

Abstract

Title of Dissertation: Career Moves of Urban Science Teachers:
Negotiating Constancy, Change, and Confirmation

Carol R. Rinke, Doctor of Philosophy, 2007

Dissertation directed by: Professor Linda Valli
Department of Curriculum and Instruction

This dissertation addresses the issue of teacher retention in urban science classrooms, in which a revolving door of new teachers leads to an inexperienced teaching force and reduced academic attainment for students. Urban science teachers are particularly susceptible to attrition due to extensive professional opportunities outside the classroom. This study follows eight case study teachers in an urban school district in order to better understand how today's urban science teachers think about their careers and career moves. Based on traditional research on teacher retention and existing literature on teachers' professional lives, this study focuses in particular on urban science teachers' professional priorities, community participation, and process of career decision making in order to determine the ways in which these factors may be consequential for their career paths.

The study uses a qualitative case study methodology. Data collection methods include a survey of all first, second, and third year science teachers in one urban district followed by the selection of eight case study teachers using a variety of demographic, certification, and workplace characteristics. In-depth case studies included monthly interviews and professional observations over parts of two school years.

The experiences and perspectives of the eight case study teachers revealed three patterns. First, the eight case study teachers followed two distinct paths through the profession, those who aimed to *integrate* and were oriented toward the educational system and those who wanted to *participate* and oriented themselves away from the educational system. These professional trajectories were influential in shaping case study teachers' experiences in schools as well as their career directions. Second, the eight case study teachers continually considered their professional alternatives, either within or outside of the educational system. Finally, the case study teachers aimed to get past the challenges inherent in urban teaching and reach professional confirmation before moving on to new roles and responsibilities. These themes indicate the centrality of urban science teachers' professional orientations for recruitment, preparation, and retention, demonstrate the need for in-depth and longitudinal research on teacher retention, and suggest the pivotal nature of professional growth in career mobility.

CAREER MOVES OF URBAN SCIENCE TEACHERS:
NEGOTIATING CONSTANCY, CHANGE, AND CONFIRMATION

by

Carol Riegelman Rinke

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Advisory Committee:

Professor Linda Valli, Chair
Professor Janet Coffey
Professor David Imig
Professor Jennifer King Rice
Professor Bruce VanSledright

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*Dedicated to my father, Richard Riegelman,
who asked me to share my career decisions with him*

*And to the eight teachers,
Alexandra, Alison, Denise, Charlotte,
Matthew, Mitch, Raya, and Talisha,
who shared their career decisions with me*

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Chapter One: Introduction and Overview

This study addresses the issue of teacher retention in urban science classrooms through an investigation of the careers and career moves of urban science teachers. Building upon traditional teacher retention literature as well as research on teachers' professional lives, this study uses a lens of professional priorities, communities and decision-making processes to investigate the orientations of eight beginning urban science teachers toward their professional lives. This study finds that the case study teachers followed one of two career paths: a) those who aimed to *integrate* who ultimately planned to remain within the educational system and b) those who wanted to *participate* and eventually saw themselves working outside of the educational system. These professional trajectories shaped their experiences and relationships in schools as well as their career directions. This study also unpacks the process by which these eight urban science teachers made career decisions, illustrating ongoing evaluation of professional alternatives. Finally, this study finds that the eight case study teachers each sought a sense of confirmation in their worklife before choosing to move on professionally along their particular career path. This chapter provides an overview of the study, first introducing the problem, purpose, rationale, and key constructs used in the research and then summarizing the three central claims.

Retention of Urban Science Teachers

Teacher attrition rates in the United States are high, with almost 40% of new teachers leaving the field within their first five years in the profession (Ingersoll, 2003). Although there is some debate as to whether the country as a whole faces a crisis in

teacher retention (DeAngelis & Presley, 2007; Keller, 2007), there is evidence that urban, high school science teachers are particularly susceptible to attrition. Forty urban school districts across the United States report science as their highest-need subject area, with 97.5% of the districts citing an immediate demand for science teachers (Urban Teacher Collaborative, 2000). Moreover, science teachers are more likely to leave teaching than other subject-area educators because they face high opportunity costs for teaching and have a wide variety of attractive career alternatives (Murnane & Olsen, 1990; Murnane, Singer, Willett, Kemple, & Olsen, 1991; Theobald & Michael, 2002). Higher-level high school teachers generally have more science background and thus increased opportunity costs and greater professional options as compared with elementary and middle school science teachers. Moreover, science and math teachers show significantly higher rates of job dissatisfaction (Ingersoll, 2003) as compared with the rest of the teaching force.

The research shows mixed results regarding retention in urban school districts and a few studies have found that teachers are more likely to leave schools with better or more privileged conditions (Heyns, 1988; Theobald, 1990), a phenomenon that may be attributed to a feeling of relative deprivation compared to the surrounding community (Theobald, 1990). However, more recent studies indicate that because of high teacher demand and low teacher supply, poor urban school districts have higher rates of teacher attrition and deal with more pressing teacher shortages (Darling-Hammond, 2003; Darling-Hammond & Sclan, 1996; Haberman & Rickards, 1990; Imazeki, 2002; Shen, 1997), replacing up to one-fifth of their entire faculty each year (Ingersoll, 2001). Further, in one recent study, all teachers sampled who moved from one school to another transferred into a school serving a wealthier student population (Johnson, 2004). This

often leaves poor, non-White, low-performing students with the least skilled teachers (Lankford, Loeb, & Wyckoff, 2002), and makes it difficult to staff urban, high school science classrooms with experienced and qualified teachers.

High attrition rates for urban science teachers pose a significant burden to schools and students. Financially, teacher turnover can cost school districts up to \$8,000 for each teacher who leaves the profession (Ingersoll, 2003) and an estimated 329 million to 2.9 billion dollars for just one U.S. state (Texas State Board for Educator Certification, 2000). Academically, ongoing teacher attrition can result in reduced educational quality for students. Teacher effectiveness grows over the first several years in the classroom. For elementary teachers, Murnane (1975) shows that effectiveness improves during the first three to five years in the classroom and Murnane and Phillips (1981) demonstrate that teacher experience has a significant positive effect on student outcomes during the first seven years. At the high school level, Ferguson (1991) finds that teachers with nine or more years of experience have higher student test scores than those with five to nine years of experience. Thus, teacher turnover that results in a continually inexperienced teaching force can decrease student academic achievement. Grissmer, Flanagan, Kawata, and Williamson (2000) show that states with a higher proportion of experienced teachers scored higher on the National Assessment of Educational Progress (NAEP). While some suggest that stability in the workforce can lead to complacency (Macdonald, 1999), in general teacher retention, particularly during the first several years, is considered desirable because of its financial benefits and positive impact on student achievement.

Purpose

This study addresses the issue of urban science teacher retention from a perspective of teachers' orientations toward their careers and career moves. In an effort to attend to teachers' voices (Cohn & Kottkamp, 1993) within the conversation about teacher retention, this project offers an in-depth look at how case study teachers think about their professional lives and decisions. It explores the perspectives of eight urban science teachers regarding their entry into the classroom, their experiences in schools, and their short-term and long-term career plans. The primary question guiding this work is: how do urban science teachers think about their careers and career moves? This question is addressed through a primarily qualitative research methodology which includes a district-wide survey designed to select and situate participants followed by eight longitudinal case studies. Initially, the survey was administered to all first, second, and third-year science teachers, grades nine through 12, in one urban school district. This survey asked teachers to report on their professional priorities, confidence, practices, and long-term career plans. It was then used to select eight case study teachers and situate them within the larger population of new, urban science teachers in this district. Following the survey, I selected eight individual cases to study through purposive sampling based on criteria shown to be important in the existing teacher retention literature. I met with the case study teachers on a monthly basis over the course of two semesters, from January through December 2006, with a break over the summer when school was out of session. The semesters were split between two academic years in order to track potential career movement between school years. The monthly meetings included interviews, in which we discussed the teachers' ongoing rewards, frustrations, and

workplace experiences, as well as observations of classroom practice and professional activities within various educational communities.

Rationale

This research study aims to build upon existing research by combining what is known about teacher retention with current understandings of teachers' professional lives to better understand orientations toward the teaching profession. It also attempts to bridge gaps in the literature through its unique vantage point of exploring teachers' perspectives on their careers in a qualitative manner as they evolve over time. Traditional research on teacher retention explores what I term "individual" as well as "contextual" factors that impact career moves. This research identifies key variables linked to teacher retention but is primarily retrospective in nature, examining career decisions after they have already been made. Much of this research addresses workplace context, but it is rarely linked directly to community participation. Related research on teachers' careers examines teachers' motivations for teaching, socialization into the profession, career development, and professional expectations, but does not link these insights to retention issues. This study aims to bring together traditional teacher retention research with work on teachers' careers in order to capture teachers' perspectives on their careers and career moves. In doing so, it takes an approach with a prospective orientation, a community-based perspective, and a geographically and subject-specific population. These factors make the study distinct and provide a unique perspective from which to unpack teachers' careers and career moves.

Prospective Orientation

Traditional teacher retention research is primarily survey-based and retrospective in nature, asking current and former teachers to reflect back upon their reasons for prior career decisions (e.g., Heyns, 1988). Asking teachers about their career moves after they have already been made does not allow for an unpacking of the decision-making process. It leaves the dynamic and ongoing development of planned career moves as an unexamined “black box.” These approaches force teachers to select a concrete reason for their career moves, when in reality the decisions may be based on several complex factors. The reason teachers ultimately report may only be the most recent or most visible factor. Close examination of teachers’ career moves as they are in progress can provide insights into the teacher retention process that cannot be gathered retrospectively. This approach allows for the full complexity of career moves to be explored.

Community-Based Perspective

Traditional research on teacher retention separates the individual from the context (e.g., Bloland & Selby, 1980). Research at the individual level of analysis focuses on the influence of personal attributes, while work at the contextual level of analysis emphasizes the impact of workplace conditions. Even certain studies that consider both individual and contextual effects (e.g., Bobbitt, Faupel, & Burns, 1991; Heyns, 1988) consider them as distinct, rather than interacting factors. This study takes the perspective that the individual and the context coexist in a dynamic fashion, necessitating a methodology that can consider them at the same time. In contrast to these traditional approaches, this study explores the individual in context by considering the teacher within a variety of professional communities (Westheimer, 1998).

