

Going Back to School: Why STEM Professionals Decide to Teach through Alternative Certification Programs

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Abstract

Prompted by the emergence of alternative pathways to teacher certification as well as federal, state, and local policy directives aimed at raising student achievement, this study explores the extent to which prospective teachers' reasons to teach have or have not changed since before the enactment of such changes in public schools. In addition, the study contributes to the literature on the recruitment and retention of STEM teachers in difficult-to-staff schools through the analysis of reasons to enter teaching and the implications of those reasons for career changers in an alternative teacher preparation program. Data for this study were gathered over the span of participants' entire first year in the classroom through interviews, questionnaires, and application materials. This study found that participants in Alternative Certification in Science and Mathematics (ACSM) express model influences, experiential influences, programmatic influences, race- and gender-related reasons, and vocational reasons as motivation for teaching. In addition, data revealed that participants' reasons to stay in teaching become much more specific over time.

Keywords: STEM programs, alternative certification pathways, reasons to teach, high-needs schools, middle schools

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Since the publication of the National Commission on Excellence in Education report, *A Nation at Risk* in 1983, education has been under attack for the perception of failing schools. More recently, the focus has shifted to the United States' perceived inability to prepare globally competitive students in the STEM disciplines. With these criticisms in mind, one wonders why an individual working in a STEM field would want to change careers and teach. Moreover, Valli and Buese (2007) suggest teachers' work has "increased, intensified, and expanded" (p. 520) since the *No Child Left Behind (NCLB) Act of 2001*. Therefore, one wonders if teaching is becoming more or less attractive.

In addition, the creation and proliferation of alternate routes to teaching has expanded the opportunities for more people to become teachers – late entrants, career changers, etc. According to the National Center for Education Information (NCEI), a few states in the mid-1980s developed alternative routes to teacher certification as a means of staffing teachers in critical shortage areas such as mathematics, science, and special education (Feistritzer, 2011). Now, hundreds of alternative certification programs exist in 45 states and the District of Columbia (Duncan & Ochoa, 2011; Feistritzer, 2011). Alternative certification programs produce approximately 60,000 new teachers per year. To that end, data show about one-third of new teachers hired between the years 2005 and 2010 were certified through alternative routes (Feistritzer, 2011). Moreover, recent data indicate that teachers with less than five years of experience are more than twice as likely to have been certified through an alternative program than through a traditional program (Feistritzer, 2011).

The emergence of alternative pathways to certification, the growing percentage of teachers being certified through alternative routes, and the policy-driven changes such as the current system of sanctions and rewards linked to student performance prompt an updated investigation on the extent to which prospective teachers' reasons to teach have or have not changed from prior years. Data from this study will support more effective recruitment and retention of alternatively certified teachers who choose to work in high-needs, low-performing schools.

The central question of this study is, "What are the implications of the stated reasons to teach for candidates enrolled in a STEM-focused alternative teacher certification program?" To that end, implications of reasons to teach are explored for the purposes of improving the recruitment and retention of alternatively certified teachers. In asking this question, the researcher explores how reasons to teach might change over time for prospective teachers spending a year in high-needs middle schools for the purposes of professional development and building robust STEM alternative programs.

Looking back on the body of literature on the topic of reasons to teach, it appears there are certain trends. For example, vocational reasons and an idealized image of teachers was a powerful reason to teach during the 1950s (Fielstra, 1955), while extrinsic reasons such as job security became the more dominant reason to teach for candidates in the 1960s (Haubrich, 1960; Hood, 1965); after this time, research in this topic became less prominent in the educational research agenda. In the 1980s, interest in reasons to teach as a research topic was renewed by the emergence of alternative pathways to teacher certification.

For career changers in non-traditional routes to teaching, the most frequently identified reason to teach has been a personal life change, such as the birth of a child, which prompted the individual to want a work schedule more commensurate with their children's school schedule (Crow, Levin, & Nager, 1990; Freidus, 1989; Young, 1995). In more recent studies, an idealized image of teachers and vocational factors appear to be the most frequently expressed reasons to teach (Eick, 2002; Olsen, 2008; Richardson & Watt, 2005; Richardson & Watt, 2006).

Another trend is the enduring use of closed-ended surveys as a means of collecting data. Survey research is one of the most utilized methods of research in this area because of the large sample sizes survey research enables one to study. While survey research identifies reasons to teach for large sample sizes, survey-based methodology limits the research in a number of ways. First, the closed-ended survey approach imposes researcher-generated categories upon prospective teachers. It assumes that pre-established categories capture reasons to teach and does not explore the contextual factors that career-changers might discuss in the way more open-ended, interpretive work might (Merriam, 1998). Next, researcher-generated categories, even those found in other studies, do not acknowledge the changing economic context of a given time and place in our country's history and the impact that might have on prospective teachers' reasons to choose teaching. Moreover, the teaching contexts in which these teachers are prepared to work have not been accounted for in extant studies. Therefore, a combination of open-ended questionnaires and individual interviews throughout an entire academic year is informative in understanding the reasons to teach for career-changers and the contextual factors that might impact those reasons during the first year working in classrooms.

