONCLUDING REMARKS

Summary of Results

The first manuscript of this dissertation was to create a foundation for a larger inquiry into emergency certification. The first study was to see if there was an association between emergency certification of teachers and enrollment in and completion of traditional teacher preparation programs by looking at enrollment and completion over time with the use of an intervention or introduction of the emergency certification policy right before each state started to increase use in two different states. This study suggests that the linear trend in Oklahoma for emergency certification is rising at an average of 344 emergency certified teachers per year. At the same time enrollment in traditional teacher preparation is losing an average of 643 enrollment and 64 program completions a year. However, Oregon's emergency certifications are rising at an average of 208 per year, but enrollment increases at an average of 74 enrollees per year and completion at 72 per year. When combining both Oklahoma's and Oregon's data and running a correlation analysis between the three variables, there is a moderate negative correlation between emergency certification and traditional program enrollment that is significant at t ($r = -.45$, $p < .05$). Traditional program completion is also negatively correlated but not significant.

Individual correlation data for Oklahoma shows a moderate negative correlation t ($r = -.47$) of emergency certification and enrollment in teacher preparation programs that is not significant. However, emergency certification and traditional program completion is moderately negatively correlated and significant t ($r = -.52$, $p < .05$). Oklahoma's enrollment and completion

are strong positively correlated and significant ($r = .69$, $p < .05$). Oregon's data looks similar to Oklahoma's. Individual correlation data for Oregon shows a moderate positive correlation ($r = .50$) between emergency certification and enrollment in teacher preparation programs that is not significant. However, emergency certification and traditional program completion is strongly positively correlated and significant t ($r = .62$, $p < .05$). Oregon's enrollment and completion are very strong positively correlated and significant ($r = .94$, $p < .001$). It would appear that when lumped together there is a significant correlation between emergency certification and enrollment in teacher preparation and when separated there is not. This is the opposite of the completion of traditional preparation programs.

There could be some policies that could influence the results of this study. First at the federal level with the No Child Left Behind Act of 2002. Oregon promised to beef up the teacher evaluations for securing a waiver from the Act, which is known as an accountability policy. Second, by a state lever Senate Bill 290 which was a law passed to update evaluation standards. This Bill is another accountability policy that could have negative effects on the profession. This may be one reason why there are still rising emergency certifications after 2013-14. In 2013, Oregon legislators passed House Bill 3233. This bill is the Network of Quality Teaching and Learning. It gave the Network of Quality Teaching and Learning Fund $45.6 million for a two-year budget cycle until 2015. It provided 300 organizations with over 1,200 grants which some went to the Teach Oregon Project (District and College Partnerships). Another significant benefit was Oregon Revised Statute (ORS) 342.433 which changed the definition of diverse to include culturally or linguistically diverse characteristics of a person. The definition basically includes

everyone who is not caucasian or white. This allowed more grants to individuals that meet the definition to enter traditional teacher preparation programs in shortage subject areas.

Oklahoma has seen a different trend with steep declines in both traditional teacher preparation enrollment and completion ever since the great recession. However, emergency certifying teachers continue to rise. Because of funding being cut so dramatically the perception of the teaching profession may have declined. In Oklahoma, there are some opportunities for debt forgiveness for becoming a teacher in a high shortage subject such as math or science. The University of Oklahoma's Jeannine Rainbolt College has established a Debt-Forgiveness Program. This program is a merit and need-based assistance initiative for exceptional students in college with large amounts of debt associated with their education. For each year they teach in the state, $5,000 of their student loans will be forgiven for up to four years. That is a total of $20,000 for four years of working in the state. The state of Oklahoma has put in place initiatives to recruit in high-needs subject areas. For example, the Teacher Shortage Employment Incentive Program (TSEIP). This program is a legislative ruling managed by the Oklahoma State Regents for Higher Education. These candidates, if successfully complete the program will be reimbursed eligible student loan expenses or an equivalent cash benefit which may vary yearly.

Unfortunately, there are still rising emergency certifications in the state and it could be a number of factors. One such factor is district run grow your own programs such as the Tulsa Teacher Corps. This is an alternative training program for Elementary and Special Education teachers and trying to expand. The program actively recruited individuals to put them on emergency certification and give them six weeks of summer training and hope they intend to

pass the state certification examination to become certified. The state has now offered the district to give these teachers provisional status which is basically the same thing until the state required test are passed. These accelerated teacher programs may be a reason for the declining traditional teacher preparation program enrollment and completion. Teacher candidates may not see a need to use their time and resources for the mandatory six-month field experience that is unpaid when they can get a general studies degree and go directly into the profession under emergency certification. They could also go into a district run grow your own program that offers small stipends for their six weeks of summer training and go right to teaching. These types of programs could be keeping enrollment and completion of traditional education programs down despite their best recruitment efforts.

Manuscript two in this dissertation found that in the critical shortage state of Oklahoma while accounting for the distribution of emergency certified teachers to students and certified teachers while controlling for district poverty, emergency certified teachers were hired in rural and urban school districts statistically more than suburban districts. The regression showed that there were roughly 30 certified teachers to emergency certified teachers in suburban locales. In rural locales, there were 16 certified teachers to emergency certified teachers. There are roughly 10 certified teachers to emergency certified teachers in urban districts. That is a difference of six certified teachers to emergency certified teachers less in urban districts than in rural. When running a regression with students to emergency certified teachers, there are 279 fewer students to emergency certified teachers in rural districts compared to suburban districts and 344 fewer students to emergency certified teachers in urban districts compared to suburban districts. That is

a difference of 65 students to emergency certified teachers less in urban districts than in rural districts. However, there were more emergency certified teachers, students, and certified teachers in rural geographic locales. It was also found that subject matter being emergency certified the most was early childhood and elementary education at $n = 828$ or 38.46% which is classified as core teachers.

The third manuscript specifically looked at motivation for wanting to enter in a non-traditional manner without prior experience or training. The study conducted 30 in-depth interviews and found that many emergency certified teachers emphasized intrinsic motivations that included a desire to serve youth with special needs, wanting to help schools in need, and lifelong aspirations of becoming a teacher. Although, some emergency certified teachers also stressed extrinsic motivations for deciding to enter the profession. For instance, a large number of teachers interviewed in this study reported using teaching as a contingency employment option, turning to teaching out of financial necessity, and wanting to test out the profession before fully committing to it.

Previous Literature

Previous literature finds that economics plays a major role in enrollment and completion of traditional teacher preparation programs with some policy enactments, low pay, prestige, as well as poor working conditions, and relatively few opportunities for advancement (Haggard, Slostad, & Winterton, 2006). Literature suggests that teachers are paid less than other comparable four-year degrees (Allegretto & Mishel, 2018) which may deter possible entrants into the field or encourage teachers to leave to find better-paying jobs. Engledowl and Rutledge

(2020) looked at enrollment and completion and found that there were considerable decreases in traditional teacher preparation enrollment and completion over the past decade which could result in emergency certification of teachers. Manuscript one showed that with Oklahoma and Oregon's data combined there is a moderate negative correlation between emergency certification and traditional program enrollment that is significant at ($r = -.45$, $p < .05$). Traditional program completion is also negatively correlated but not significant. When running individual correlations with each state it is the opposite in that emergency certification and program completion are negatively correlated and significant but program enrollment is not significant. Because there are no other studies of this kind comparing literature is impossible. However, in looking at the number of emergency certified teachers in each state each year policy implementation could affect all three variables in the study which could be seen in Oregon's background after further research was conducted to understand the trends in the policy usage.