Urban Setting

While much of the research on teacher retention and teachers' careers has important implications for retaining urban teachers, very little of it specifically addresses the experiences of this particular group. With a new notable exceptions that directly address retention in urban schools (e.g., Imazeki, 2002; Quartz & TEP Research Group, 2003; Theobald & Michael, 2002), the majority of the work treats urban teaching as equivalent to other teaching settings. However, studies in urban education demonstrate that the experiences of urban teachers are, in fact, unique, and the challenges of working in high poverty, low-resource, majority minority schools require particular characteristics and skills (Boyer & Baptiste, 1996; Clewell & Villegas, 2001; Haberman, 1996; Murrell, 2001) and the needs of teachers in these settings should be directly addressed (Day, Sammons, Stobart, Kington, & Gu, 2007). This project is distinct from traditional teacher retention research in its exclusive focus on urban teachers and the critical issue of retaining teachers in high-poverty districts.

Subject-Specific Nature

While some individual studies have addressed the retention patterns (Murnane & Olsen, 1990; Shugart & Hounshell, 1995) and particular perspectives (Espinet, Simmona, & Atwater, 1992; Friedrichsen & Dana, 2005; McGinnis, Parker, & Graeber, 2004; Moin, 2005; Wang, 2004) of science teachers, the majority of the work on teacher retention treats science teaching as equivalent to other teaching positions. However, research shows that the departmental structure within high schools brings science teachers into a subculture onto themselves (Siskin, 1991). This subculture often enjoys a higher status than other academic fields (Ball & Lacey, 1984), owing to its elevated position in higher

education (Little, 1993). Further, science teachers report that their subject matter is an integral part of how they see themselves both personally and professionally (Helms, 1998). Therefore, while the traditional literature often fails to address the experiences of teachers in a subject-specific manner, this study will consider the subject-specific nature of teachers' experiences and focus in on science teachers, a particularly at-risk group.

Significance

This study addresses the critical need for a stable and consistent teaching force in urban science education, one that is not in a continual state of flux. A better understanding of how urban science teachers think about their careers and career moves can inform research and practice in the field. This study finds that case study teachers' perspectives are central to discussions of retention. It argues for a re-conceptualization of research methodology in teacher retention in order to capture ongoing career evolution rather than isolated points in time. Finally, it identifies confirmation and a desire to move on professionally as vital for career development. These findings apply directly to research, offering theoretical clarity to ideas around teachers' goals and suggesting productive methodological approaches. Moreover, these findings have practical implications. Due to current federal mandates requiring a highly qualified teacher in every classroom (U.S. Department of Education, 2002), many school districts have been expanding their recruitment and retention efforts (School Board, 2004 update). This study suggests approaches for selecting, preparing, hiring, and developing science teachers in urban districts, addressing both the recruitment and retention phases. In doing so, it makes a contribution to both research and practice through a more complete understanding of urban science teachers' careers and career moves.

Key Constructs

This study is based upon specific understandings of several key constructs, including notions about careers, professionalism, career moves, and perspectives. Below, I outline existing definitions of these concepts and clarify how the terms are used in this study. First, central to this work is the notion of a career. Traditionally, careers have been defined by participation in the labor force, including a progression of publicly-recognized stages that often involve sequential increases in status and pay. Teaching careers have sometimes been conceptualized as distinct in that they often accommodate an in-and-out structure to allow teachers to balance work and home life (Biklen, 1995). Careers in the classroom have also been defined by an internal sense of satisfaction rather than external acknowledgment of advancement (McLaughlin & Yee, 1988; Smulyan, 2004). Here, I draw upon the traditional understanding of a career as externally-recognizable participation in the workforce. However, in this particular construction, careers can be defined by either an external or an internal sense of success and progress. That is to say, this understanding of careers allows teachers to choose from either external or internal reference points in their development of a career over time.

The term professional comes up quite frequently in this study. Notions of professional and professionalism have been the target of considerable inquiry and debate in the field of education. A large body of work has compared teaching to other professions such as medicine and law (e.g., Barrows, 1996; Rowan, 1994; Shulman, 1998), defining teaching as a professional endeavor. Shulman (1998), for example, identifies six attributes of teaching and all professions, including service, scholarly understanding, skill performance or practice, exercise of judgment in uncertainty,

learning from experience, and professional community. Other work has attempted to build what is considered professionalism in teaching, as opposed to a de-skilling of teachers' work. This work emphasizes decreased regulation and increased autonomy for teachers (e.g., Darling-Hammond, 1988; Devaney & Sykes, 1988; Goodson & Hargreaves, 1996). I accept the notion that teaching is a profession, although a lower-paying and lower-status profession than most positions in the sciences. Therefore, when I refer to the professional lives of teachers, teachers' professional priorities, or professional perspectives, I am simply referring to any interaction teachers have with their worklife (Johnson, 1990). Professional, in this sense, is broadly conceived as individuals' experiences with the work of teaching.

This research also examines what I term career moves. Career moves are typically understood to be tangible changes in work assignment, such as moving to a new school, school district, or out of education altogether (e.g., Heyns, 1988; Ingersoll, 2003; Theobald, 1990). Recent work takes a more nuanced perspective, investigating shifts from non-classroom work to related educational roles within particular school systems (Donaldson et al., forthcoming; Olsen & Anderson, 2007). Here, I build upon existing notions to conceive of career moves as tangible changes in teachers' work positions, including moves both between and within schools. For example, a change to a new school is considered a career move but accepting a leadership position within the same school also constitutes a career move. In this conception, any formal or informal change in work roles or responsibilities can be thought of as professional movement. A related body of literature examines teacher career development over time, including the stages through which teachers progress during their time in the classroom (e.g., Day &

Bakioglu, 1996; Fessler, 1995; Huberman, 1989). I draw upon notions of career moves, together with models of career development, to develop professional directions, paths, or trajectories, terms which I use interchangeably. These terms are not meant to imply a rigid or forced series of career stages. Rather, they indicate general directions in which teachers' careers appear to be progressing, characterized by certain patterns and themes.

Finally, this research investigates how teachers think about their careers and finds that these eight urban science teachers have certain perspectives or orientations toward teaching and the educational system. Notions of thinking, perspectives, and orientations are highly complex and have been used in a variety of ways, from orientations toward teaching (Johnson, 2004; Lacey, 1977) to knowledge and beliefs about practice (Deemer, 2004; Friedrichsen & Dana, 2005; van Veen, Slegers, Bergen, & Klaassen, 2001). I draw upon Zeichner and Tabachnick's (1985) notion of perspective as a coordinated set of ideas and actions or an ordinary way of thinking. In this sense, case study teachers' orientations or perspectives, which again I use interchangeably, refer broadly to their overarching and everyday approach to their professional lives. As a way of operationalizing how teachers think about their careers, I turn to this notion of the coordination between ideas and actions to identify and describe their thinking.

Dissertation Organization

The following chapters are organized around the development of a model of career trajectories for these eight urban science teachers. In Chapter Two I outline traditional research on teacher retention, including individual and contextual approaches to understanding this complex issue. I also discuss a second, related body of literature on teachers' professional lives, including teacher motivations, socialization, career

development, and expectations. I highlight potential connections between teacher retention and their lives and careers, arguing for an integration of these often-disconnected bodies of research in an effort to better understand teachers' careers and career moves.

In Chapter Three I introduce the original conceptual framework and discuss research methods. My initial understanding of teachers' careers, which guided data collection and analysis, was based on existing attempts to integrate teacher retention with teachers' professional lives. This framework included constructs such as teachers' priorities, competence in professional communities, and evaluation of career alternatives. I selected case study methodology as a way of unpacking individual teachers' career experiences and collected data in the form of monthly interviews and professional observations. My data analysis was initially guided by the conceptual framework but I also worked to remain responsive to themes emerging from the data. I conducted first within-case and then cross-case analysis, relying heavily on coding and data displays to organize, order, and explain the eight cases.

In Chapter Four, I modify the initial conceptual framework in response to the data and present a revised model of teachers' professional trajectories. This model includes the constructs of entry points, experiences in schools, process of career movement, and planned career direction. I also present two potential directions in the model, one for those individuals who aimed to *integrate* into the educational system and the other for those individuals who aimed to *participate* but ultimately leave the educational system. In this chapter I also introduce each of the eight case study teachers according to their

professional path and provide an overview of their background and experiences with schooling.

Chapters Five, Six, and Seven each develop one particular aspect of this model in greater depth using data from the eight case study teachers. In each of these chapters, I highlight the experiences of two or three of the case study teachers and provide brief summaries of the experiences of the remaining case study teachers. I selected this organizational structure in an effort to maintain the integrity of the cases and capture their richness while also illustrating the range of ways in which the case study teachers experience their careers. In these chapters, I also present the cases according to their professional path, either to *integrate* or to *participate*, as a way of illustrating themes and patterns within the two teaching orientations.

In Chapter Five, I discuss the ways in which the case study teachers' experiences in the classroom vary according to their professional path, claiming that those teachers in the *integration* direction considered themselves of the educational system and integrated themselves into that system in a variety of ways, through both professional commitments and relationships. In contrast, those in the *participation* direction considered themselves outside of the educational system, an orientation which was again reflected in their efforts to distance themselves from commitments and relationships in the educational system. In Chapter Five, I highlight three aspects of the case study teachers' experiences, their engagement with the classroom and out-of-classroom activities, their professional relationships, and their interactions with students in an effort to unpack what these orientations look like in the workplace context.

In Chapter Six, I turn to the process of career decision making and illustrate the ways in which the case study teachers engaged in an ongoing evaluation of career alternatives. I highlight the experiences of two teachers, one orientated toward the educational system and one orientated outside of the educational system, describing their continual process of career decision making over the course of the study. In this chapter, I also claim that the ongoing nature of teachers' career decisions requires a research methodology capable of capturing the process as well as the final product.