Furthermore, researchers such as Crow et al. (1990) conducted research that spanned an academic year, but they do not discuss if or how participants' reasons to teach *changed* during this time. In fact, few studies actually explore persistence and changes in reasons to teach and the contexts that contribute to an individual's decision to stay teaching or leave altogether. Sinclair, Dowson, and McInerney (2006), who also recognized that most of the studies on reasons to teach do not acknowledge temporal changes in reasons for individuals, conducted a study with 98 prospective teachers at a large public university in Australia over the course of a semester. The researchers found that reasons to teach for many individuals *do* change over time, and the change is because prospective teachers became dissatisfied with teaching and decided against entering the profession. Similarly, Shaw (1996) found that her participants, a Black male and a Black female, decided not to teach because they felt the pressure to make more money.

Additionally, Kottkamp, Provenzo, and Cohn (1986) studied stability and change within teaching for Dade County Public School teachers in order to update the study that Lortie (1975) conducted in 1964.¹ In the Kottkamp et al. (1986) study, the researchers reported that teachers in Dade County in 1984 were not as attracted to the profession by intrinsic and extrinsic factors as were teachers in the county twenty years before that time and expressed more vocational reasons to teach. What's more, Zimpher's (1989) meta-analysis of decision-to-teach studies confirms Kottkamp et al. (1986) findings and concludes that, in general, reasons to teach have changed over time. For example, the teachers in the Kottkamp et al. (1986) study indicated they were less attracted to teaching because of extrinsic rewards than teachers were in Lortie's (1975) study. Moreover, a larger percentage of teachers in 1984 – compared with teachers in 1964 – reported

¹ Lortie published this study in 1975 in the book *Schoolteacher*.

dissatisfaction with their jobs. The researchers did not speculate on the cause of these changes, but they had suggested that “scholarly studies of schooling and reports of national commissions have somewhat changed the nature of teaching” (Kottkamp et al., 1986, p. 566). The findings from Kottkamp et al. (1986) and Zimpher’s (1989) meta-analysis help educational researchers gauge changes in reasons to teach across decades, but gaps still exist in how reasons might change over the course of an academic year.

In addition to this gap in the literature, reviewing the studies conducted on reasons to teach reveals a gap in our knowledge base because many of the studies were conducted before today’s era of standards-based reform and test-driven accountability (Cuban, 2009). Now, more than ever before, teachers are evaluated by rigorous measures related to student performance and endure a heightened sense of surveillance of their work (Valli & Buese, 2007). Along with increasing public and political scrutiny of teachers and schools, one may consider the reasons a STEM professional would want to change careers and teach.

Study Context

The study participants were candidates enrolled in an alternative certification program for middle school science and mathematics teachers called the Alternative Certification for Science and Mathematics (ACSM) program.² The ACSM program is a federally funded Transition to Teaching program partnership between a mid-Atlantic university and the nearby district of Colton County Public Schools (CCPS). The researcher of this study is the coordinator of ACSM. As an outgrowth of the focus on STEM education and STEM teacher education programs, ACSM focuses on preparing middle school science and mathematics teachers to work in the high-needs, low-performing middle schools of CCPS.

ACSM Programmatic Features

Key programmatic features define ACSM. For example, since ACSM is federally funded through the U.S. Department of Education’s Transition to Teaching grant, the program is able to subsidize tuition costs for participants. In addition, participants with a 3.0 or higher GPA from their undergraduate studies can, upon successful completion of ACSM, take an additional nine credits of coursework at the university to earn a master’s degree. Participants in ACSM, as in other early-entry alternative certification programs (ACP), work as the teacher of record in a classroom shortly after beginning the program. Each ACSM participant is also given a mentor from the university who works individually with the participant during their first year teaching. During this first year teaching, participants work half time and earn a half time teacher’s salary with full medical benefits. Finally, ACSM is a total of 13 months, unlike some other programs that can be shorter or last up to two years.

² Pseudonyms are used in place of identifying information for the program, university, school district, and individual participants.

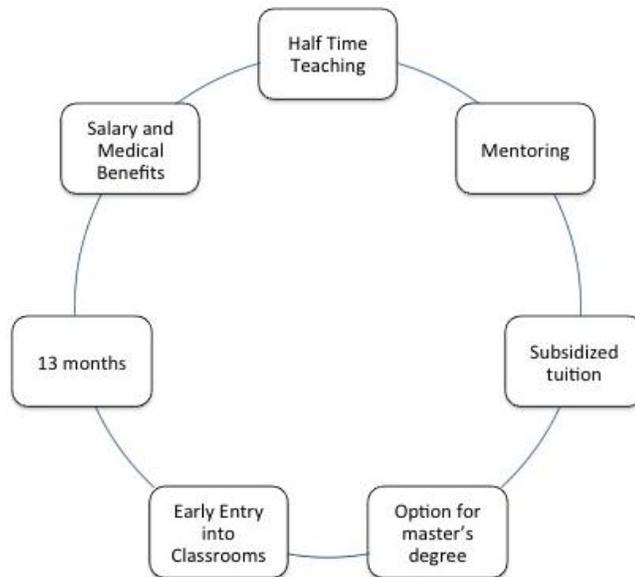


Figure 1. ACSM program features.