Literature also finds that emergency certified teachers tend to be concentrated in schools with high percentages of minority students, English learners, low standardized test scores, and high percentages of students with free or reduced-price lunch status mainly in urban and rural locations (Carroll, Reichardt, Guarino, & Mejia, 2000; García, & Weiss, 2019bc; Goe, 2002). Literature also suggests that rural areas may suffer more in terms of recruitment because rural areas are commonly geographically-isolated and likely do not have a higher education institution or non-profit partner close in proximity (McHenry-Sorber & Campbell, 2019). This would make sense as to why rural locals might have a hard time recruiting certified teachers resulting in emergency certification. In manuscript two, there were more emergency certified teachers in

rural locale districts followed by urban. To account for distribution among teachers and students in each locale the researcher divided each by the number of emergency certified teachers in each locale. After running a regression and controlling for district poverty there were more teachers and students to emergency certified teachers in rural locale districts but it is district-level data and not school level so distribution is limited in that aspect.

Subject area shortages are tracked by all states and most all have identified special education as a field with severe shortages (Sutcher, Darling-Hammond, & Carver-Thomas, 2019). Elementary and early childhood teachers, who usually have one class of students and teach all subjects including math and science which are also shortage subjects, can suffer from low income, work pressure, and managing relationships with parents (Al-Adwan & Al-Khayat, 2017), which could also cause emergency certifications for this area. This is consistent with manuscript two when combining early childhood and elementary as a core subject because they tend to teach all subjects that were emergency certified the most in the state of Oklahoma in 2018.

When examining factors of an effective teacher, researchers have tended to analyze characteristics of teachers, such as teaching experience, degree type, degree level, and certification status (Goldhaber, 2002; Goldhaber & Anthony, 2007; Kane, Rockoff, & Staiger, 2008; Rivkin, Hanushek, & Kain, 2005; Rockoff et al., 2011). However, evidence has been mixed on whether any of these factors are associated with student learning (Goldhaber, 2002; Goldhaber & Anthony, 2007; Goldhaber & Brewer, 2000; Hanushek, 1986, 1997). In the case of certification pathways, there appears to be little difference in student learning between

traditionally certified teachers and alternatively certified teachers (Boyd et al., 2006; Kane et al.,2008). Beyond observable characteristics, scholars have found that intangible factors that are more difficult to observe in administrative datasets may be important (Schiefele & Schaffner, 2015). One factor is intrinsic motivation (Katz & Shahar, 2015; Keller, Neumann, & Fischer, 2017; Watt & Richardson, 2013). Intrinsically motivated teachers reportedly exhibit a strong dedication to teaching and learning, enthusiasm for instructional content, and an ability to foster trusting relationships with students (Hein et al., 2012; Malmberg, 2006; Perlman, 2013; Radel et al., 2010). These factors have also been tied to student engagement and learning (Givens Rolland, 2012; Radel et al., 2010; Schiefele & Schaffner, 2015; Urdan, 2010; Wild, Enzle, Nix, & Deci, 1997; Wolters, 2004). In the case of traditionally certified teachers, the decision to commit time and resources to complete hirer education programs could be partly indicative of intrinsic motivations for wanting to teach. Previous research specifies factors underlying intrinsic motivation in educators. These underlying factors include a desire to serve others (Fray & Gore, 2018; Osguthorpe & Sanger, 2013; Yüce, Şahin, Koçer, & Kana, 2013); to help struggling students (Chung & Huang, 2012; Jungert, Alm, & Thornberg, 2014; Pop & Turner, 2009; Struyven, Jacobs, & Dochy, 2013); to become a change agent (Afrianto, 2014; Gao & Trent, 2009; Gu & Lai, 2012; Struyven et al., 2013); to contribute to society (Azman, 2013; Chong & Low, 2009; Flores & Niklasson, 2014; Mtika & Gates, 2011); and to answer a calling (Bullough & Hall-Kenyon, 2011; Chong & Low, 2009).

In manuscript three 16 of the 30 emergency certified teachers interviewed expressed intrinsic motivation to enter the profession through emergency certification which is consistent

with many studies conducted on pre-service teachers. However, the other 14 expressed extrinsic motivation which is not consistent with the literature. Some used the profession as short-term employment while waiting for positions to open in their desired fields which can result in high turnover which is already a problem in the profession.

Methodological Limitations

Manuscript one's limitations are that the stability of the teaching profession changes each year based on many factors like supply and demand. Findings may not be generalizable to states where teaching vacancies are not as severe. In some states, they do not formally have a clear policy of emergency certifying teachers or do not report their uncertified teacher numbers despite reporting subject matter teacher shortages such as mathematics and science (Institute, 2018). Another limitation is on availability of data and running an ITS analysis. If the intervention or in this case policy introduction is not within a time that will allow for the analysis to be run. Another limitation is that this study was a single group comparison which does not allow for controls that may influence results. What is said to be the most common threat to validity is history. That is that some other event (policy) may have caused the observed effect in the time series. While history limits the ability to make causal inferences, it could be controlled for by using control groups to aid as the counterfactual.

In manuscript two, the data was at the district level and not the school level which makes the distribution of emergency certified teachers among schools within the district unknown. School-level data would allow for a better understanding of individual school shortages/vacancies by seeing what schools employ emergency certified teachers, how many, and

would allow for linking individual school poverty. Another limitation is not being able to link emergency certifications to individual teachers. This means that it is not known if the teachers were new to the profession or if they were emergency certified in another subject out of their field. The final limitation was not being able to link each subject area emergency certification assignment to a district or school. Data provided only gave the sum of each subject area certification. Having both the emergency certification subject area being certified and the ability to link it to a school within a district would allow for the researcher to better understand the distribution of emergency certification within the district and what subject matter each locale may be suffering from more or less.

In manuscript three there are several limitations to the study. Considering this context for teacher labor markets, findings from this study may not be generalizable to states where teaching vacancies are not as severe. Social desirability bias is another limitation that suggests a need for cautious interpretation of the trends presented in this study. During interviews, emergency certified teachers may have felt the need to respond to questions in ways that were expected of new teachers entering the profession (Grimm, 2010). In addition, a known limitation of qualitative research using interview data is the potential for selection bias. For example, emergency certified teachers who were willing to participate in interviews may have had more positive experiences and motivations for wanting to teach than those who did not participate in interviews.

Methodological Strengths

Manuscript one uses an ITS analysis and is considered one of the strongest quasi-experimental designs. This type of design collects or uses data collected at various equally spaced time points that can be weekly, monthly, or yearly before and after an intervention is introduced. The critical most important factor is knowing the exact time an intervention occurs. The objective of an ITS analysis is to assess whether data observed post-intervention is different from pre-intervention. There are a variety of effect estimates to explain the impact of the intervention.