In Chapter Seven, I demonstrate the ways in which the eight case study teachers sought a sense of confirmation in their work before moving on professionally. I develop the notion of confirmation, show how it is theoretically distinct, and distinguish between moving jobs and moving on professionally. In this chapter, I discuss in detail the cases of three teachers, two who got past challenges in their work environment to reach professional confirmation and one who sought a sense of confirmation but never fully achieved it. I also show how these teachers, after reaching confirmation, planned to move on to new roles and responsibilities. In the analysis, I discuss the relationship between this sense of confirmation and retention, arguing that these case study teachers planned to leave because of their success rather than in spite of it.

In the final chapter, Chapter Eight, I return to the study purposes and discuss the ways in which the data answered the original research questions. I also identify persistent issues that remain unanswered through this work. Next, I outline the contributions of this study to research and practice and identify limitations that exist in the present study. I conclude by identifying three areas for future investigation, methodology, recruitment,

and retention, highlighting both directions for future research and possible implications of that work.

This research study aims to explore the ways in which eight urban science teachers think about their careers and career moves. In it, I develop a model of teachers' careers, identify two directions in that model, and propose several elements central to the process of career decision-making. This research is based upon the experiences of eight urban science teachers and cannot directly speak to a broader population of teachers. However, the experiences of these eight teachers captured through this work may prove transferable to related contexts (Schofield, 1990). Moreover, the development of the model may prove analytically generalizable to theory around teachers' careers (Yin, 2003).

Chapter Two: Literature Base

Existing literature on teachers' career moves guides the structure of this research. This chapter describes existing work on teacher retention, related work on teachers' careers, and the strengths and weaknesses of both. Lessons from earlier research are applied to strengthen the conceptualization of this current study. This research synthesis includes studies within education from a variety of perspectives and is not intended to be a comprehensive review of all literature in the numerous fields of interest. Rather, it focuses on key empirical pieces that have led to a more complete understanding of either teacher retention or teachers' professional lives over the last 30 years. The investigation began with searches on the Education Abstracts database using the keywords teacher retention, teacher attrition, teacher workforce, teach* career, teaching as a profession, job satisfaction, teacher burnout, teacher commitment, teacher motivation, attitudes-teachers, teachers-recruitment, professional socialization, and occupation-choice of. Empirical studies and literature reviews were used to guide a further review of related journal articles, books, and book chapters within the education literature. Several recent pieces, not yet published, were also included based on conference presentations. Articles that met criteria for inclusion focused specifically on teachers' careers rather than their practice, knowledge, or interaction in the classroom. Included studies either considered careers from an external perspective, teachers' steps through the profession, or from an internal perspective, the meaning teachers gave to those steps (Yee, 1990).

Existing Approaches to Teacher Retention

There are two major approaches to research on teacher retention, what I term the individual and the contextual because of their levels of analysis. The first examines qualities of the individual which impact teacher retention, while the second explores qualities of the workplace context which impact teacher retention. The individual approach primarily employs large-scale, survey-based quantitative studies, while the contextual approach incorporates more in-depth qualitative work. While certain studies investigate both individual and contextual characteristics (e.g., Heyns, 1988), they tend to treat these characteristics separately, despite the fact that significant interaction has previously been found between background characteristics and workplace conditions (Ma & MacMillan, 1999). In this section, I provide highlights from the two major approaches of looking at teacher retention.

I deal with several interconnected aspects of teacher turnover, including retention, attrition, and migration. Teacher retention is generally considered as teachers remaining in their current teaching assignments within the same school (Billingsley, 1993). For attrition and mobility, I use Ingersoll's (2003) definitions. He explains that teacher attrition "refers to those who leave the occupation of teaching altogether", sometimes called "leavers." (Ingersoll, 2003, p. 3) On the other hand, teacher migration "refers to those who transfer or move to different teaching jobs in other schools," sometimes termed "movers" (Ingersoll, 2003, p. 3). Some of the included studies separate movers from leavers, while others lump them together, making it difficult to distinguish between the two groups. Quartz, Olsen, and Duncan-Andrade (2004) and Olsen and Anderson (2007) have also identified an additional variable termed "shiffters", those teachers who leave the classroom but move into related educational roles both inside and outside of the

school system. These include educational specialists, administrators, museum educators, and educational researchers. These educational but non-classroom roles are increasingly important but rarely acknowledged within the traditional teacher retention literature. Based on these notions, this chapter addresses retention as well as migration and attrition, considering studies on why teachers stay as well as why they move or leave.

Individual Level of Analysis

Research on the attributes of individuals with respect to teacher retention draws connections between the characteristics of individual teachers and their decisions to stay, move, or leave the profession. Many of these studies are quantitative in nature and conducted retrospectively, after teachers have already made their career decisions. They typically use large-scale survey methods to predict which demographic and personal characteristics explain the variance in teacher retention. Overall, these studies emphasize the identification of variables that predict retention or attrition over and above explaining the process by which these decisions are made.

A number of empirical studies investigate teachers' career decisions by looking at their individual characteristics, such as gender, age, and race. For example, several studies explore the relationship between gender and teacher retention. Heyns (1988) used data from the National Longitudinal Study of the high school class of 1972 (N=1,147) and found that men left the profession in higher numbers, with 53.7% of men and 65.6% of women remaining in the classroom after five years. Bobbitt, Faupel, and Burns (1991) used data from the 1988-1989 Teacher Followup Survey (N=7,173), a supplement to the national Schools and Staffing Survey (SASS), and conversely found that women left teaching more frequently than men, with 5.8% of female teachers leaving public schools

and only 5.1% of male teachers leaving public schools annually. Murnane, Singer, and Willett (1988) used proportional hazards modeling with data from 5,869 White teachers in Michigan to predict an interaction between age and gender, with young women under 30 having the shortest tenure in the classroom. According to their model, young women are predicted to stay 5.7 years and young men 10.8 years, while older women and older men stay more than 12 years.

A number of studies have also looked at the relationship between age and teacher retention. With this characteristic the findings are more clear-cut: age and attrition tend to correlate in a U-shaped curve, with high attrition among very young teachers and much older teachers, but a dip in attrition among mid-aged teachers. This U-shaped curve is a common finding, but the attrition among younger teachers is more interesting because of the possible connection between older teachers' attrition and retirement. Boe, Bobbitt, Cook, Whitener (1991), and Weber (1997) illustrate this finding using 1987-1988 SASS data (N=4,798), showing that 9.0% of teachers under 30 leave, as compared with 6.0% of teachers 30-39, 3.0% of teachers 40-49, and 9.2% of teachers over 50 years. Bobbitt et al. (1991) confirm this finding with 1988-1989 SASS data (N=7,173) showing that public school teachers under 30 and over 50 years of age have the highest rates of attrition. Among their sample, 9.0% of those under 30, 5.0% of those 30 to 39, 2.3% of those 40 to 49, and 9.8% of those over 50 left the profession. Dworkin's (1980) survey of 3,549 public school teachers also found that younger teachers left teaching more often, with 31.0% of those under 25, 30.1% of teachers 26-35, and 19.9% of teacher 36-45 seriously planning to quit teaching.

Along with gender and age, race also appears to be an important demographic predictor of teacher retention. Bobbitt et al. (1991) and Dworkin (1980) both found that White teachers had higher rates of attrition or planned attrition as compared with other racial groups. Bobbitt et al. (1991) (N=4,798) found that 5.7% of White public school teachers left the classroom, as compared with 5.1% of African Americans, 4.2% of Asian or Pacific Islanders, and 2.9% of Hispanic teachers. Similarly, Dworkin (1980) (N=3,549) found that 27.8% of White teachers were seriously planning to quit teaching, as compared with 15.5% of Black and 17.8% of Chicano teachers. However, Dworkin (1980) also found that when class is introduced as a control, race ceases to be a distinguishing variable, showing that race is only relevant as it is correlated with class. Moreover, Theobald and Michael (2002), using attrition and mobility data from five Midwest states (N=3,194), found that minority teachers had a higher turnover rate than White teachers, 74% and 56% respectively. However, 46% of minority teachers moved to new school districts, as compared with only 27% of White teachers, indicating that minority teachers are moving within the profession rather than leaving it.

A number of additional background characteristics have also been linked to teacher retention. For example, Boe et al. (1997) (N=4,798) found that teachers experiencing a change in marital status (8.1% of leavers), receiving an advanced degree within the last two years (8.1% of leavers), and having dependent children under the age of six (8.3% of leavers) left teaching in higher numbers. Dworkin (1980) (N=3,549) also showed that teachers coming from a higher occupational class background planned to leave teaching more often, with 28.1% of those from a high occupational origin, 23.6% of teachers from a medium occupational origin, and 13.9% of those from a low occupational

origin seriously planning to quit. Finally, Boyd, Lankford, Loeb, and Wyckoff (2005a) analyzed six administrative databases in New York State and found geography to be a major factor shaping the teacher workforce, with 61% of teachers taking their first job within 15 miles of their hometown.

In addition to individual background, several studies have looked at the relationship between personal characteristics and teacher retention. For example, Chapman (Chapman, 1984; Chapman & Green, 1986; Chapman & Hutcheson, 1982) conducted several studies looking at the relationship between personal characteristics and teacher retention. Chapman and Hutcheson (1982) used university alumni data (N=690) and found that skills and abilities, such as organization, time management, and dealing with the public, explained more of the variance in attrition ($R^2 = .09$ for elementary teachers, $R^2 = .10$ for high school teachers) than demographics alone ($R^2 = .03$ for elementary and high school teachers). However, a later paper (Chapman, 1984) (N=400) contradicts this finding by showing that personal characteristics do little to distinguish between stayers and leavers. Chapman's other studies (Chapman, 1984; Chapman & Green, 1986) develop a model in which initial commitment to teaching and early career experiences shape ultimate career direction.