ACSM Recruitment

One goal of ACSM is to attract candidates with local ties to Colton County, since evidence suggests such individuals are more likely to stay in local schools than outsiders (Boyd, Lankford, Loeb, & Wychoff, 2005), and it is reasonable to assume that candidates with local ties or ties to commensurately diverse communities are more likely than outsiders to relate positively to CCPS students. As a result, and in contrast to many traditional teacher preparation programs, ACSM deliberately recruits and selects teacher candidates who come from the same or similar communities as the students in CCPS, who are more likely to stay in the classroom, and who specifically want to teach in middle schools in CCPS, a predominantly African-American and increasingly immigrant Latino(a) county that borders a large metropolitan area in the mid-Atlantic. This is achieved in large part through concentrated recruitment efforts that focus on radio campaigns that reach the desired demographic as well as word of mouth referrals to ACSM.

Theoretical Framework

Stemming from an examination of extant literature, the theoretical framework illustrates how personal, programmatic, economic, and school contexts might affect ACSM participants' reasons to teach over the course of an academic year within the larger test-driven accountability context in which schools and teachers now operate. In addition, given the ACSM program's intentional recruitment of diverse individuals with ties to Colton County, the theoretical framework takes into account the critical affect that race plays for individuals in ACSM to choose teaching. This theoretical framework draws, in part, from Ginzberg's (1988) theory of occupational choice. Ginzberg (1988) defines occupational choice as a process that is largely irreversible. Ginzberg (1988) asserted, "Compromise is an essential aspect of every choice" (p. 360). Individuals, therefore, make career choices by negotiating the advantages and disadvantages of different professions. As Ginzberg (1988) claimed, an individual reaches a career decision "not at any

single moment in time, but through a series of decisions over a period of many years; the cumulative impact is the determining factor” (p. 360). Individuals, in part, choose occupations based on their available options and the opportunity costs of choosing a certain profession.

Along with Ginzberg’s (1988) theory of occupational choice, the idea that economic contexts impact reasons to teach for some individuals is corroborated by researchers’ (Murnane, Singer, Willett, Kemple, & Olsen, 1991) work over three decades with more than 50,000 college graduates – some of whom chose to teach and some of whom did not choose to teach. These researchers found that the supply of teachers among different regions was sensitive to the salary differential between teaching and other jobs, relative working conditions, and the personalization and efficiency of hiring procedures. Therefore, economic contexts and the availability of other forms of employment play a role in some individuals’ reasons to enter the teaching profession.

Additionally, the theoretical framework of this study is informed by research (Nias, 1989) that asserts the affective and deeply personal reasons that impact why some individuals choose the teaching profession. In fact, a reason to teach for some is the belief that teachers can personally influence the lives of their students. A growing body of research (Bullough, 1998; Butt, Raymond, & Yamagishi, 1988; Cole & Knowles, 2000; Eick, 2002) indicates that teachers’ perceptions of teaching and their actions in the classroom are grounded in their personal life histories and continue to be shaped in the context of schools. Moreover, Shen (1997) found that teachers regularly weigh their decision to remain in teaching through consideration of their personal effect on their students. As such, personal and school contexts have been found to have an impact on reasons why people enter the teaching profession and why they continue to teach or leave the profession altogether.

Similarly, programmatic contexts, such as the features of the ACSM program, are incorporated into the theoretical framework for this study. ACSM program features include subsidized tuition, a half time teaching model during the first year in the classroom, mentoring support, and the ability to work in high-needs, low performing schools, as the ACSM program explicitly prepares teachers to work in such schools.

Methodology

Data sources for the study include: open-ended questionnaires, open-ended, semi-structured interviews, and ACSM application materials. Data collection for this study took place over the course of 12 months in three phases. In phase one, baseline data were collected on study participants from individual interviews, an open-ended questionnaire, and application folder materials to the ACSM program. In the application folders, the researcher examined participants’ resumes of professional experience before choosing to teach. Each participant’s Statement of Purpose was also read to gain a better understanding of their expressed reasons to teach, and the researcher reviewed ACSM faculty members’ notes from participants’ initial program interviews, which help determine a potential participant’s admission into the program. In the second and third phases of data collection, participants responded to an open-ended questionnaire and individual, open-ended, semi-structured interviews. Figure 2 illustrates the method and timeline of the study.