Manuscript two uses a combination of descriptive statistics and regression. The strength of descriptive statistics is that you can illuminate large volumes of data with no uncertainties. Another strength is that it can give a conclusion about the distribution of the data, helps detect outliers, and allows the researcher to identify similarities among variables, making data ready for further analyses. Regression analysis is the most widely used and oldest multivariate technique in social sciences. It is an example of dependence analysis in that the variables are not treated proportionally. The objective of a regression analysis is to obtain a prediction of one variable, given the values of the others. A major strength of a regression analysis is that it can control relationships for different explanations.

Manuscript three uses interview data which tends to be a better alternative to other qualitative research by allowing for flexibility, being less biased, and is more targeted for individuals to report their attitudes, beliefs, and insights that are specific to a context. It is a process that is open-ended that incorporates the human experience. Another strength of this study

is that all three geographic locales of urban, suburban, and rural teachers were interviewed giving a perspective of each type of school district.

Contributions to Literature

This dissertation's findings make a valuable contribution to the literature given the lack of empirical research investigating emergency certified teachers' relationship to enrollment in and completion of traditional teacher preparation programs, school district contexts that are most severe, and their rationales for becoming educators. Given the decline in teacher preparation, manuscript one's results of looking at two states who actively use an emergency certification policy because of teacher shortages to understand if there is a relationship between the two add a major contribution to the literature. Results in manuscript one suggest that depending on how data is run between two states results could vary for each state.

The first manuscript connects to the second by looking at a high critical shortage state with increased use in emergency certification policy to understand school district contexts of where emergency certified teachers are teaching as far as the geographic locale of urban, suburban, or rural and subject matter these teachers are teaching. This adds to the literature by understanding where emergency certified teachers are going where certified teachers are not and what subject matter may need to be the focus of teacher preparation.

Finally, the third manuscript connects to the second by understanding emergency certified teachers' motivation for entering the profession in terms of intrinsic and extrinsic motivation. While research has predominately focused on the rationales of preservice teachers in

traditional teacher preparation programs. Very little if any research has sought to understand emergency certified teachers' motivations for entering the teaching profession.

Policy Questions

The findings in this dissertation inform a broader set of questions for policy on emergency certification. In future work, all state policies, or laws of placing any bachelor's degree holder in a classroom to teach without an education degree because of teacher shortages or emergencies should be considered to understand similarities and differences among states. For example, how long are these types of teachers allowed to teach in each state before they must become alternatively or fully certified? This could be used to understand shortage subject areas and certain context needs of individual states. Statistical analysis is needed to understand retention rates among emergency certified teachers and to examine the effectiveness of emergency certified teachers in comparison to other classroom teachers both alternatively and fully certified. Unfilled teaching positions seem likely to continue for many schools across the country. Novice teachers who have had little teaching experience or time to learn subject matter may face more difficulties in providing effective instruction. Some school districts have responded by carrying out short-term boot camps and summer certification programs that emergency certified teachers attend, but how effective these types of strategies are at integrating emergency certified teachers is unclear or if the policy is effective at filling unfilled teaching positions.

Moreover, emergency certification appears to be ongoing in the teaching profession and the nature of entry into it. Alternative certification programs have been growing for years and

districts are increasingly launching their own training and certification programs for new entrants. These developments place pressure on enrollments in university-based teacher preparation programs and completion of those programs as there are growing disincentives for prospective educators to devote the time and resources needed to complete traditional certification (e.g. unpaid internships) when they can enter the classroom through pathways requiring fewer resources, less time, and less barrier to entry. Exactly how teacher preparation programs should adapt to the current environment is a topic of much debate, but trends suggest that changes to these programs of some kind may be needed. At the same time, policy efforts seem to be mostly focused on addressing the needs of teachers in the short term, although projections indicate that the demand for teachers in certain subject areas (e.g. special education, high school math, and science) will continue to outpace the supply of certified teachers in the future (Sutcher et al., 2019). Therefore, it would seem that the focus of policymakers would be to consider long-term strategies to address the root causes of specific types of shortages in schools and districts across the US.

Conclusion/Final Thoughts

The purpose of this three-paper dissertation was to build a line of inquiry on the emergency certification of teachers by exploring the contextual circumstances under which emergency certification is used, the motivations of individuals entering teaching through the emergency certification policy, and the association between expanded provisions for emergency certification and enrollments in traditional teacher preparation programs. By addressing each objective in these three manuscripts, this dissertation seeks to develop a firmer understanding of

how emergency certification is influencing students, teachers, and schools in the public education system from an individual, state district, and national level perspective.

In sum, understanding how emergency certifications affect higher education teacher preparation programs, different school contexts, and why individuals are entering the profession through an emergency certification policy shows that short-term fixes by placing an untrained warm body in a classroom will not address the root cause[s] of teacher shortages. Emergency certification seems to have removed most barriers to entering along with the professionalism of a teacher license. It also may further add to Ingersoll's "revolving door" where qualified teachers depart their jobs for reasons other than retirement, but in this case, try out the profession for a year or two under emergency certification and possibly leave when they find something better or cannot complete requirements for licensure.

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Appendix A

NCES Definitions of Locales

City – Large (11): Territory inside an Urbanized Area and inside a Principal City with a population of 250,000 or more.

City – Midsize (12): Territory inside an Urbanized Area and inside a Principal City with a population less than 250,000 and greater than or equal to 100,000.

City – Small (13): Territory inside an Urbanized Area and inside a Principal City with a population of less than 100,000.

Suburban – Large (21): Territory outside a Principal City and inside an Urbanized Area with a population of 250,000 or more.

Suburban – Midsize (22): Territory outside a Principal City and inside an Urbanized Area with a population less than 250,000 and greater than or equal to 100,000.

Suburban – Small (23): Territory outside a Principal City and inside an Urbanized Area with a population of less than 100,000.

Town – Fringe (31): Territory inside an Urban Cluster that is less than or equal to 10 miles from an Urbanized Area.

Town – Distant (32): Territory inside an Urban Cluster that is more than 10 miles and less than or equal to 35 miles from an Urbanized Area.

Town – Remote (33): Territory inside an Urban Cluster that is more than 35 miles from an Urbanized Area.

Rural – Fringe (41): Census-defined rural territory that is less than or equal to 5 miles from an Urbanized Area, as well as rural territory that is less than or equal to 2.5 miles from an Urban Cluster.

Rural – Distant (42): Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an Urbanized Area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an Urban Cluster.

Rural – Remote (43): Census-defined rural territory that is more than 25 miles from an Urbanized Area and also more than 10 miles from an Urban Cluster.