Finally, several studies have explored the relationship between teachers' academic abilities, often as measured by standardized teaching tests, and their retention in schools. These studies have convincingly demonstrated that teachers with higher academic abilities are less likely to stay in the profession. Schlechty and Vance (1981) and Vance and Schlechty (1982) used scores on the National Teachers Examination (NTE) (N=32,131), and the Scholastic Aptitude Test (SAT) (N=4,416), along with longitudinal

data from North Carolina to show that the teachers with the highest academic abilities were also the teachers who left most often, while the teachers with the lowest academic abilities tended to stay. For example, while the overall retention rate for White females who entered teaching in 1973 was 52.93%, the retention rate for those in the top 10% on the NTE was 37.3% and those in the bottom 10% on the NTE was 62.5% (Schlechty & Vance, 1981). This was a conservative finding, given that the researchers took the unusual approach of counting anyone who remained in the field of education, inside or outside of the classroom, as staying in teaching. They used these data to predict a swiftly deteriorating talent pool in teaching. They also demonstrate that higher-ability teachers entered classroom teaching less frequently in the first place, with only 10.21% of new teaching recruits in the highest scoring group, as compared with 21.92% of non-teaching recruits (Vance & Schlechty, 1982). More recently, Boyd, Lankford, Loeb, and Wyckoff (2005b) model retention and attrition behavior based on data for New York City elementary teachers working between the 1995-1996 and 2003-2004 schools years. Their model predicts that the most qualified teachers are more likely to leave when paired with academically weak students, even when controlling for both student and teacher race. For example, the top 25% of teachers with 60% failing students had an 11.2% chance of leaving New York City schools, while the bottom 25% of teachers with 60% failing students had a 6.3% chance of leaving New York City schools.

Across these studies, it is clear that individual characteristics matter for teacher retention. These include demographic factors such as age, race, socioeconomic status, marital status, geography, and number of children as well as the personal factors of education level, academic ability, and individual characteristics.

Strengths and Weaknesses of the Individual Approach

The studies showing the relationship between individual characteristics and teacher retention bring greater understanding to the question of who stays in teaching and who leaves. Most of these studies use large data sets collected from university alumni questionnaires (Chapman & Hutcheson, 1982), state-wide standardized tests (Schlechty & Vance, 1981) or national surveys (Bobbitt et al., 1991). These large data sets are generally representative of larger populations and capable of producing statistically significant results. In addition, a number of these studies are based on longitudinal data (Boe et al., 1997; Heyns, 1988) which follows individuals' career moves over time. This allows researchers to monitor the development of particular teachers' careers and career moves.

However, the individual approach also has several limitations. First, as previously mentioned, survey methods which capture teachers' career moves retrospectively, after they have already been made, tend to over-simplify the decision-making process. They identify factors predicting retention or attrition without an up-close examination of the ongoing and dynamic process of career decision making. Qualitative methods, useful for answering "why" and "how" questions (Yin, 2003), are helpful in unpacking how teachers think about their career moves. Researchers grounded in teacher retention have called for an expanded methodological repertoire and the incorporation of in-depth interviews and open-ended questionnaires into dominant inquiry methods (Billingsley, 1993; Bloland & Selby, 1980). For example, Billingsley (1993) writes that existing studies "constrain teachers' responses and give little information about the specific contextual influences that contribute to attrition/retention decisions ... alternative

methodologies ... may uncover previously unidentified variables” (p. 167). Thus, a more in-depth, prospective, and open-ended qualitative approach strengthens current theoretical understanding in the field.

Further, many of the studies are unclear about precisely how they are defining retention, attrition, and, if addressed, mobility. For example, Bobbitt et al. (1991) list attrition rates but do not clarify exactly how attrition is defined and whether or not it includes mobility within teaching. Further, Olsen and Anderson (2007) draw attention to the important phenomenon of mobility within urban education but outside of the classroom. With a few notable exceptions (e.g., Heyns, 1988; Schlechty & Vance, 1981; Theobald & Michael, 2002) the majority of the reviewed studies do not acknowledge this important aspect of teacher turnover.

Finally, research at the individual level of analysis does not consider the potential influence of context. The reviewed studies do not address issues of school characteristics or culture that may be important for teachers’ career moves. Rosenholtz (1989a) claims that while individual biographies are important, contextual factors do more to explain beliefs and behavior in schools. Similarly, Goodlad (1984) states that the maxim “everything depends on the teacher” is oversimplified; instead, the circumstances of teaching should also be considered. From their perspectives, these studies have not even begun to address the most salient factors explaining teacher retention. Moreover, these studies often draw upon state-wide and national samples, and do not distinguish between teachers working in, for example, urban, suburban, and rural contexts. Thus while the individual approach does much to predict and explain the relationship between personal

characteristics and teacher retention, these explanations may not capture all of the possible sources of teacher retention and attrition.

Contextual Level of Analysis

The contextual level of analysis looks at individuals within the context of schools. Research in this vein typically employs broad survey methodology to link contextual factors to teacher retention. Most concretely, Buckley, Schneider, and Shang (2005) used surveys in Washington D.C. (N=835) to demonstrate that the quality of school facilities, such as lighting, temperature, air quality, and noise level, is positively correlated with teachers' decisions to stay ($r = .117, p < .05$). Other studies have demonstrated a link between size of the school or school district and teacher retention. Bobbitt et al. (1991) used SASS data (N=7,173) to show that large schools have better teacher retention. According to their study, 87.8% of teachers remain in schools of 750 or more students, while 85.7% of teachers remain in small schools of less than 150 students. Additionally, using Washington State Certified Personnel Reports (N=37,321), Theobald (1990) found that teacher retention behavior was a function of class size, such that there was a high change in the probability, 19.04%, that a teacher would continue working in the same district following a reduction in the student-staff ratio.

Another important contextual factor appears to be the student population at the school, with respect to race, socioeconomic status, and achievement level. Bridge et al. (1978) examined the career patterns of teachers in 31 junior high schools, categorizing the student population as predominantly White schools or predominantly non-White. They found that "discrepant teachers", those teachers with a different racial background than the majority of the students and the principal, more often left the school (30.2% of

discrepant teachers versus 23.5% of non-discrepant teachers), and White teachers in predominantly non-White schools left in the highest numbers (47.9%). Dworkin's (1980) study came to similar conclusions (N=3,549). He showed that 43.8% of teachers placed in schools with racial distributions they deemed "undesirable" planned to leave, as compared with 20.5% of teachers who preferred the racial distribution in their school assignment. Finally, Shen (1997), using SASS data from the 1990-1991 school year (N=3,612), found that movers and leavers were more often from schools with greater numbers of minority students ($r = .56, p < .05$) and students receiving free and reduced meals ($r = .52, p < .05$).

However, there were contradictory results. For example, Heyns (1988), using data from the National Longitudinal Study (N=1,147), found that leavers were more frequently from schools with more favorable conditions. For example, her data show that 50.3% of teachers left schools with upper or upper middle class students, while only 45.5% of teachers left schools with lower or lower middle class students. Likewise, 49.1% of teachers left schools with high or average ability students, while only 44.1% of teachers left schools with low ability students. This study followed one cohort of graduating teachers over 14 years, thus it was able to capture teachers first moving into "better" schools before leaving the profession altogether. This may explain the discrepancy between her results and the results in related studies. In addition, Horng (2005a; 2005b) in her study of graduates from the University of California Los Angeles (UCLA) specialized urban teacher education program (N=547) used a conjoint analysis of teacher preferences to determine that teachers preferred to be in schools with high-poverty students of color but left those schools because of working conditions like class

size, administrative support, and salary. However, Horng (2005b) also works with teachers from a self-selected population, those interested in urban teaching.

Finally, salary has been shown to be an important predictor of teacher retention. Murnane and Olsen (1990) used data from nine cohorts of new teachers in North Carolina (N=13,890) and found that salary mattered for teacher retention. According to them, a \$1,000 increase in salary was associated with a 15% increase in the probability that a teacher would stay in the classroom for at least 10 years. More recently Ingersoll (2001) used SASS data (N=6,733) to show that higher salaries contribute to longer tenure in the classroom. For example, a \$5,000 increase in salary is associated with a 4% decrease in the chance of that teacher leaving. Imazeki (2002) also demonstrates that salary matters for teachers, using a competing-risks duration model to show that teachers are responsive to both increases in beginning salary as well as maximum district salary in their decisions to both move between school districts and move out of teaching altogether. In her study, a \$5,000 increase made a difference for teachers, but was still unable to bring attrition levels in an urban district down to levels in surrounding suburban areas. Interestingly, Imazeki (2002) found that women were more responsive to an increase in beginning salary and men to maximum district salary.

However, there are dissenting voices. Weiss (1999) looked at first-year teachers from the 1987-88 and 1993-1994 SASS surveys (N=5,088) and could identify no clear pattern in the relationship between salary and plans to remain in teaching. Moreover, a Public Agenda survey (N=914) of new teachers' attitudes and perceptions (Farkas, Johnson, & Foleno, 2000) found that over 70% of teachers would choose schools with better working conditions over schools with higher salaries. Perhaps the effect of salary

on retention is mediated by working conditions. Nevertheless, these findings complicate the seemingly clear-cut issue of salary and teacher retention.

In addition, a number of studies closely investigated the relationship between workplace context and teacher retention. For example, issues of student discipline and motivation are important predictors of teacher retention, commitment, and satisfaction. In a study of former teachers in the Milwaukee Public Schools (N=40), Haberman and Rickards (1990) looked at teachers' perceived problems and found that while teachers ranked underachieving students as the most serious problem before teaching, they ranked student discipline as the most critical issue after teaching. Ingersoll (2001), using national SASS data (N=6,733), also found student discipline to contribute to teacher turnover, with 18% of movers and 30% of leavers reporting discipline to be the source of their dissatisfaction and career movement. Rosenholtz and Simpson (1990), using a survey with teachers from Tennessee (N=1,213), found that school-wide management of student behavior was positively correlated with teacher commitment to the field ($r=.49$). Finally, Smith and Smith's (2006) semi-structured qualitative interviews (N=12) with predominantly White, female teachers in urban schools found that fear of violence was a major contributor to attrition within the first five years of teaching.