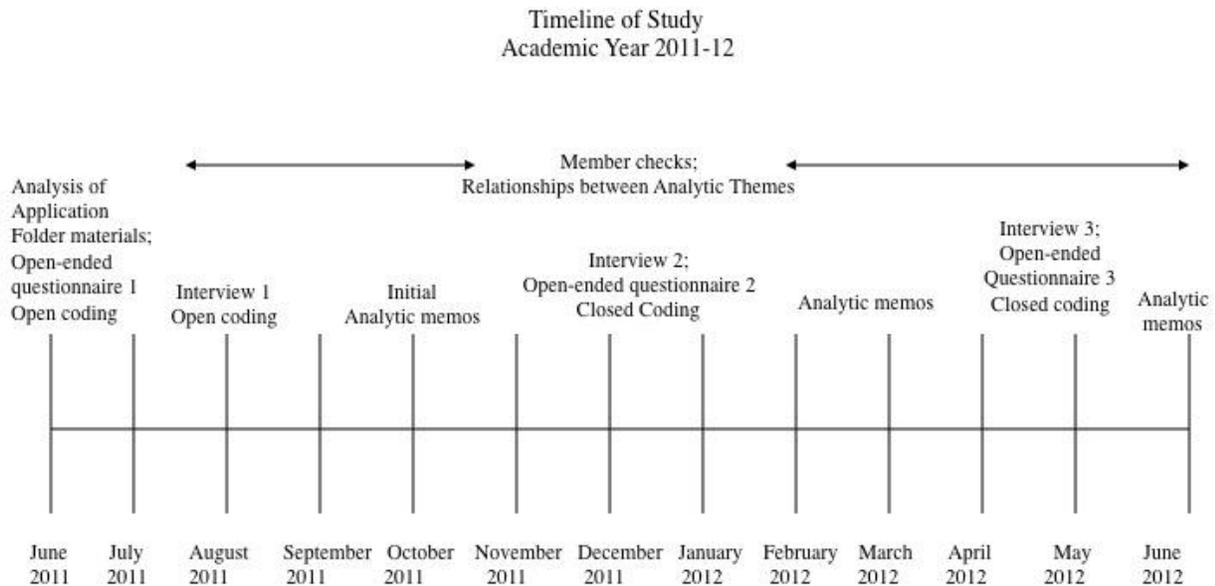


Figure 2. Timeline of the data collection process and method of the study.

Data Collection

Questionnaires. After looking through application folders, and before ACSM participants spent time in high-needs middle schools, the researcher administered an open-ended questionnaire to the participants. The questionnaire asked participants why they wanted to change careers and be a teacher and particularly why they chose ACSM as their pathway to teacher certification. Questionnaires were also administered to participants during and toward the end of their first year in the classroom. The questionnaires asked participants why they still wanted to teach or why they were considering leaving the classroom.

Interviews. All interview data were captured through audio recordings, which were then transcribed for analysis. Interviews were semi-structured wherein certain questions were asked, but depending on a participant's responses, different follow-up questions were considered during each interview. Examples of interview questions to which all participants responded:

- How did you come to the decision to teach?
- Why is teaching important to you?
- Describe the teacher you want to be.
- What was it like to think about changing careers and becoming a teacher?

The open-ended questions in the interviews and open-ended questionnaires called upon study participants to express and explain their reasons for teaching in their own words, which is the sort of knowledge that this study values.

Data Analysis

Data analysis began with a close reading of the initial data set collected in phase one. The researcher engaged in open coding of the initial data set, developed a coding scheme, and wrote analytic memos. Finalized codes from the first phase of data collection and analysis served as the coding scheme for the entire data set following two subsequent rounds of data collection. From the initial data set, several different codes were identified for participants' reasons to change

careers and teach. Then, from the 30 initial codes, categories were developed; the categories were synthesized into comprehensive themes that describe ACSM participants' reasons to teach.

Using participants' explanations of their reasons to teach, the researcher drafted interpretations that participants were invited to read and respond to. After analytic memos and findings were developed, the participants were asked to read drafts of findings and interpretations, check for the accuracy of their representation in the findings, and reflect upon and respond to the interpretations. In this way, the researcher worked with participants throughout this study to construct meaning and knowledge and generate insights related to the research questions.

Participants

Rapport with participants was established through the relationship building that came along with working with participants as the coordinator of ACSM. While serving as coordinator, the researcher did not play an evaluative role with participants. Rather, participants were supported in meeting the varied demands and expectations of their schools and courses. As an additional measure to build rapport and trust, participants decided on when and where the interviews took place. As a result, some interviews took place in participants' classrooms after school hours, and most of the interviews took place in local coffee shops where many of the participants said they felt more comfortable discussing the rewarding – and challenging – aspects of their new profession.

A description of the participants is critical in understanding the methodological approach for the study. In accordance with the deliberate recruitment of local individuals, most ACSM participants lived in or near Colton County. In fact, some participants were graduates of Colton County Public Schools. The participants bring a range of STEM skills and knowledge with them into the classroom. A financial analyst, a pharmacy technician, and a financial analyst are among those who comprise the pool of participants in the study. Additionally, participants ranged in age from 23 to 61. A summary table of participants appears below in Table 1.

Table 1
Summary of Participants

Name (pseudonym)	Age when program began	Gender	Race/Ethnic Identity	Highest degree obtained	Previous Work Experience
Blake	23	Male	African- American	Bachelors	Recent college graduate
Jane	24	Female	Korean – first generation	Bachelors	Pharmacy Technician
Lex	25	Male	Nigerian – first generation	Bachelors	Private school math teacher
Heidi	26	Female	White	Masters	Private tutor
Grace	27	Female	Filipina – first generation	Bachelors	Private tutor
Steve	27	Male	White (Belgian)	Bachelors	Financial Analyst
Chanel	28	Female	Nigerian – first generation	Bachelors	Customer Service Representative
Hope	34	Female	Ethiopian – first generation	Bachelors	Financial Analyst
Michelle	38	Female	African- American	Masters	Mechanical Engineer
Lena	47	Female	White	Masters	Substitute teacher
Randolph	49	Male	African- American	Masters	Financial Analyst
Stephanie	51	Female	White	Bachelors	Substitute Teacher
Janice	61	Female	White	Doctoral	Science Teacher Educator

Findings

The following themes emerged from the data regarding participants' initial reasons to choose teaching

- Model influences
- Programmatic influences
- Experiential influences
- Race- and gender-related reasons

- Vocational reasons

In addition, after making the initial decision to switch careers to teaching, participants discussed the reasons why they decided to stay – or leave – the classroom. Findings related to participants’ reasons to initially choose teaching are described followed by findings related to participants’ persistence in schools. A summary of the participants and the themes they expressed for wanting to change careers and teach is below in Table 2.