Appendix B

Core Emergency Credentials

Certification Area Code	Certification Area	Core Emergency Credentials	Emergency certificates issued by Certification Area Code
1003	Early Childhood	Core	318
1501	Elementary Education	Core	8
1600	Elementary Education	Core	502
4050	English	Core	107
4150	Mid-Level English	Core	13
5550	Advanced Mathematics	Core	42
5552	Intermediate Mathematics	Core	112
5554	Mid-Level Math - Not for High School Credit	Core	10
5555	Mid-Level Math for High School Credit	Core	43
6003	Biology	Core	12
6006	Chemistry	Core	41
6009	Earth Science	Core	19
6013	Physical Science	Core	67
6015	Physics	Core	15
6050	Biological Sciences	Core	114
6055	Mid-Level Science	Core	71
6550	Us History/Ok History/Government/Economics	Core	64
6552	World History/Geography	Core	44
6560	Mid-Level Social Studies	Core	50
		Total	1652

Appendix C

Non-Core Emergency Credentials

Certification Area Code	Certification Area	Non-Core Teaching	Emergency certificates issued by Certification Area Code
2001	Art	Non-core	46
2003	French	Non-core	5
2005	German	Non-core	1
2011	Spanish	Non-core	49
2013	Instrumental/General Music	Non-core	25
2015	Vocal/General Music	Non-core	24
2019	Physical Education/Health/Safety	Non-core	95
2020	Dance	Non-core	3
2021	Reading Specialist	Non-core	2
2085	Music	Non-core	1
3550	Business Education	Non-core	14
4101	Journalism	Non-core	3
4250	Speech/Drama/Debate	Non-core	12
4550	Family And Consumer Sciences	Non-core	13
6554	Psychology/Sociology	Non-core	11
7501	Marketing Education	Non-core	1
7514	Career Tech Business	Non-core	8
7550	Agricultural Education	Non-core	10
7575	Career Tech Family/Consumer Science	Non-core	8
8007	Computer Science	Non-core	23
8011	English as a Second Language	Non-core	18
8550	Technology Engineering	Non-core	6
		Total	378

Appendix D

Non-Teaching Emergency Credentials

Certification Area Code	Certification Area	Non-Teaching	Number of Emergency certificates issued by Certification Area Code
0503	Secondary Principal	Non-teaching	2
0505	Elementary Principal	Non-teaching	11
0515	Library Media Specialist	Non-Teaching	8
0517	School Psychologist	Non-teaching	13
0525	School Counselor	Non-teaching	89
		Total	123