Support is also an important factor in teachers' career decisions. First, mentoring support is critical. Odell and Ferraro (1992) surveyed two cohorts of new teachers during the first year of teaching (N=160) and found that teachers with mentoring relationships had higher retention rates, 96%, as compared with the national average. The teachers indicated that strong emotional support was the most valuable aspect of the mentoring. Similarly, Smith and Ingersoll (2004), using national SASS data (N=3,235), found that

teachers provided with comprehensive induction packages had lower probability of leaving. Teachers with no induction have a more than 40% chance of leaving or moving, whereas teachers with a collaborative induction program have a 27% chance of leaving.

Further, administrative support is also consequential for teachers' career decisions. Bobbitt et al. (1991) (N=7,173) found administrative support to be the primary reason teachers cite for their dissatisfaction and defection from the profession (26.4% of public school teachers). Likewise, Ingersoll (2001) (N=6,733) confirmed the importance of administrative support, with 38% of his sample attributing their dissatisfaction to lack of administrative support. Moreover, In her analysis of SASS data (N=5,088), Weiss (1999) found that perceptions of school leadership and culture were the strongest factors associated with teacher effort, commitment, and planned retention, explaining 33.6% of the variance in 1987-88 and 37.1% of the variance in 1993-1994. In their survey of Tennessee teachers (N=1,213), Rosenholtz and Simpson (1990) also found that principal support in the form of "buffering", or reducing interferences, was positively correlated with teacher commitment ($r=.63$).

Finally, professional culture, in the forms of autonomy and input into decision making, is also related in various ways to teacher retention. Using national SASS data (N=5,088), Weiss (1999) found teacher perceptions of autonomy and discretion to be predictive ($p \leq .05$) of morale, career commitment, and planned retention. Similarly, Rosenholtz (1989a) and Rosenholtz and Simpson (1990) (N=1,213) found task autonomy and discretion to be positively correlated with workplace commitment ($r=.61$) and faculty involvement in school-wide decision making to be an important source of teaching learning, which seems relevant to workplace conditions and teacher commitment. Finally,

Ingersoll's (2001) SASS analysis (N=6,733) shows that 13% of teachers cite limited faculty influence as a source of dissatisfaction with teaching.

Just as individual characteristics are clearly linked to teacher retention, contextual factors in the workplace environment have also been shown to be important. Despite some dissenting voices, salary appears to matter for teachers. School factors, including facilities, size, support, leadership, and culture also influence retention. And the population, discipline and motivation of the student body also make a difference for teachers' career plans.

Strengths and Weaknesses of the Contextual Approach

The contextual approach makes large strides toward addressing one of the major limitations of the individual level of analysis: it incorporates the role of workplace context into the teacher retention equation. The research conducted in this tradition explores both tangible workplace factors such as school size, level, and salary as well as more subtle workplace issues such as student behavior, teacher autonomy, and professional culture. In this sense, this line of research addresses Rosenholtz's (1989a) and Goodlad's (1984) critique that contextual factors are more powerful than individual factors in explaining behavior in schools.

Methodologically, many of these studies continue to use large-scale data sets (e.g., Bobbitt et al., 1991; Heyns, 1988; Ingersoll, 2001) and thus have all of the advantages of representative sampling and statistical power that accompany such work. However, some of these studies also begin to address the criticisms of Billingsley (1993) and Bloland and Selby (1980), calling for more in-depth qualitative work in the field. For example, Haberman and Rickards' (1990) study employs a mixed methods approach in

which researchers surveyed former Milwaukee school teachers and then selected a small number for more in-depth interviews. Similarly, Rosenholtz (1989a; 1989b; Rosenholtz & Simpson, 1990) used a questionnaire of 1,213 teachers in 78 elementary schools throughout Tennessee, school demographic data, and teacher interview data to conduct both quantitative and qualitative analyses in her study of school organization and its impact on teacher satisfaction and commitment. Therefore, these studies also advance the field methodologically, combining the strengths of both quantitative and qualitative analysis.

Finally, one of the studies (Lyons, 2004) specifically addresses the workplace realities of teachers in urban schools. This study is part of a larger longitudinal study of several cohorts of graduates from the UCLA teacher education program (e.g., Quartz, Lyons et al., 2004; Quartz & TEP Research Group, 2003). These cohorts participated in specialized preparation designed for work in urban schools (Oakes, Franke, Quartz, & Rogers, 2002) and many remain committed to the urban context over time, as classroom teachers or other educators. Because of its context, this study is able to specifically address questions of urban teaching that state-wide, national, and alumni-based data cannot.

However, there are limitations to the contextual approach as well. Even with the introduction of qualitative interviews and mixed methods into some of the research, these studies still look at teachers' career moves retrospectively, after they have already been made, or at the very best at the conclusion of each school year (e.g., Lyons, 2004). Retrospective work is unable to unpack the process by which these career decisions are made. While this type of work allows specific workplace conditions to be correlated with

staying, moving, and leaving, it does not look at career decisions as they are being made or attempt to understand the decision-making process.

Further, the research on contextual factors is sometimes conflicting and contradictory. Often it is not possible to draw meaningful conclusions from a review of the existing literature. For example, while several studies point out the importance of salary in teacher retention (Ingersoll, 2001; Kershaw & McKean, 1962; Murnane & Olsen, 1990), other findings are contradictory (Farkas et al., 2000; Liu & Meyer, 2005; E. M. Weiss, 1999). The contradictions in the available research make it difficult to put meaningful implications into action.

Finally, while research at the individual level of analysis ignores the role of context, research at the contextual level of analysis also ignores the role of the individual. Some studies do address both individual and contextual factors simultaneously (e.g., Bobbitt et al., 1991; Heyns, 1988), but they examine these factors separately, almost as if they are part of two separate studies. None of the research reviewed explores potential interactions between the individual and the context. Therefore, research on the individual level of analysis as well as the contextual level of analysis is limited in scope.

Need to Broaden the Research Base

While existing research on teacher retention clearly identifies both individual and contextual factors correlated with certain career moves, its primarily quantitative, survey-based methodology limits the work in a number of ways. First, the survey approach imposes researcher-generated categories upon teachers. It does not allow for an exploration of the meaning that teachers construct of their own careers in the way more open-ended qualitative work does (Merriam, 1998). Next, much of the existing work

asks teachers who have already made career decisions to reflect upon those decisions retrospectively, rather than as the decisions are being made (e.g., Bobbitt et al., 1991; Ingersoll, 2001; E. M. Weiss, 1999). Even the recent work out of UCLA (Olsen & Anderson, 2007; Quartz & TEP Research Group, 2003), which follows urban teacher longitudinally, asks teachers at the conclusion of each year to reflect upon the reasons for their career moves. Here again, naturalistic observations of teachers' professional lives may prove informative in understanding how teachers think about career moves and allow for a more complex interpretation of career-based reasoning (Stake, 1995).

These methodological limitations suggest the need for an additional approach to studying teacher retention. This approach must offer a more complex representation of teachers' perspectives on their own careers as they are in progress. Studies of teachers' careers are nothing new; predominantly qualitative work has been exploring teachers' careers for at least 30 years (e.g., Lacey, 1977; Lortie, 1975). Much of this work is considered part of what Feiman-Nemser and Floden (1986) term the "cultures of teaching", or how teachers define their own work situations. Although very little of this work is directly linked to teacher retention, it is nonetheless relevant to the development of a different approach for examining teachers' career moves. Therefore it is essential to carefully review literature on teachers' careers that may be consequential for understanding teacher retention.

Existing Research on Teachers' Careers

Literature on teachers' careers does not view careers in the traditional sense of upward mobility through a series of formal organizational benchmarks (Biklen, 1995; Yee, 1990). Rather research on teachers' careers attempts to understand how teachers

view their professional lives from their own perspectives. For example, Biklen (1995) notes that female elementary school teachers define their professional lives as continuous and committed, even though many have been in and out of the classroom in various positions in an effort to blend work and family life. She also stresses that teachers are “social resisters” because they refuse to accept the dominant view of professional achievement and instead construct their own version of career success as building a reputation for being a great teacher (Biklen, 1995, p. 40). Yee (1990) supports this view of careers as based on internal notions of success, noting that careers can be defined using individual rather than external standards. McLaughlin and Yee (1988) also stress that teachers measure their own advancement through intangible rewards such as making a difference or building a strong reputation.

Research on teachers’ careers, therefore, seeks to understand what sense teachers make of their own professionalism across the lifespan. Starting at the beginning, research in this vein explores why teachers choose to enter teaching, how they are socialized into school norms, how teachers develop across the lifespan, and what teachers expect and intend to accomplish in their worklives. While this work does not ignore what goes on in the classroom, it is not specifically about teachers’ classroom practices. Instead, it emphasizes teachers’ perspectives on professionalism in a broader sense. This work represents a variety of methodologies, although most is qualitative in nature. The common thread between these studies is their attempt to get at how teachers construct an understanding of their own careers. Again, while this work does not directly address the link between teachers’ careers and actual career moves, there are a number of important

and unexplored relationships between the two that are relevant to building a more complete understanding of retention and attrition.

Teachers' Initial Motivations

To begin, some literature has explored the reasons that new teachers cite for entering the field. These initial motivations are important because of how they shape teachers' ideas about professional purpose and career expectations. The fulfillment of these expectations may, in turn, impact satisfaction, commitment, and retention once teachers face the realities of the classroom. Thirty years ago, Lortie (1975) used large-scale surveys with National Education Association members and more focused interviews to identify five attractors to teaching, which he termed the interpersonal theme, the service theme, the continuation theme, material benefits, and time compatibility. Some of these themes have held up in subsequent studies, some have not been as prominent over time, and new themes have been identified, but they continue to serve as a strong organizing framework for what motivates teachers to enter teaching.