Table 2
Summary of Themes and Participants

Theme	Participant(s)
Model Influences	
Former Teacher	Hope, Jane, Randolph, Steve
Parent	Blake, Grace, Lena
Other	Chanel, Heidi
Programmatic Influences	
Length of Program	Heidi, Hope, Jane, Lena, Michelle, Steve
Mentoring Support	Blake, Chanel, Lena, Steve
Tuition Support	Heidi, Hope, Jane, Lena
Middle School Math and Science	Janice, Lena, Randolph
Colton County Public Schools	Blake, Lena, Michelle
Job Placement	Lena
Credits Toward Master’s Degree	Hope, Randolph
At-risk Students	Grace
Experiential Influences	
Experiences with Youth	Blake, Grace, Heidi, Jane, Janice, Lena, Randolph, Steve
Informal Teaching Experiences	Chanel, Jane, Lena, Michelle, Randolph
Positive/Negative Student Experiences	Blake, Grace, Heidi, Jane, Janice, Michelle, Steve
Other	Michelle
Race/Gender Reasons	Blake, Janice, Michelle, Randolph
Vocational Reasons	
Always Wanted to Teach/Calling	Chanel, Heidi, Hope, Steve
Content-driven	Grace, Janice, Randolph
Lack of Fulfillment/More Purpose	Blake, Hope, Michelle

Model Influences

Model influences for participants include a former teacher, a parent, and/or any other individual who influenced the person to think about teaching. Lortie’s (1975) apprenticeship of observation explains, at least in part, a theme found in extant literature on reasons to teach – idealized images of teachers. Lortie’s (1975) apprenticeship of observation suggests that a person’s prolonged exposure to the work of teachers from the perspective of a student factors into a person’s decision to choose teaching. More specifically, it can be argued that during the time a student “apprentices” with teachers in schools, the student actually develops an idealized notion of

teachers' work and teachers' roles in children's lives, which leads to an idealized image of teachers in general. Moreover, in addition to their idealized images of teachers, many participants described how the positive affirmation from others about their teaching abilities acted as an influence on their decision to teach. Specifically, participants cited (1) role models – former teachers and parents – and (2) affirmation from others about their abilities to teach as reasons to teach.

For example, in her program interview, Hope talked about her fifth grade mathematics teacher and said she always wanted to teach, but was deterred by her mother for financial reasons. After working for 10 years in an unfulfilling corporate career as a financial analyst, Hope revisited the idea of teaching, and hence her application to the ACSM program. Hope remembers that the first time she thought about teaching was in fifth grade. Hope recalled,

I would say my fifth grade math teacher was the first time I said “hey, it would be cool to be [Mr. Lyons].” Then, when my parents and aunts and uncles asked what I wanted to do when I grew up, I always said teacher.

For Hope, the decision to teach was a result of an idealized image of her fifth grade mathematics teacher and the search for a more meaningful line of work. In her search for more meaningful work, Hope recalled her fifth grade mathematics teacher, and her desire as a child to become a teacher like him.

According to her Statement of Purpose, initial interview transcript, and program interview notes, Hope never pursued teaching before this time in her life because of financial deterrents and the message that her mother – an immigrant from Ethiopia who herself struggled financially – sent to Hope that teaching would create a life of financial hardship. In her initial interview, Hope stated,

My mom is Ethiopian. I am first generation. My mom is like...you need to do something that has to do with engineering or accounting. That's why I did business at the end of the day. Because my mom influenced me not to be a teacher, I dropped that idea.

For Hope, the expectations to become financially secure drove her to a corporate business career, even though she had a desire to pursue teaching.³ After a decade of dissatisfaction with her work, Hope recalled her fifth grade mathematics teacher and decided to pursue teaching, despite the financial deterrents about which her mother had warned her.

Programmatic Influences

Programmatic influences include aspects of the ACSM Program that lowered the barriers to enter the field of teaching. For the purposes of clarity, the structure of ACSM should be reiterated. The structure of the program – reduced teaching load, almost fully funded, mentoring – is attractive to participants, as every participant but one said they chose ACSM because they were attracted to certain elements of this alternative teacher preparation model. For instance, participants cited the ability of the program to get them into classrooms quickly. Heidi said she “wanted to teach and

³ Other researchers (Crow et al., 1990; Freidus, 1989; Gordon, 1997; Shaw, 1996) found that financial reasons deter some individuals from teaching, which Hope's statement also illuminates.

didn't want to wait to get into the classroom." Steve's response was similar: "It's...a fast-track to getting into the classroom while providing sufficient support along the way."

The support that participants discussed related to ACSM is the mentoring and the financial support they receive for their first year of teaching. For example, Blake wrote, "I wanted to become a teacher. Without the relevant undergrad coursework, I realized I'd have to pursue an alternate certification program. [ACSM] provides the best amount of training and support I could find." Jane's statement echoes Blake's point about support: "Quick way to get yourself into the field without costing a lot of money." Hope's response corroborates Blake's statement: "I wanted to change professions from business to education and [ACSM] was the most logical program for me to facilitate the transition. It is the best program because it is an accelerated program geared toward career changers like myself."