Appendix E

Oklahoma School Districts

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Academy of Seminole Charter	Rural	0	283	15	2	81.66%
Achille	Rural	0	339	22	2	69.17%
Ada	Rural	4	2564	191	6	47.57%
Adair	Rural	3	1069	68	3	46.26%
Afton	Rural	0	478	35	2	85.30%
Agra	Rural	0	296	19	3	85.06%
Albion	Rural	4	61	4	1	74.24%
Alex	Rural	0	318	26	2	74.92%
Aline-Cleo	Rural	2	128	17	2	62.89%
Allen	Rural	1	500	35	2	53.16%
Allen-Bowden	Rural	1	325	25	1	75.33%
Altus	Rural	2	3366	204	7	55.22%
Alva	Rural	1	1031	85	5	47.27%
Amber-Pocasset	Rural	0	496	31	3	58.55%
Anadarko	Rural	10	1600	98	5	64.07%
Anderson	Rural	0	353	25	1	51.39%
Antlers	Rural	1	965	71	3	91.41%
Arapaho-Butler	Rural	0	480	34	2	41.74%
Ardmore	Rural	16	2858	176	6	85.59%
Arkoma	Suburban	1	383	27	3	90.07%
Arnett	Rural	0	171	19	2	41.24%
Asher	Rural	0	281	14	2	69.71%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Astec Charters	Urban	0	1008	43	2	97.07%
Atoka	Rural	2	943	61	2	63.30%
Avant	Rural	0	84	7	1	88.89%
Balko	Rural	3	149	18	2	5.00%
Banner	Rural	1	298	19	1	83.16%
Barnsdall	Rural	0	392	27	3	65.31%
Bartlesville	Rural	12	5963	363	9	72.98%
Battiest	Rural	1	239	19	2	30.76%
Bearden	Rural	1	149	10	1	73.92%
Beaver	Rural	11	302	25	2	81.67%
Beggs	Rural	2	1011	59	3	70.37%
Belfonte	Rural	0	170	15	2	100.00%
Bennington	Rural	1	316	21	2	54.49%
Berryhill	Suburban	0	1181	69	3	33.44%
Bethany	Suburban	1	1730	98	4	73.83%
Bethel	Rural	7	1177	81	3	73.50%
Big Pasture	Rural	1	194	16	2	80.50%
Billings	Rural	4	74	9	2	45.22%
Binger-Oney	Rural	3	338	24	2	80.11%
Bishop	Urban	0	576	29	1	65.20%
Bixby	Rural	3	6726	369	7	27.26%
Blackwell	Rural	15	1129	84	3	48.16%
Blair	Rural	3	243	19	2	64.77%
Blanchard	Rural	3	2053	111	4	57.85%
Bluejacket	Rural	0	207	17	3	65.30%
Boise City	Rural	1	308	19	3	83.79%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Bokoshe	Rural	0	164	16	2	91.75%
Boone-Apache	Rural	1	554	40	3	79.29%
Boswell	Rural	0	346	25	3	81.34%
Bowlegs	Rural	0	212	17	2	90.84%
Bowring	Rural	1	62	7	1	81.58%
Braggs	Rural	5	160	11	2	75.75%
Bray-Doyle	Rural	1	308	31	2	88.43%
Bridge Creek	Rural	1	1674	102	4	44.79%
Briggs	Rural	0	494	30	1	92.83%
Bristow	Rural	0	1750	103	4	68.83%
Broken Arrow	Suburban	31	19436	1043	26	33.74%
Broken Bow	Rural	7	1592	107	4	61.04%
Brushy	Rural	0	399	21	1	86.62%
Buffalo	Rural	2	295	22	2	75.58%
Buffalo Valley	Rural	0	134	9	2	74.48%
Burlington	Rural	1	134	19	2	53.16%
Burns Flat-Dill City	Rural	0	602	39	2	83.63%
Butner	Rural	4	234	18	2	41.22%
Byng	Rural	5	1780	119	5	78.76%
Cache	Rural	7	2048	118	5	62.72%
Caddo	Rural	0	504	39	2	79.14%
Calera	Rural	1	787	54	2	95.00%
Calumet	Rural	0	288	22	2	64.98%
Calvin	Rural	2	156	16	2	77.25%
Cameron	Rural	0	273	19	2	83.83%
Canadian	Rural	0	432	32	2	78.98%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Caney	Rural	3	268	22	2	95.00%
Caney Valley	Rural	1	838	54	3	59.87%
Canton	Rural	0	349	36	2	69.08%
Canute	Rural	0	354	29	2	59.52%
Carlton Landing Academy	Rural	1	61	4	1	68.57%
Carnegie	Rural	2	547	39	3	37.27%
Carney	Rural	3	233	19	2	64.02%
Cashion	Rural	3	631	48	3	51.08%
Catoosa	Suburban	4	1881	127	4	46.93%
Cave Springs	Rural	0	158	12	3	95.75%
Cement	Rural	1	210	15	2	10.70%
Central	Rural	1	497	35	2	55.74%
Central High	Rural	0	409	25	3	41.41%
Chandler	Rural	6	1184	73	4	63.91%
Chattanooga	Rural	0	235	20	2	48.47%
Checotah	Rural	4	1398	90	4	56.09%
Chelsea	Rural	4	794	54	3	58.64%
Cherokee	Rural	0	422	42	3	45.14%
Cherokee Immersion Charter School	Rural	0	120	11	1	51.30%
Cheyenne	Rural	3	351	31	2	59.16%
Chickasha	Rural	11	2195	132	5	83.33%
Chisholm	Rural	2	1170	74	3	80.92%
Choctaw-Nicoma Park	Suburban	10	5735	332	9	48.28%
Chouteau-Mazie	Rural	0	837	72	5	78.28%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Cimarron	Rural	3	262	17	2	51.17%
Claremore	Rural	4	3746	242	6	62.01%
Clayton	Rural	2	295	21	2	59.60%
Cleora	Rural	0	132	17	1	48.46%
Cleveland	Rural	6	1644	102	4	67.90%
Clinton	Rural	4	2183	129	5	80.92%
Coalgate	Rural	0	646	51	3	69.88%
Colbert	Rural	1	802	55	4	27.17%
Colcord	Rural	5	607	42	2	79.99%
Coleman	Rural	0	159	12	2	74.43%
College Bound (Charter)	Urban	0	471	24	1	95.80%
Collegiate Hall (Charter)	Urban	0	232	15	1	90.82%
Collinsville	Suburban	6	2872	161	6	80.67%
Comanche	Rural	3	919	62	3	41.22%
Commerce	Rural	0	853	54	3	78.85%
Copan	Rural	2	190	15	2	65.36%
Cordell	Rural	3	681	51	3	57.22%
Cottonwood	Rural	0	181	16	1	71.11%
Covington-Douglas	Rural	0	272	20	2	75.87%
Coweta	Suburban	10	3364	205	8	69.33%
Coyle	Rural	2	310	24	2	80.14%
Crescent	Rural	1	557	37	3	73.03%
Crooked Oak	Urban	6	1220	78	3	63.77%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Crowder	Rural	3	328	30	2	57.77%
Crutcho	Suburban	4	350	23	1	61.10%
Cushing	Rural	4	1775	119	5	54.31%
Cyril	Rural	2	334	23	3	70.21%
Dahlonegah	Rural	0	137	13	1	100.00%
Dale	Rural	1	784	48	3	46.51%
Darlington	Rural	0	227	12	1	86.40%
Davenport	Rural	1	414	25	2	57.65%
Davidson	Rural	0	37	4	1	84.78%
Davis	Rural	1	962	63	3	58.67%
Deborah Brown (Charter)	Urban	0	251	12	1	94.76%
Deer Creek	Suburban	7	6872	372	8	49.67%
Deer Creek-Lamont	Rural	2	141	19	2	54.62%
Denison	Rural	1	323	21	1	85.37%
Depew	Rural	0	365	21	2	61.46%
Dewar	Rural	0	454	34	3	64.55%
Dewey	Rural	3	1239	80	3	81.80%
Dibble	Rural	4	694	41	3	76.12%
Dickson	Rural	5	1339	76	4	72.63%
Dove Schools of Tulsa	Urban	0	1240	81	3	76.56%
Dove Science Academy (Charter)	Urban	1	1321	81	4	54.06%
Dover	Rural	1	153	16	2	87.86%
Drummond	Rural	2	354	23	2	63.91%
Drumright	Rural	0	474	29	3	79.33%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Duke	Rural	5	163	12	2	93.15%
Duncan	Rural	17	3484	209	8	52.61%
Durant	Rural	13	3781	221	6	40.16%
Eagletown	Rural	4	160	16	2	77.76%
Earlsboro	Rural	0	276	18	2	74.82%
Edmond	Suburban	31	25619	1429	26	70.19%
El Reno	Rural	2	2911	173	6	75.43%
Elgin	Rural	4	2412	138	3	84.57%
Elk City	Rural	3	2181	131	4	84.62%
Elmore City-Pernell	Rural	0	512	35	3	58.50%
Empire	Rural	7	526	35	3	66.95%
Enid	Rural	30	7803	443	16	60.24%
Epic Blended Learning Charter	Urban	0	10962	494	6	0.00%
Epic One on One Charter School	Urban	0	17106	736	3	0.00%
Erick	Rural	0	226	20	2	56.35%
Eschool Virtual Charter Academy	Rural	0	44	0	3	66.84%
Eufaula	Rural	3	1181	75	3	26.49%
Fairland	Rural	2	642	38	3	67.03%
Fairview	Rural	5	805	48	3	77.30%
Fanshawe	Rural	0	102	6	1	75.28%
Fargo	Rural	1	253	20	2	60.91%
Felt	Rural	2	84	10	2	81.52%
Fletcher	Rural	1	480	32	3	51.70%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Flower Mound	Rural	0	326	17	1	40.29%
Forest Grove	Rural	0	130	12	1	95.83%
Forgan	Rural	1	131	16	2	82.56%
Fort Cobb-Broxton	Rural	0	337	23	3	75.24%
Fort Gibson	Rural	2	1775	119	4	74.23%
Fort Supply	Rural	6	143	13	2	74.53%
Fort Towson	Rural	2	343	24	3	72.89%
Fox	Rural	0	242	19	2	84.87%
Foyil	Rural	0	471	36	3	78.02%