First, a number of studies have supported the contention that teachers enter teaching because of the interpersonal theme, or a desire to work with children. Lortie (1975) noted that teaching is one of the few middle-class occupations in which adults can interact with normal, healthy children over prolonged periods of time. More recently, Lyons (2004), as part of the longitudinal survey of UCLA urban education graduates, found that 60% of her sample ranked working with children as an important reason for entering the classroom. Olsen and Anderson (2007) worked with the same group of teachers but used qualitative interview and classroom observation methods; they similarly found that a major reason for entering teaching was to support students. Finally, Wang

(2004), working in Taiwan, found that many new math and science teachers selected the profession because of previous rewarding experiences working with children.

Lortie's (1975) service theme has also gained support from more recent studies, although in many cases that service theme has been expanded to include notions such as social justice and societal change. For example, Weiner (1990) used interviews and classroom observations in her study of Harvard University teaching candidates. She found that the majority of the students entered teaching for its social usefulness. LaTurner (2002), using survey data from the Baccalaureate and Beyond, found that less qualified teachers, frequently employed in urban schools, were driven by a desire to make a difference. Schutz, Crowder, and White (2001), in their study of college education majors, found that the highest number, 20%, had altruistic reasons for wanting to become a teacher. Lyons' (2004) work shows that teachers selected their preparation program based on its commitment to social justice, and Olsen and Anderson (2004) found that many of their teachers wanted to "change the world" (p.21). Finally, Moin (2005) shows that an emphasis on improving educational experiences for others is an effective way to recruit science- and math-oriented undergrads into teaching.

Lortie's (1975) other themes have more limited support. His theme of continuation is reinforced by the Schutz et al. (2001) study, in which 19% of college education majors cited past experiences and 18% cited past teachers as key reasons for wanting to enter teaching. In addition, Lortie's (1975) theme of material benefits was also supported, but not in the United States. It is Wang's (2004) study of math and science teachers in Taiwan which demonstrates the motivating power of both material rewards

and job security in teaching. Lortie's (1975) final theme of time compatibility was not specifically addressed in more recent studies.

There were also two additional themes which emerged from the literature: the motivation of subject matter and personal characteristics. Espinet, Simmona and Atwater (1992) surveyed teachers involved in the Georgia Science Teacher Association and found that many science teachers were first attracted to the subject matter in elementary school or high school, and later became interested in teaching science. In her longitudinal survey of UCLA urban education graduates, Lyons (2004) also found that 40% ranked subject matter as an important reason for entering teaching.

Finally, teachers in a number of studies cited personality characteristics as a reason for entering teaching. For example, many of Weiner's (1989) Harvard University graduates entered teaching because they thought they could teach well. In a study of teachers' lay theories, Sugrue (1996) found that many teachers entered the profession because family members told them they would be good teachers. Shultz et al. (2001) also found that college students developed the goal to become a teacher because they believed they had the right personality characteristics to be a good teacher. The variety of motivations that teachers cite for entering teaching may influence their expectations for the profession and their ultimate satisfaction and retention in the classroom.

Teacher Socialization

During their initial years in the classroom, teachers experience socialization into the norms of the school culture, or an "individual becomes a participating member of the society of teachers" (Zeichner & Gore, 1990, p. 329). According to a review by Zeichner and Gore (1990), research on teacher socialization has been conducted from three

overarching perspectives: the functionalist perspective, which seeks to describe what exists; the interpretive perspective, which seeks to understand socialization from the teachers' perspective; and the critical perspective, which seeks to change the status quo. Research on teacher socialization, and particularly research in the interpretive vein, is highly relevant to teachers' career moves for several reasons. First, teacher socialization has a potential impact upon satisfaction and, in turn, retention. The degree of compatibility between teachers' perspectives and school norms may impact their feelings about their profession and their ultimate retention in the field. Second, teacher socialization research attempts to understand teachers' careers on a daily basis. This ongoing process of integration into the profession may, over the long term, result in a decision to stay or leave the field. Finally, this primarily qualitative work follows individual teachers over time in their authentic workplace environment, capturing the interaction between the individual and the context in a way that traditional teacher retention research cannot.

Teacher socialization research recognizes that there are a number of factors contributing to the integration of a teacher into the school culture. Lortie (1975) points out that socialization into the teaching profession begins as a student, during what he terms the "apprenticeship of observation". Teachers learn about the culture of teaching by observing others for years from the perspective of a student. Zeichner and Tabachnick (1981) also note that personal biography, professional preparation, and school culture may all contribute to the socialization of teachers into professional norms.

Other research on teacher socialization looks more in-depth at the interaction between individual teachers and their school context. Some of these studies are single

case studies of teachers as they are socialized into the profession. For example, Bullough (1989) followed the experiences of Kerrie during her first year of teaching. He found that she started in a survival mode, faced many of the classic problems of beginning teachers, dealt with stress and avoiding burnout, and worked to maintain her professionalism. Similarly, Kuzmic (1994) conducted an ethnographic study of one teacher, Kara, who entered teaching as a “potentially empowered” (Kuzmic, 1994, p.15) teacher but adopted more conventional norms as she interacted with the reality of her school environment.

Other research involves multiple cases. Blase (1985) conducted two case studies and found that teachers experienced a joint socializing process: a humanizing process of change due to interaction with students as people, and a rationalizing process of change related to classroom management and instruction. McGinnis, Parker, and Graeber (2004) conducted five case studies of reform-minded beginning math and science teachers as they faced their school environments. McGinnis et al. (2004) noted that school culture was the major factor determining whether or not these teachers could enact their reform-minded practices.

Ultimately, teacher socialization research is about the relationship between the individual and the context. In their conceptualization of teacher socialization, Staton and Hunt (1992) point out the affective, behavioral, and cognitive changes that teachers experience as a result of the interplay between their individual perspectives and the larger context. Moreover, Lacey (1977) emphasizes that there is a back-and-forth relationship between the teacher and the school context; just as school cultures absorb newcomers, individual teachers also exert pressure based on their individual perspectives. In general, the literature on teacher socialization provides a valuable model for looking at teachers’

developing careers within the context of the school environment. Its lens of professional integration may also indirectly impact teacher retention.

While teacher socialization looks at the assimilation of newcomers into a school culture, it generally considers integration to be a simple process of individual adaptation to a new workplace environment. The conceptual framework used in this study goes beyond the socialization frame to problematize that process of integration. It considers possible career paths and the influence on teacher integration by each of those paths. It offers teachers greater agency to shape their own experiences, maintain unique priorities, and assess their perceived competence within a variety of professional communities.

Teacher Career Development

After teachers are fully integrated into the school culture, they continue to develop professionally. This developmental process can deal with changes in teachers' job skills, knowledge and behaviors, attitudes and outlooks, and job events (Burden, 1982). Like other related work, research on teachers' career stages and long-term career development is not directly linked to issues of teacher retention but may be highly influential for understanding the experience of teachers at various points during their career and how those experiences play out in career decisions. Work on career development highlights the fact that teachers are a heterogeneous group. Their perspectives, experiences, and priorities change as the early stages progress to more advanced stages. Thus research on career development across the lifespan provides a more complete picture of career moves for all teachers and recognizes that no single individual or contextual factor is important for all teachers across all career stages.

Various researchers have modeled teachers' career development. Fuller (1969) constructed a developmental conceptualization of concerns. She found that teachers' concerns shifted from their own performance to student achievement. Later, this typology expanded to include four career stages: pre-teaching concerns, early concerns about self, teaching situation concerns, and concerns about pupils (Fuller & Brown, 1975). Burden (1982) also provided an early conceptualization with three career stages, including survival, adjustment, and maturity. Later, Berliner (1988) built upon Fuller's (1969) original developmental model to offer five stages of career development: a novice who is inflexible, an advanced beginner who is more adaptable, a competent teacher who makes conscious decisions, a proficient teacher who uses intuition, and an expert whose behavior is automatic.

Huberman (1989) conducted research with Swiss teachers with various levels of experience in the classroom. He developed a model of career development which is divided into three stages: launching a career, stabilization, and new challenges or concerns. He also outlined four possible trajectories through those career stages, including harmony recovered, reassessment and self-doubt, reassessment to resolution, and renewal. Fessler (1995) took a contextual approach and conceptualized career development not as a linear path but rather as the interaction of three elements: career cycle, personal environment, and organizational environment. This approach is significant in its integration of personal with contextual factors in the development of teachers' careers. However, related studies have empirically tested these career models through qualitative work and meta-analysis (Day & Bakioğlu, 1996; Kagan, 1992) and also challenged the stage-based approach. One notable criticism of this stage-based

approach comes from Grossman (1992) who argues for the role of preservice education in helping new teachers focus on teaching and learning as well as the interconnectedness of classroom routines and student learning. Thus work on teacher development throughout their careers can provide a window into the experiences of teachers at various points in time, problematizing the issue of retention. With the complexity of teachers' career stages, it is no longer possible to ascribe all retention or attrition decisions to a single individual or contextual factor.

Teachers' Expectations

A number of studies also examine what teachers bring in terms of their expectations for the profession. This has been done in two ways: a more fine-grained look at teachers' specific images, or myths, and a larger-grained look at teachers' overall orientations toward their profession. While these studies use a variety of terms, they all appear to be exploring what teachers expect from their careers and how those expectations match up with the realities of the workplace, a relationship which has important implications for teacher retention. If teachers' expectations do not match their realities, they may be more inclined to leave the field, and vice versa. This body of literature is particularly disjointed, consisting of a number of independent studies using different conceptions of expectations rather than a cohesive set of work building upon related studies.