Experiential Influences

In addition to model influences and programmatic influences, participants cite experiential influences. Experiential influences describe participants' experiences with young people, informal teaching experiences, and positive/negative experiences as a student. Specifically, in at least one of the data sources, nine out of the 11 study participants cited informal or prior teaching experiences as one of the reasons they wanted to teach. For example, Chanel talked about how she first considered switching careers into teaching because of her informal experiences with teaching other people in her business career, specifically through her experiences with training colleagues in her previous profession as a customer service representative at a bank. For Michelle, the birth of her son had something to do with her wanting to teach, but so did the fact that her former automotive engineering firm was bought and she received a lucrative incentive to leave. In her interview, Michelle said she enjoyed her experiences informally teaching a money management class at church and liked tutoring children in mathematics but wanted more structure and more consistency in employment.

The sort of experiences participants described were teaching a money management class through her church for Michelle, teaching Sunday school for Randolph, teaching vacation Bible school for Jane, and training new employees at a previous job for Chanel. In addition to these experiences, Michelle said that the positive affirmation she received from others during her teaching of the money management class really planted the seed that teaching could be a viable career consideration for her in the future. Convergence of the themes exists because often participants spoke about one theme in relation to another. For example, participants mentioned model influences *in relation to* programmatic and experiential influences.

Like Michelle, Randolph, Jane, and Chanel, several other participants wrote about their own experiences with young people as a reason why they wanted to enter teaching. For example, Steve, Grace, Blake, Lena, and Heidi all spoke about how their previous experiences working with young people prompted them to think about teaching as a career. In her Statement of Purpose, Lena wrote,

I have worked as a substitute teacher in [Poppy] County Public Schools for the last two years. Earlier in my career, I taught students ranging in age from 3-30. Yet, among all my teaching experiences, I found that I connected best with the adolescents I met in middle

schools. I enjoy being a part of their struggle to find their way from childhood to young adulthood, and I relish those moments when their newfound (and sometimes wavering) maturing shines through and I see a glimpse of the people they have the potential to become.

Lena wrote about her experiences with young people, and specifically with adolescents, as the reasons she wants to be a middle school teacher in Colton County Public Schools.

Vocational Reasons

Vocational reasons to teach include a lack of fulfillment or the search for a more purposeful career, the recognition that the individual has always wanted to teach, the individual thinks of teaching as a passion or calling, the individual believes in the power of education, as well as content-driven reasons, which include the desire to work more closely with mathematics and science content. For career-changers in particular, vocational reasons to teach frequently appear in the form of a lack of fulfillment with a previously chosen profession and the quest for more personally meaningful work. For example, in her Statement of Purpose, Hope described her lack of fulfillment as a financial analyst. For her, the decision to teach did not happen overnight.

Hope wrote,

It took me some time to decide to choose teaching as a career. I was hesitant to pursue teaching because of the limited monetary compensation potential. My mother suggested that choosing teaching would lead to a life of financial struggle. So I used my natural quantitative ability to pursue a business career in accounting and finance. While I have excelled in that profession for the past ten years, I have found it to be severely unfulfilling.

Hope wrote she had previously thought about teaching, but decided otherwise in pursuit of greater financial gain.⁴ Hope went on to write, “After achieving the career goals I thought were important to me, I was left wanting more. At that point, I reflected back on my childhood and decided to revisit the possibility of becoming a teacher.” For Hope, the search for a more personally fulfilling career became more important than material rewards, which reflects the theme of vocational reasons to teach.

In addition to Hope, two more participants wrote about vocational reasons for choosing to teach in their Statements of Purpose. Heidi, for instance, wrote, “teaching has always been a passion of mine.” And, Chanel wrote, “I know this career has been destined for me; it is what will fulfill my heart’s desire.” In the literature review that foregrounded this study, reasons to teach such as feeling a calling to teach, feeling destined to teach, always wanting to teach, and more are classified as vocational reasons to teach. Hope, Heidi, and Chanel are the only participants who wrote about vocational reasons to teach in their Statements of Purpose.

Like the search for fulfillment and a greater sense of purpose, an affinity for subject matter content is categorized as a vocational reason to teach. Some participants initially expressed

⁴Other researchers (Crow, et al., 1990; Freidus, 1989; Gordon, 1997; Shaw, 1996) found that financial reasons deter some individuals from teaching, which Hope’s Statement of Purpose illuminates as well.

content-driven reasons for teaching, and for particularly choosing ACSM. This could suggest that in their previously chosen STEM profession, participants might not have been engaging with their content in ways they found personally meaningful. When asked why teaching is important, both Randolph's and Janice's responses included references to mathematics and science respectively. Janice told me, "I want to facilitate helping people understand science better." Janice, who holds a Ph.D. in science education, told me,

I didn't intend to become a teacher, but as I evolved through my coursework (as a science education doctoral student) and experiences in the program, I'd been teaching teachers as a GA and professor, and I need to be teaching science. That's what it boils down to. 'Cause teaching teachers is not teaching science, and I really missed my content area.

A longing to return to working more closely with science content is one of the reasons Janice cited for teaching. Participants in other studies have also cited subject matter content as a reason to pursue teaching (Eick, 2002; Mori, 1966).

In their first interview for this study, four candidates talked in different ways about the power of education as a reason they wanted to teach and become a part of the enterprise of education. For example, Jane said teaching is important because by being a teacher, she can show students there's so many more things they can do...especially going into that county, they're coming from broken homes and I think that someone mentioned that they don't have a dad...there's more than to go out to the street and live their life that way.