Frederick	Rural	4	850	54	3	88.88%
Freedom	Rural	1	47	12	2	54.01%
Friend	Rural	0	256	14	1	58.89%
Frink-Chambers	Rural	0	437	25	1	55.85%
Frontier	Rural	2	368	42	2	58.15%
Gans	Rural	2	398	25	2	80.02%
Garber	Rural	1	400	23	2	77.44%
Geary	Rural	1	318	32	3	79.66%
Geronimo	Rural	0	336	20	3	73.65%
Glencoe	Rural	0	347	19	2	66.26%
Glenpool	Suburban	3	2837	177	5	74.16%
Glover	Rural	0	68	6	1	100.00%
Goodwell	Rural	5	224	14	2	95.00%
Gore	Rural	1	520	38	3	61.48%
Gracemont	Rural	2	120	13	2	92.56%
Graham-Dustin	Rural	2	169	16	3	79.68%
Grand View	Rural	0	593	41	1	86.09%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Grandfield	Rural	1	207	15	2	93.35%
Grandview	Rural	0	128	5	1	68.49%
Granite	Rural	1	225	19	2	55.40%
Greasy	Rural	0	67	6	1	94.52%
Greenville	Rural	0	101	10	1	79.20%
Grove	Rural	6	2529	149	4	79.59%
Grove	Rural	2	522	34	1	95.00%
Guthrie	Rural	2	3492	206	7	83.61%
Guymon	Rural	30	3070	189	8	57.36%
Gypsy	Rural	0	47	3	1	100.00%
Haileyville	Rural	0	328	21	2	75.42%
Hammon	Rural	2	275	24	2	79.51%
Hanna	Rural	1	73	7	2	39.57%
Hardesty	Rural	0	71	11	2	83.67%
Harding (Charter)	Rural	0	459	29	1	53.60%
Harding Fine Arts (Charter)	Urban	0	364	26	1	49.50%
Harmony	Rural	0	223	12	1	85.04%
Harrah	Rural	1	2263	128	5	56.45%
Hartshorne	Rural	2	775	54	3	65.13%
Haskell	Rural	3	740	50	3	75.00%
Haworth	Rural	1	515	39	3	73.94%
Haywood	Rural	0	104	12	1	82.46%
Healdton	Rural	0	477	32	3	71.34%
Heavener	Rural	3	917	70	2	70.49%
Hennessey	Rural	6	883	71	3	47.25%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Henryetta	Rural	0	1185	76	3	79.88%
Hilldale	Rural	2	1960	107	3	51.47%
Hinton	Rural	1	735	46	3	95.00%
Hobart	Rural	0	736	51	3	81.44%
Hodgen	Rural	0	234	16	1	82.06%
Holdenville	Rural	1	1022	77	3	95.00%
Hollis	Rural	2	532	38	3	84.13%
Holly Creek	Rural	0	241	15	1	90.28%
Hominy	Rural	4	576	39	4	80.84%
Honor Academy (Charter)	Urban	1	511	32	2	77.78%
Hooker	Rural	1	629	41	2	70.05%
Howe	Rural	0	640	38	2	81.55%
Hugo	Rural	7	1198	79	4	82.12%
Hulbert	Rural	3	543	35	3	59.88%
Hupfeld/W Village (Charter)	Suburban	1	331	18	1	38.83%
Hydro-Eakly	Rural	2	468	33	3	69.06%
Idabel	Rural	5	1258	89	4	66.54%
Independence Middle School	Urban	0	311	18	1	72.09%
Indiahoma	Rural	3	191	17	2	83.43%
Indianola	Rural	1	274	18	2	93.97%
Inola	Rural	6	1261	84	3	54.10%
Insight School of Oklahoma	Suburban	0	601	0	2	0.00%
Jay	Rural	3	1490	106	4	75.51%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Jenks	Suburban	10	12527	726	8	50.52%
Jennings	Rural	0	224	15	1	77.67%
John W Rex Charter Elementary	Urban	0	644	37	1	34.77%
Jones	Suburban	7	1123	66	3	50.00%
Justice	Rural	0	182	14	1	100.00%
Justus-Tiawah	Rural	0	565	39	1	39.31%
Kansas	Rural	0	839	63	3	87.04%
Kellyville	Rural	1	852	57	4	95.00%
Kenwood	Rural	1	93	6	1	57.98%
Keota	Rural	0	420	35	2	90.00%
Ketchum	Rural	5	598	44	3	51.28%
Keyes	Rural	0	13	2	2	74.55%
Keys	Rural	1	679	50	2	55.10%
Keystone	Rural	0	318	22	1	67.47%
Kiefer	Suburban	3	913	52	3	78.38%
Kildare	Rural	0	110	10	1	62.07%
Kingfisher	Rural	6	1519	97	4	89.47%
Kingston	Rural	5	1243	81	3	57.91%
Kinta	Rural	2	196	15	2	74.62%
Kiowa	Rural	0	294	24	2	52.67%
Kipp (Charter)	Urban	0	516	31	2	91.59%
Kipp Reach Coll (Charter)	Urban	5	297	18	1	69.23%
Konawa	Rural	1	601	43	3	83.75%
Krebs	Rural	1	469	28	1	62.29%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Kremlin-Hillsdale	Rural	0	277	20	2	33.55%
Lane	Rural	2	284	20	1	82.12%
Latta	Rural	0	911	55	3	43.76%
Laverne	Rural	4	476	34	2	76.53%
Lawton	Urban	106	13679	902	25	80.81%
Le Flore	Rural	0	259	19	2	91.19%
Le Monde International School	Suburban	0	199	11	1	49.58%
Leach	Rural	0	148	10	1	75.19%
Leedey	Rural	0	216	19	2	37.23%
Lexington	Rural	1	1038	63	3	90.03%
Liberty	Rural	2	504	34	2	73.12%
Liberty	Rural	0	335	22	1	83.43%
Lighthouse Academy (Charter)	Urban	1	653	37	1	86.79%
Lindsay	Rural	1	1224	82	3	62.83%
Little Axe	Rural	4	1293	84	3	53.31%
Locust Grove	Rural	4	1339	90	4	75.65%
Lomega	Rural	2	221	19	2	45.19%
Lone Grove	Rural	3	1441	93	4	93.30%
Lone Star	Suburban	2	931	53	1	76.92%
Lone Wolf	Rural	10	107	11	2	71.29%
Lookeba Sickles	Rural	0	235	19	2	73.58%
Lowrey	Rural	0	127	12	1	93.92%
Lukfata	Rural	0	394	23	1	61.18%
Luther	Rural	1	776	50	3	93.84%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Macomb	Rural	0	268	19	2	88.11%
Madill	Rural	1	1747	116	3	88.62%
Mangum	Rural	1	717	56	3	45.74%
Mannford	Rural	4	1475	95	5	50.56%
Mannsville	Rural	0	107	9	1	85.44%
Maple	Rural	0	186	13	1	23.95%
Marble City	Rural	0	109	9	1	81.72%
Marietta	Rural	2	1132	64	3	61.25%
Marlow	Rural	0	1358	86	3	46.43%
Maryetta	Rural	0	638	52	1	75.95%
Mason	Rural	2	256	18	2	57.14%
Maud	Rural	5	269	21	2	78.70%
Maysville	Rural	0	325	23	2	68.57%
Mcalester	Rural	1	3100	193	8	38.04%
Mccord	Rural	0	337	19	1	60.11%
Mccurtain	Rural	0	214	19	2	94.98%
Mcloud	Rural	5	1666	117	5	95.00%
Medford	Rural	1	282	30	2	41.41%
Meeker	Rural	0	770	52	3	58.25%
Merritt	Rural	0	814	50	2	61.10%
Miami	Rural	8	2185	137	7	35.01%
Middleberg	Rural	1	210	13	1	66.17%
Midway	Rural	1	224	14	2	65.77%
Midwest City-Del City	Suburban	50	14207	911	23	25.81%
Milburn	Rural	0	195	15	2	79.73%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Mill Creek	Rural	0	172	16	2	76.61%
Millwood	Rural	7	957	54	3	49.64%
Minco	Rural	0	548	38	3	54.43%
Moffett	Rural	1	355	20	1	65.66%
Monroe	Rural	0	127	7	1	82.08%
Moore	Suburban	38	24961	1388	34	70.52%
Mooreland	Rural	1	560	40	2	80.29%
Morris	Rural	0	998	67	3	71.67%
Morrison	Rural	0	585	39	3	59.19%
Moseley	Rural	0	162	14	1	81.59%
Moss	Rural	1	265	19	2	0.00%
Mounds	Rural	0	579	43	2	72.25%
Mountain View-Gotebo	Rural	0	247	17	2	62.45%
Moyers	Rural	0	172	16	2	75.90%
Muldrow	Rural	0	1325	89	3	73.47%
Mulhall-Orlando	Rural	1	228	21	2	84.64%
Muskogee	Rural	29	5367	319	11	82.87%
Mustang	Suburban	23	12355	735	16	63.79%
Nashoba	Rural	1	58	6	1	95.00%
Navajo	Rural	3	479	34	3	93.66%
New Lima	Rural	0	260	20	2	92.23%
Newcastle	Rural	3	2336	131	4	89.34%
Newkirk	Rural	0	749	53	3	59.30%
Ninnekah	Rural	3	531	33	3	44.60%
Noble	Suburban	4	2802	168	5	41.12%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Norman	Suburban	38	16289	958	25	78.57%
North Rock Creek	Rural	0	908	57	4	46.28%
Norwood	Rural	0	150	12	1	89.73%
Nowata	Rural	3	796	53	3	0.00%
Oak Grove	Rural	0	177	11	1	53.49%
Oakdale	Rural	0	684	47	1	11.29%
Oaks-Mission	Rural	0	160	15	2	82.88%
Oilton	Rural	1	253	17	2	62.35%
Okarche	Rural	4	393	34	3	32.09%
Okay	Rural	0	365	22	2	78.99%
Okeene	Rural	0	329	24	3	57.86%
Okemah	Rural	1	785	59	4	72.73%
Oklahoma City	Urban	224	35897	2172	59	60.25%
Oklahoma Connections Academy	Rural	0	1112	0	3	0.00%
Oklahoma Union	Rural	0	612	45	3	54.50%
Oklahoma Virtual Charter Academy	Suburban	0	2669	0	3	0.00%
Oklahoma Youth Academy	Rural	2	90	21	4	83.33%