The first set of studies takes a fine-grained look at teachers' actual expectations of life in the classroom. Some studies focus on the role of teachers' images of teaching and of themselves as teachers. Through qualitative analysis of two case study teachers, Clandinin (1986) conceptualizes teachers' images as central to their personal practical

knowledge, which in turn influences their classroom practice. Calderhead and Robson (1991) followed 12 student teachers, describing their images of themselves as teachers, the origin of these images in prior experience, and the impact of these images on classroom practice. Kagan's (1992) meta-analysis of studies on the professional growth of new teachers also stresses the central role of image. She identifies an important theme in the literature, in which new teachers first seek to confirm or validate their self-images as teachers, then begin to focus outward on student progress. Finally, Kuzmic's (1994) case study of the socialization of Kara notes that she entered teaching with strong images of herself as a teacher, but constraints in the workplace prevented her from being able to realize those images. Although these studies are somewhat disjointed, growing out of several different bodies of literature, they all recognize the central role of image in teachers' professional lives. The congruence between these images and teachers' realities may have an indirect effect on their career moves.

Other work has looked more broadly at cultural images of teachers. Britzman (1986) describes the ways in which current teacher education and teaching practices grow out of cultural myths about teachers, including teachers as omnipotent, as experts, and as self-made. She argues that these cultural images of teaching have encouraged the maintenance of the status quo in teaching and an over-reliance on biography in learning to teach. Similarly, Lightfoot (1983) also discusses common images of teachers in educational literature. She notes that teachers are seen as individuals who objectively treat children equally, engage in a socially just career, and blur the line between their family and worklife. She argues for more careful attention to the individual lives and experiences of teachers in the creation of public policy. Teachers' self-images and images

of classroom practice, co-constructed in conjunction with cultural and literary images of teachers, may again play an important role in both their professional practice and their career direction.

Further, some research discusses the role of teachers' past experiences in shaping their expectations of teaching. For example, Lortie (1975) argues that the "apprenticeship of observation" is a limitation to teacher socialization. In other words, teachers only adopt school-wide cultural norms to a certain extent, also falling back on their original conceptions of teaching, developed over years as students. Similarly, Feiman-Nemser and Buchmann (1985) explore the possible dangers of relying on unexamined experience in learning to teach, including feeling too familiar with the educational setting, operating in both the school and university settings, and learning in a setting designed for student learning. Using interactive journals, interviews, and autobiographical statements, Cole and Knowles (1993) found that student interns held strong preconceptions about themselves as teachers, the role of a teacher, and the reality of schools, classrooms, and students. These preconceptions were shattered during their initial experiences in the field. Cole and Knowles (1993) also note that the disillusionment that comes with these "shattered images" can lead to attrition from teaching. In this group of studies, teachers' expectations were based on their prior experiences. These expectations interacted with the realities of schools and classrooms and in some cases led to disillusionment and attrition.

Finally, some research shows that teachers have a variety of purposes for teaching, well beyond their obvious academic aims. These purposes are what they hope to accomplish in the classroom, expectations which may or may not be met in reality.

Lortie (1975), using large-scale survey as well as interview data, notes that teachers have multiples purposes or goals that they hope to achieve in the classroom. Their responsibilities include curricular learning as well as moral development, building connections between students and content, and inclusion of all students. However, Lortie (1975) also notes that the uncertainty of teaching makes these goals difficult to reach in reality. Similarly, in his multiple case studies of schools, Goodlad (1984) also found that as a society we have multiple expectations for schools. Parents, teachers, and students expect schools to fulfill not only intellectual functions, but vocational, social, and personal functions as well. These expectations at the school level translate into a variety of responsibilities for teachers. The multiple purposes of teaching and schooling encourage teachers to try and fill numerous roles, often with mixed success.

These studies speak to the issue of teachers' expectations and their realities. While these expectations may be termed images, cultural myths, preconceptions, purposes, or goals, they clearly play an important role in shaping teachers' careers. The congruence between these expectations and their workplace realities may be influential in teachers' career moves.

Other work takes a larger-grain approach and examines teachers' overall orientations toward the profession. These orientations can also be conceived of as expectations, but they are expectations about the profession in general rather than expectations about teachers' roles or classroom realities. This work also has implications for teacher retention, as teachers whose orientations align with workplace realities may be more likely to be retained in the classroom. Some researchers have theorized about general orientations to teaching, such as teaching as uncertain (J. P. McDonald, 1992) or

teaching as cultural transmission, training of skills, fostering natural development, and producing conceptual change (Scardamalia & Bereiter, 1989). However, most of the work in this field involves identifying the teaching orientations of specific case study teachers.

For example, in his work with teaching graduates in England, Lacey (1977) found that teachers came from two primary teaching orientations: a professional orientation with a commitment to the field of teaching, and a radical orientation with a commitment to achieving certain ideals about education and society. Similarly, McLaughlin and Yee (1988) explored the question of what makes a satisfying teaching career. They found that teachers held two primary conceptions of teaching, an institutional model in which success is defined as a progression through various career stages toward the top, and an individually-based model in which success is defined as an internal sense of satisfaction. Moreover, Johnson (2004) conducted a longitudinal study of 50 new Massachusetts teachers and found that her sample of teachers, part of what she terms a new generation, were in general less committed to teaching as a profession. Instead, they entered with one of two orientations: exploring or contributing. In many ways, the orientations put forth by Lacey (1977), McLaughlin and Yee (1988), and Johnson (2004), while they use different terms, have important parallels. All address a distinction between teaching for personal and professional gain and teaching for the sake of others.

Smulyan (2004) also addresses this dichotomy between two possible teaching orientations in her longitudinal study of female educators from an elite liberal arts college. She found that these women redefined what was meant by success in their own careers such that it was less about personal achievement and more about helping others.

These female teachers also redefined what was meant by success in the classroom, from teaching content to promoting individual and social change for students. They took what they considered the dominant, professional orientation toward teaching and redefined it to match their service-based orientation. Similarly, van Veen, Slegers, Bergen, and Klaasen (2001) conducted a quantitative study of the teaching orientations of 452 secondary school teachers in the Netherlands. They looked at teachers' orientations toward instruction, educational goals, and school organization, and found that these orientations varied by subject matter and age. They also found that they varied along two axes, restricted to extended and progressive to traditional. These axes again have similarities to the professional and service-based teaching orientations identified in related work.

Teachers' overarching orientations have also been applied to specific issues such as workplace context, identification with teaching, and pedagogical content knowledge. Zeichner and Tabachnick (1985) conceived of a teaching orientation as a perspective. They followed four beginning teachers as they developed teaching perspectives, defined as "a coordinated set of ideas and actions a person uses in dealing with some problematic situation, to refer to a person's ordinary way of thinking and feeling about and acting in such a situation". In this study, they found that teachers were able to maintain their perspectives in certain workplace contexts, but unable to in others. This specific instance of teachers' orientations interacting with workplace contexts illustrates that some fits are better than others.

Developing overarching profiles of career change teachers, Crow, Levine, and Nager (1990) constructed a typology that includes those who view teaching as a

homecoming, those who converted from business values, and those who remained unconverted, trying to bring business values to education. Most relevant to this study, Friedrichsen and Dana (2005) explored the subject-specific concept of science teaching orientations, defined as “teachers’ knowledge and beliefs about the purposes and goals for science teaching” (p. 218), an essential component of pedagogical content knowledge. They found that individuals’ science teaching orientations were multiple, complex, and influenced by both external factors and school contextual factors.

Teachers’ overarching orientations, perspectives, or profiles, as alternatively described in this literature, are important for the same reasons that their images, preconceptions, purposes, and goals are important: these constructs determine how teachers approach their day-to-day responsibilities and classroom practice. Their perspectives interact with the reality of their workplace context, and the degree of congruence between teachers’ expectations and their realities may impact their career moves.

Strengths and Weaknesses of the Teachers’ Careers Literature

Literature on teachers’ careers can contribute to unpacking the “black box” of career moves. The primarily qualitative methodologies employed in this research are not capable of producing statistically generalizable results, but they go much farther than traditional teacher retention research in understanding teachers’ own perspectives on their careers. The open-ended approach to research used in most of these studies begins to clarify teachers’ perspectives as they begin their careers, are integrated into school norms, and reflect upon their experiences. While the majority of this work does not specifically connect teachers’ careers to teacher retention, it does contribute an understanding of what

teachers experience at various career stages. Identifying often underlying motivations and expectations is a first step in illuminating the mechanism by which teachers make career decisions. Further, this more open-ended qualitative approach can uncover issues of retention and attrition even when they are not anticipated. For example, Bullough and Baughman (1995) conducted a follow-up study of the teacher Kerrie and found that her frustration with working in an inclusion classroom ultimately led her to take an indefinite leave of absence from teaching. This unexpected link was discovered because of the in-depth case study research methodology.

This literature suggests a productive research methodology for studying teachers within their workplace contexts. Much of this work is naturalistic in nature, examining teachers as they learn to teach, negotiate their orientations, or develop within their school context. The teacher socialization research even uses the relationship between the individual and the context as the central level of analysis. This approach to understanding teachers' careers can assist in the development of a contextualized view of teacher retention. Unlike traditional teacher retention research which looks at either the individual or the context, this research looks at both at the same time. The underlying assumption about the contextualized nature of teachers' careers is an important contribution to teacher retention research.

However, the research on teachers' careers also has certain limitations. First, while these studies were selected for their indirect implications for teacher retention, they rarely mention explicitly the link between teachers' careers and teacher retention. With a few exceptions (e.g., Cole & Knowles, 1993), researchers do not directly connect teachers' careers to teacher retention. Second, there is little focus on how teachers make

career decisions. A direct connection to retention and an emphasis on process are missing pieces in much of this research. Third, the research on teachers' careers is often quite disconnected. Unlike much of the teacher retention research, which builds upon itself in order to develop a more complex understanding based on previous work, researchers in this area rarely cite each other or show evidence that they are learning from each others' findings. Often, studies which appear to be quite related speak to completely different academic communities. For example, while Clandinin (1986) and Kuzmic (1994) both address the role of images in teaching practice, the former speaks to the personal practical knowledge community while the latter speaks to the teacher socialization community.

And last, studies on teachers' careers often use different terminology but appear to be talking about the same concept. This may be because they grow out of different research traditions, or simply due to lack of background research, but often identical concepts are given different names. For example, Lacey (1977) uses the term orientation while Zeichner and Tabachnick (1985) use the term perspective, but both are referring to a cohesive set of ideas guiding teaching behavior. Similarly, Lortie (1975) talks about purposes while Goodlad (1984) talks about expectations, but both are referring to what teachers and students should accomplish in school. This theoretical disconnect suggests the need for a more comprehensive approach and common vocabulary to bring together the diverse fields of study.