Arguably, this statement is fraught with assumptions about the lives of students in Colton County Public Schools. Still, Jane expressed the belief that teaching is important because education can provide students with opportunities for a better way of life. For these participants, teaching is important because education has the power to help one move beyond one's own circumstances and improve one's quality of life.

Interestingly, both Hope and Jane were deterred from becoming teachers originally because of their parents. In her program interview and her statement of purpose, Jane cited that cultural expectations from her immigrant Korean parents compelled her to pursue work as a pharmacist. However, when Jane felt a void in the nature of her work, she revisited the thought of working with young people and becoming a teacher. Taken together, the data sources used to explore participants' reasons to teach reveal how various experiences co-mingle or converge in an individual's decision to enter teaching.

For several participants in this study, the search for a greater sense of purpose compelled them to consider teaching. Five participants described how, after several years of working in another profession, they craved a greater sense of purpose in their professional work. For example, Blake, who has a degree in economics, dreaded the sort of work that he thought a career in economics would entail. In his interview, Blake said, "I still like economics, but I don't think I could do that every day. Every single day is really boring. So that's what kind of got me to think about a different career path." So for Blake, the decision to teach came when he was faced with having to choose a career path that would engage him and give him a sense of purpose and excitement.

Like Blake, four other candidates described the sense of purpose that factored into their reasons to teach. Michelle, with two master's degrees and an impressive professional resume as a mechanical engineer in the automotive industry, decided to start a family with her husband; she wanted a career that would give her a greater sense of purpose but that would also provide her with a work schedule more commensurate with family life. In her interview, Michelle said, Once I left the automotive market in my career and I was looking for more meaning in a career...I was looking for a career that was not as demanding, that was more flexible, that still incorporated some aspect of teaching, and I heard about the ACSM program.

Michelle explicitly stated that she wanted more meaning in a career, although the case can certainly be made that her contributions to the automotive industry as a mechanical engineer were likely very meaningful. Based on her statements, it appears that Michelle did not see her own work as an engineer as purposeful in the same way that she thought teaching would be.

Race- and Gender-Related Reasons

In addition, participants expressed race- and gender-related reasons to teach. Race played a role for some participants in program selection based on the type of students and the type of schools the program serves. For example, Michelle and Randolph, both African Americans, wrote about race- and gender-related reasons for why they wanted to be a middle school teacher in Colton County Public Schools specifically. In the opening paragraph of Randolph's Statement of Purpose, he wrote,

In general, there is a shortage of role models and leadership in African American communities. In particular, there is a shortage of African American men serving in these roles. I believe this is reflected in the school systems as well. Based on my experiences, the entire community would benefit from African American men taking more active, constructive positions in the community. Success in school is linked to issues "bigger" than the school system. Having navigated through many of life's challenges and having achieved a measure of personal, academic, and professional success at this stage of my life, I can offer insight, guidance and leadership beyond the classroom.

Randolph's Statement of Purpose reflects race-related and gender-related reasons for wanting to be a teacher in Colton County middle schools.

Similarly, Michelle talked about how being an African American female is part of why she wanted to teach in Colton County Public Schools. In her Statement of Purpose, Michelle wrote, I knew that teaching in a classroom setting would be part of my career path because I felt that it was my civic duty to go back to my community to teach what I have learned. I also felt that it was important for me as an African-American woman engineer to be visible to other young African-American females, to show them that they could pursue careers in engineering and science. During my corporate career, I recruited other engineers on HBCU campuses, participated in local school programs, and presented at conferences on careers in engineering. I can expose students to science and math careers and show them that people who look like them are making important contributions to society.

The decision to pursue teaching in Colton County was in part due to Michelle's race and her gender and her desire to help African American students and females in particular think about careers in the STEM fields like the career she previously had in automotive engineering.

Reasons to Stay or Leave

During their first year teaching, participants continued to express vocational reasons and programmatic reasons to teach more than anything else. In fact, on the second questionnaire, every participant cited vocational reasons for wanting to continue to teach. For example, Hope wrote, "I feel good about my purpose." Janice wrote, "I am still very interested in working with children as they develop their understandings of science." Similarly, Lena wrote, "I still want to teach because I care about giving kids the skills to succeed so they can believe in themselves." These data show how participants continued to express vocational reasons to teach during their first year in the classroom despite the challenges they faced in high-needs schools.

Moreover, participants specifically cited programmatic contexts such as mentors, colleagues, supportive teaching contexts, programmatic support through courses and professors, and the desire for teacher certification to a greater extent than features of ACSM such as halftime teaching and financial support. For example, Chanel indicated that one of the most critical influences on her during her first year teaching was her program mentor. Chanel said,

She gave me hints and feedback, and asked me what I was going to do to prepare for the upcoming school weeks. So she helped me pace myself. If she wasn't pregnant, if she wasn't a teacher, it would have been hard to listen to someone who had not been in those shoes before.

In addition, other ACSM participants continued to express programmatic reasons to teach by the end of the school year. Janice, for example, expressed on her questionnaire that one of the most critical influences on her reasons to continue teaching at the end of the year was "all the training I've had in this program." Similarly, Jane, Blake, and Steve wrote on their questionnaires at the end of the school year that ACSM enabled them to get into the classroom quickly and obtain middle school teacher certification in the most efficient way possible. In sum, participants continued to express programmatic reasons to teach and the desire for full teacher certification after spending their first year in the classroom.