Okmulgee	Rural	1	1213	81	3	68.07%
Oktaha	Rural	0	665	43	2	87.42%
Olive	Rural	0	255	22	2	61.49%
Olustee-Eldorado	Rural	1	204	17	2	75.88%
Oologah-Talala	Rural	10	1771	106	4	90.35%
Optima	Rural	0	49	4	1	96.61%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Osage	Rural	0	145	11	1	70.63%
Osage County Ilc	Rural	12	0	0	0	45.69%
Osage Hills	Rural	1	196	12	1	19.15%
Owasso	Suburban	17	9782	532	13	80.07%
Paden	Rural	2	241	16	2	58.13%
Panama	Rural	1	736	40	3	37.81%
Panola	Rural	0	92	7	2	75.22%
Paoli	Rural	0	214	19	2	86.01%
Pauls Valley	Rural	2	1293	89	5	95.00%
Pawhuska	Rural	5	744	43	4	69.69%
Pawnee	Rural	1	651	49	3	69.24%
Peavine	Rural	0	110	9	1	100.00%
Peckham	Rural	0	101	9	1	95.56%
Peggs	Rural	0	210	14	1	77.16%
Perkins-Tryon	Rural	1	1536	98	4	55.06%
Perry	Rural	0	1083	66	3	49.86%
Piedmont	Rural	6	4535	242	7	69.32%
Pioneer	Rural	0	388	25	1	44.07%
Pioneer-Pleasant Vale	Rural	1	503	41	3	66.99%
Pittsburg	Rural	0	145	12	2	76.80%
Plainview	Rural	6	1524	101	4	56.36%
Pleasant Grove	Rural	1	247	15	1	56.12%
Pocola	Rural	8	774	53	3	89.06%
Ponca City	Rural	12	4741	276	11	56.51%
Pond Creek-Hunter	Rural	5	340	25	3	61.38%
Porter Consolidated	Rural	3	587	36	2	81.43%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Porum	Rural	0	448	34	2	73.90%
Poteau	Rural	1	2277	152	4	71.47%
Prague	Rural	4	1034	59	3	70.23%
Preston	Rural	5	577	32	2	80.35%
Pretty Water	Rural	0	240	17	1	62.28%
Prue	Rural	2	289	20	2	60.42%
Pryor	Rural	4	2757	197	5	67.23%
Purcell	Rural	3	1425	92	4	37.39%
Putnam City	Urban	117	19652	1258	26	51.10%
Quapaw	Rural	7	569	40	3	75.00%
Quinton	Rural	5	430	32	2	76.45%
Rattan	Rural	0	466	36	3	63.09%
Ravia	Rural	0	92	7	1	101.27%
Red Oak	Rural	0	329	20	2	83.33%
Reydon	Rural	0	115	17	2	50.77%
Ringling	Rural	2	377	30	3	62.48%
Ringwood	Rural	1	370	26	2	95.00%
Ripley	Rural	0	456	30	2	65.62%
Riverside	Rural	2	161	12	1	75.92%
Robin Hill	Rural	2	367	24	1	84.44%
Rock Creek	Rural	2	463	28	2	83.78%
Rocky Mountain	Rural	0	173	14	1	94.12%
Roff	Rural	0	323	22	2	77.92%
Roland	Rural	2	933	62	3	60.59%
Rush Springs	Rural	2	510	39	3	65.53%
Ryal	Rural	1	68	5	1	59.13%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Ryan	Rural	3	236	20	2	87.58%
Salina	Rural	1	800	56	3	95.00%
Sallisaw	Rural	1	1877	117	4	49.12%
Sand Springs	Suburban	10	5064	292	9	73.61%
Sankofa Middle School (Charter)	Urban	0	109	6	1	97.07%
Santa Fe South (Charter)	Urban	0	3533	196	7	92.62%
Sapulpa	Suburban	2	3664	227	7	75.66%
Sasakwa	Rural	0	229	15	2	100.51%
Savanna	Rural	0	380	24	2	66.33%
Sayre	Rural	8	710	52	3	73.86%
School Arts/Science (Charter)	Urban	0	451	30	2	59.35%
Schulter	Rural	2	130	12	2	66.88%
Seeworth Academy (Charter)	Rural	1	397	21	2	47.71%
Seiling	Rural	6	461	38	3	88.53%
Seminole	Rural	3	1508	104	4	68.27%
Sentinel	Rural	1	316	25	2	51.56%
Sequoyah	Rural	0	1284	82	3	44.06%
Shady Grove	Rural	0	153	13	1	81.99%
Shady Point	Rural	0	158	12	1	100.00%
Sharon-Mutual	Rural	0	238	20	2	38.29%
Shattuck	Rural	1	366	32	2	63.52%
Shawnee	Rural	10	3642	247	7	58.30%
Shidler	Rural	0	239	19	3	61.94%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Silo	Rural	1	988	64	4	72.92%
Skiatook	Rural	5	2352	146	5	88.24%
Smithville	Rural	0	270	21	3	82.21%
Snyder	Rural	0	480	30	3	73.29%
Soper	Rural	0	361	24	2	64.25%
South Coffeyville	Rural	1	220	17	2	70.54%
South Rock Creek	Rural	0	416	27	1	35.87%
Sovereign Community School	Rural	0	39	0	2	56.97%
Sperry	Rural	1	1046	64	3	45.63%
Spiro	Rural	0	1051	62	3	80.28%
Springer	Rural	3	206	20	2	90.21%
Sterling	Rural	0	349	26	2	44.27%
Stidham	Rural	1	87	8	1	85.93%
Stigler	Rural	2	1253	82	3	82.67%
Stillwater	Rural	2	6312	368	9	68.47%
Stilwell	Rural	12	1344	96	3	90.21%
Stonewall	Rural	2	445	35	3	82.95%
Straight	Rural	0	40	5	1	51.16%
Stratford	Rural	0	644	43	3	67.65%
Stringtown	Rural	6	235	16	2	82.67%
Strother	Rural	6	408	27	2	76.89%
Stroud	Rural	0	791	61	3	60.68%
Stuart	Rural	0	260	19	2	82.17%
Sulphur	Rural	2	1558	89	4	70.31%
Sweetwater	Rural	3	124	20	2	68.57%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Swink	Rural	1	139	11	1	67.36%
Tahlequah	Rural	10	3663	220	6	64.91%
Talihina	Rural	1	565	45	3	44.63%
Taloga	Rural	1	91	13	2	66.46%
Tannehill	Rural	2	138	10	1	72.88%
Tecumseh	Rural	4	2086	133	5	66.24%
Temple	Rural	0	189	18	2	91.01%
Tenkiller	Rural	0	256	18	1	79.73%
Terral	Rural	0	37	5	1	93.48%
Texhoma	Rural	2	294	18	2	0.00%
Thackerville	Rural	2	273	24	3	80.31%
Thomas-Fay-Custer Unified District	Rural	0	482	36	3	50.69%
Timberlake	Rural	0	292	30	2	60.00%
Tipton	Rural	0	267	17	2	71.23%
Tishomingo	Rural	1	899	63	3	86.90%
Tonkawa	Rural	2	798	51	3	64.53%
Tri-County Ilc	Rural	1	0	5	0	67.67%
Tulsa	Urban	263	35675	2171	74	84.92%
Tupelo	Rural	0	237	18	2	26.13%
Turkey Ford	Rural	0	101	9	1	88.79%
Turner	Rural	2	311	21	2	71.55%
Turpin	Rural	1	446	35	2	54.52%
Tushka	Rural	0	469	33	2	64.93%
Tuskahoma	Rural	0	68	5	1	75.00%
Tuttle	Rural	2	1964	116	5	72.56%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Twin Hills	Rural	0	329	23	1	82.75%
Tyrone	Rural	0	227	16	2	68.10%
Union	Urban	20	15815	879	17	73.22%
Union City	Rural	1	315	20	2	65.07%
Valliant	Rural	3	908	62	3	78.73%
Vanoss	Rural	1	553	39	2	70.11%
Varnum	Rural	1	292	18	2	29.29%
Velma-Alma	Rural	0	466	33	3	41.84%
Verden	Rural	8	287	17	2	69.05%
Verdigris	Rural	2	1366	89	4	73.47%
Vian	Rural	0	854	61	3	88.90%
Vici	Rural	0	313	23	2	49.55%
Vinita	Rural	5	1361	83	3	90.91%
Wagoner	Rural	4	2267	154	5	59.87%
Wainwright	Rural	3	93	6	1	93.59%
Walters	Rural	4	643	44	3	74.23%
Wanette	Rural	3	123	11	2	27.94%
Wapanucka	Rural	0	242	17	2	68.38%
Warner	Rural	2	810	52	2	77.12%
Washington	Rural	1	1026	63	3	77.67%
Watonga	Rural	1	752	54	3	37.29%
Watts	Rural	0	272	19	2	80.07%
Waukomis	Rural	0	398	27	3	49.08%
Waurika	Rural	9	424	32	3	46.57%
Wayne	Rural	0	485	35	3	71.88%
Waynoka	Rural	1	223	21	2	85.71%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Weatherford	Rural	1	2452	147	5	78.17%
Webbers Falls	Rural	1	306	21	2	95.00%
Welch	Rural	0	279	26	3	51.07%
Weleetka	Rural	3	429	32	3	83.20%
Wellston	Rural	0	565	37	3	60.41%
Western Heights	Urban	39	3419	227	8	91.89%
Westville	Rural	4	1133	85	3	83.20%
Wetumka	Rural	0	428	30	2	77.42%
Wewoka	Rural	8	662	45	3	61.80%
White Oak	Rural	0	32	3	1	93.18%
White Rock	Rural	0	97	9	1	83.50%
Whitebead	Rural	0	396	28	1	54.96%
Whitefield	Rural	0	195	9	1	67.28%
Whitesboro	Rural	0	196	17	2	82.46%
Wickliffe	Rural	0	61	7	1	88.22%
Wilburton	Rural	7	860	54	3	95.00%
Wilson	Rural	4	259	19	2	74.88%
Wilson	Rural	5	436	27	2	71.95%
Wister	Rural	3	489	32	2	65.52%
Woodall	Rural	2	446	29	1	65.55%
Woodland	Rural	0	398	30	3	76.39%
Woodward	Rural	7	2671	175	7	59.87%
Wright City	Rural	0	492	32	3	82.74%
Wyandotte	Rural	2	783	55	3	58.20%
Wynnewood	Rural	2	722	51	3	84.11%
Wynona	Rural	2	89	10	2	71.81%