The participants who decided to leave, however, expressed that their expectations for teaching were not commensurate with the realities of life as a public school teacher. In her second interview conducted at the middle of her first year teaching, Heidi did admit that teaching is not what she thought it would be because the population of students in her classroom differed from the affluent students with whom all her previous experiences had been. During that second interview, when asked how teaching compared to what she thought it would be, Heidi said,

It's harder and it's more stressful. I knew it would be stressful, but it's more. And I think a lot of it is...I don't mean to sound stereotypical, but working with these type of students. All my experience before has been working with the upper class affluent school districts where it's automatic what happens. So it's harder to figure out activities and things. They just kind of never go the way they're planned. They should but they don't.

Heidi's withdrawal from ACSM can, in part, be traced to the ways in which her expectations for teaching did not align with her experiences as a first year teacher in a high-needs middle school.

Discussion

The findings of the study have theoretical and practical implications for both the recruitment and retention of alternatively certified teachers in high-needs, low-performing schools. Given the growing number of teachers certified through alternative programs (Duncan & Ochoa, 2011; Feistritzer, 2011), these findings can help bolster the efforts to find and keep talented individuals in schools where they are greatly needed.

Theoretical Implications

Overall, the findings challenge the assumption that reasons for alternative candidates to teach vary from those of traditional candidates. Participants in ACSM express reasons commensurate with those expressed by traditional candidates based on a thorough review of extant literature. Moreover, many participants express they want to teach because they miss working in their content area. Interestingly, this suggests that teaching offers a viable way for STEM professionals to work *more closely* with their disciplines than some other STEM professions do.

As previously stated, alternative certification programs now appear in almost all states (Duncan & Ochoa, 2011; Feistritzer, 2011). While there are variations of post baccalaureate ACPs, the common thread is that candidates in those programs serve as the teacher of record for a classroom while participating in the teacher preparation program. ACPs are becoming a more popular pathway into the profession. Some traditional teacher educators reprove the proliferation of alternative pathways for teachers on the grounds that alternative programs lack the sustained study of pedagogy and theory found in their traditional counterparts. However, this study lays the groundwork for more meaningful conversations about the *similarities* between alternative and traditional teacher candidates and ways to improve teacher preparation as a means to retain teachers in difficult-to-staff schools.

Practical Implications

Given the high rate of teacher turnover, the deliberate recruitment of teachers who espouse certain ideals is an important consideration. Traditional and alternative teacher certification programs alike should continue to recruit individuals who express certain reasons to teach. Chief among these reasons are vocational reasons to teach – which were expressed by all participants. All teacher certification programs, however, should operate under the assumption that participant initial reason to teach will likely change as participants face the daily challenges of life inside difficult-to-staff schools. In fact, some participants, especially those without personal ties to the school, are more likely to leave the classroom when they perceive their initial reasons for teaching are not being enacted in their work. Therefore, teacher education programs ought to ensure that potential candidates have a firm understanding of the demands placed on teachers before those candidates embark on the journey to become a teacher.

Further, an implication of enduring programmatic reasons is that alternative programs should offer sustained support for new teachers *throughout* teachers' entire first year in the classroom with such measures as school-based and program-based mentoring. Some research supports the notion that limited support is available to first year teachers and that beginning teachers express they often have to work out issues that arise on their own without the support of colleagues or mentors (Arends, 1983; Isaacson, 1981; Lortie, 1975). Whether a teacher is placed in what they consider a supportive teaching context is not something a teacher preparation program can control. Moreover, many alternative programs are designed to prepare teachers for positions in difficult-to-staff schools.

Teacher preparation programs can, however, augment support provided for teachers by offering consistent mentoring for their candidates throughout their first year in the classroom. Mentors for ACSM were doctoral students at the university or retired teachers with extensive experience in Colton County Public Schools. The mentors brought with them insider knowledge about the challenges first year teachers in that district might face. ACSM's mentors worked with teachers on an individual basis each week, which gave the teachers a chance to reflect on their successes and struggles in the classroom and to find new ways to engage their middle school students in the learning of mathematics and science.

Retention, therefore, could be increased if programs continued to offer intensive support to participants beyond the recruitment and selection phases and well into participants' first year in the classroom so as to continually affirm a new teacher's reasons to choose the profession. Findings from this study suggest that the support available to first year teachers, especially those working in difficult-to-staff schools, is of extreme importance. This study contributes to literature on STEM teacher preparation and alternative certification programs by examining the nuances related to the recruitment and retention of STEM professionals as teachers.

Supportive contexts for teaching, despite other challenges, have a significant influence on participants' reasons to continue teaching in that context. Moreover, teacher turnover costs an estimated \$7.34 billion annually (Barnes, Crowe, & Schaefer, 2007). Since the organizational conditions of many of our nation's most needy schools result in higher rates of teacher turnover (Ingersoll & May, 2011), this study asserts the importance of sustained support for new teachers with expertise in STEM disciplines. Finally, this study should empower difficult-to-staff schools because it illuminates the fact that informal mentoring that takes place *between* practicing teachers is a compelling reason for individuals to stay in the classroom. Since hiring an outside mentor or professional development consultant is not something that high-needs schools can easily include in their budget, teachers should be given the tools to mentor each other. Resources such as online modules, webinars, and in-school professional development sessions ought to be created to further empower practicing teachers to become mentors to each other as a way to reduce teacher turnover and keep talented teachers in struggling schools.

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