District Name	Locale	Emergency Certificates	Students	Teachers	Schools	Average District Poverty
Yale	Rural	1	424	29	3	91.01%
Yarbrough	Rural	2	67	7	2	45.26%
Yukon	Suburban	29	9005	525	11	55.94%
Zaneis	Rural	0	304	17	1	83.77%
Zion	Rural	0	326	25	1	80.52%

Note. This table shows each district name that has emergency certificates, a condensed locale, the number of emergency certificates issued to the district, number of students, teachers, and schools. It also shows the average district poverty level for each district.

Appendix F

Semi-structured Interview Questionnaire

Questions	Probes
1. Why did you decide to become a teacher?	What other factors drove you to become a teacher?
2. What subject and grade level are you teaching?	Are you planning to continue teaching the same subject in the future?
3. Have you taken any of the state certification tests?	Which ones/when do you plan on taking them?
4. What is your degree or college major?	Do you have any minors?
5. Have you ever been a substitute teacher?	If so, for how long? What state(s)?
6. Is teaching your only job?	What is your other job(s)?
7. What was your previous career?	How long were you at that job? What was your reason for leaving?
Job Process Questions	
8. What was the teacher job interview process like?	Were you referred by someone or recruited?
9. What made you choose the school you teach at?	Do you have kids that attend the school?
10. Can you tell me about the kinds of support (teachers/principals) you've had since you've been teaching?	
11. Are there any professional development opportunities or requirements?	What are they? Are they useful?
12. What are your overall plans in the teaching field?	

Appendix G

Intrinsic and Extrinsic Codes

Intrinsic codes	Extrinsic codes
Love of particular subject area	Income / Salary
Long-term goal to become teacher	Immediate financial need
Philosophical match	Benefits / Pension
Give back / service orientation	Lost job / Need a job
Love working with children / youth	Status
Interest in schools / school culture	Work conditions
Personal satisfaction / growth	Time off / Summer vacation
Interpersonal bonds	Ease of entry into teaching / convenience
Enjoyment of teaching and learning	Praise from others
Lifelong learner	Ease of occupation