Linking Teacher Retention to Teachers' Careers

Existing approaches to teacher retention identify numerous factors that explain teacher retention and attrition, but their retrospective approach does not unpack the long-term process by which teachers make decisions about whether to stay, move, or leave.

Further, research on teachers' careers begins to clarify teachers' professional experiences and perspectives, but few link that understanding to career moves. This disconnect in the literature points to an important need: to bring together research on teacher retention and research on teachers' careers in order to better understand how teachers think about their careers and career moves.

This study attempts to fill that gap in the literature through an up-close examination of how teachers think about their careers and career moves. This work uses the model of the teacher career literature to look closely at teachers' professional experiences and perspectives. It also uses the model of the teacher retention literature to link that understanding directly to career moves. The case study methodology with long-term fieldwork is intended to bring together these two literature bases and build a deeper understanding of the thinking behind career moves.

Moreover, the study design addresses certain weaknesses in the existing literature. First, this study treats career decision making as a long-term process and addresses it in a prospective manner, something the structure of the teacher retention literature does not allow. Further, while few studies recognize the uniqueness of urban settings, this study is situated in an urban context. Where most studies are not subject-specific, this study focuses on science teachers. And while existing work looks at either the individual or the context, this study expands upon the teacher socialization literature to look at individual career decisions in a community context. Based on the merger of two bodies of literature, this study aims to build a more complete understanding of teachers' career moves.

Initial Conceptual Framework

A few studies stand out from the existing literature because of the ways they link teacher retention to teachers' careers. These studies tend to explore how teachers think about their careers and career moves over time. Together, they suggest a fruitful conceptual frame for studying teachers' career moves. This work primarily consists of two approaches: studies that ask why experienced teachers stay in the field and studies that look at teachers' sense of professional competence. Research in these two areas, described below, pays careful attention to teachers' career experiences in addition to drawing a connection to their career moves.

Sources of Veteran Teacher Satisfaction

This field of study looks at veteran teachers as they reflect upon why they stayed in the field and what they got out of their careers as teachers. This research is primarily qualitative in nature, although some studies mix surveys with interview methods. For example, Brunetti (2001) conducted a mixed methods study involving a survey and interviews of long-term high school teachers in California. He found that teachers were generally satisfied with their jobs. He lists seven primary motivators for remaining in the classroom: students, passion for the subject, excitement of the classroom, autonomy, collegiality, importance to society, and practical motivators such as job security and salary and benefits.

Stanford (2001) came to similar conclusions in her study of veteran educators in Washington D.C. Stanford's (2001) research focused exclusively on African-American female teachers working together in one urban elementary school. These teachers explained that they were able to remain in the classroom because of their commitment to

their students, internal sources of satisfaction such as making a difference and seeing academic progress, personal support networks, and the collegiality of the faculty.

Cohen (1991) conducted ethnographic case studies of five veteran high school teachers across the country in an effort to understand what a successful educator looks like. She found that each of these teachers was propelled by a passion for the subject matter, perceived success as personal improvement, saw themselves as continually learning, worked toward their own self-actualization, with student achievement as a by-product, and valued their own interpersonal abilities over and above structured teacher education.

Further, Nieto (2001; 2003) facilitated an inquiry group for veteran teachers in the Boston Public Schools exploring the question “What keeps teachers going in spite of everything?” The themes that emerged from these conversations included the importance of autobiography in teaching, love for students, belief in the hope and possibility of public education but anger and frustration at the inequalities of the system, the intellectual work of teaching, the democratic work of teaching, and the possibility for teaching to change lives and shape futures.

Despite differences in the samples, educational levels, and methodologies, these studies highlighted certain common themes, or elements that veteran teachers found rewarding during their careers as educators. First, teachers across these studies stressed the importance of ongoing professional growth. This was called several different things, such as continual learning (R. M. Cohen, 1991) and intellectual work (Nieto, 2003) , but most of the teachers studied emphasized some element of continual professional growth as central to their careers. Second, all of the teachers highlighted students as an important

element of their professional lives. Stanford's (2001) teachers said that seeing student achievement was a source of satisfaction, and Nieto's (2001) teachers discussed a love for students, but all the teachers in one way or another noted that helping students to achieve was central to their careers. Even Cohen's (1991) teachers who prioritized their own learning above student learning, still saw student achievement as a positive by-product. Finally, all of the teachers mentioned the importance of providing service through their professional lives. Brunetti's (2001) teachers talked about the importance of teaching to society, Stanford's (2001) felt satisfaction knowing that they were making a difference, and Nieto's (2003) teachers strove to fix inequalities in the system. All of these teachers felt that it was essential that they make a difference with their professional lives.

Thus this research identifies three key factors that brought satisfaction to experienced teachers throughout their careers: professional growth, student outcomes, and service. These three elements of a successful, long-term career in the classroom can be applied to new teachers just beginning their own professional trajectories.

Sense of Competence

A second body of literature connects teacher retention to teachers' careers through their perceptions of competence. These studies use various terms, but in one way or another all discuss the relationship between what teachers want to achieve in the classroom and what they are ultimately able to achieve, in other words, their sense of competence in the workplace environment. The frequent disconnect between what teachers hope to accomplish and what they are able to accomplish may shed light upon why so many teachers leave the profession.

For example, Yee (1990) recognizes that existing retention research ignores the dynamic quality of teachers' career decisions. She writes: "... traditional turnover studies treat retention as a static phenomenon; they rely heavily on sources of immediate dissatisfaction and attraction and neglect contextual or earlier influences related to the development of professional efficacy and identification" (p. 4). Her study took a different approach, following teachers' careers in an inner-city school, a wealthy suburb, and a working class community. At these three distinct school sites she examined how teachers made career choices within the context of the work environment, the dynamic process of career decision making, and the workplace conditions that affected teachers' level of satisfaction with their work. She found that perceived efficacy was a key component of job satisfaction and consequential for teacher retention. Yee says, "A satisfying career, then, is one in which individuals seek and experience a sense of achievement and accomplishment during the course of their work" (p. 119). She also notes that teachers' career construction involves an ongoing process of negotiation between the individual and the workplace context.

More recently, Johnson and Birkeland (Johnson, 2004; Johnson & Birkeland, 2003) followed the experiences of 50 new teachers throughout Massachusetts. They followed these teachers for four years, conducting bi-annual interviews and administering one survey to track their career moves. Johnson (2004) found that these teachers sought a sense of success with students. She writes: "New teachers' perceptions of whether or not they were meeting the needs of the students in their classrooms – their sense of efficacy – infused their accounts of job satisfaction and career plans" (Johnson, 2004, p.80). She also notes that the goals of teaching were ambiguous and the day-to-day workplace

environment often uncertain. These factors made it challenging for teachers to feel like they were making a difference with students. She found that many teachers left their current work environments in search of a more supportive school culture, where they could feel successful. Johnson found, “When they were reasonably hopeful that they could become effective with their students, these teachers were likely to stay in their schools. However, those who thought that their schools interfered with successful teaching often moved on” (Johnson, 2004, p.113). This finding reinforces Johnson’s (1990) earlier work on schools as workplaces, in which she found that the workplace features teachers cared about most were the ones that either supported or hindered their actions in the classroom. Here again, teachers’ perception of competence is a major factor in their satisfaction and ultimate career trajectory.

Finally, Hammerness (2006) demonstrates the important role of teachers’ vision in their career moves. Vision can take many forms, but in this case it refers to teachers’ images of ideal practice in the classroom. In order to more fully understand teachers’ visions, Hammerness (2006) administered a survey to 80 teachers, conducted brief case studies of 16 participants, and constructed in-depth portraits of four teachers and their professional visions. She found that teachers’ ability to bridge the gap between their vision and their reality was central to how they felt about their work, and asserted that teachers made career moves toward work environments that better supported their ability to reach their vision. She suggested that teachers who saw a gap between what they hoped to achieve and what they were able to achieve were likely to consider career moves, either moving to a new teaching environment or leaving the classroom altogether.

Thus, Hammerness' (2006) work lends further support to the idea that career moves are driven by teachers' sense of professional competence.

These studies begin to scratch the surface of teachers' career moves and point to a similar conclusion: that teachers are not always able to reach their professional priorities and that this disconnect is consequential for their professional satisfaction and ultimate retention in the teaching profession. The authors use a variety of terms, from "perceived self-efficacy" to "sense of success" and "vision", but all seem to be talking about teachers' sense of professional competence. These key studies suggest a potential mechanism for understanding teachers' career moves that deserves further exploration.

Community Orientation

Research on teachers' career moves points to a central and guiding construct: that of perceived competence within the workplace environment. Perceived competence suggests an important interconnectedness between the individual and the surrounding community. It is inherently a factor of the relationship between the two. Moreover, Thomas (2005), working as part of UCLA's longitudinal research project on urban educators, finds that teachers' career decisions are linked to their community context. His study uses social network analysis to map who teachers talk with about their career decisions. Thomas (2005) found that teachers who stay tend to have school-focused social networks, whereas teachers who shift tend to have more diverse networks including other education professionals and more high-status individuals. Together, the existing literature points to the importance of considering teachers' career moves within the context of a larger community. This study draws upon that relationship by taking a community orientation which emphasizes the notion of the individual in context.

Communities have been addressed in both theoretical and empirical ways in the educational literature. Sociocultural theory introduces the concept of communities of practice, defined based on mutual engagement, joint enterprise, and shared repertoire (Wenger, 1998). This theory proposes that learning occurs through a type of apprenticeship termed “legitimate peripheral participation”, noting that “learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the sociocultural practices of a community” (Lave & Wenger, 1991, p. 29). In this notion, newcomers to a community of practice gain membership through developing competence in the norms of the community. Wenger (1998) writes, “membership in a community of practice translates into an identity as a form of competence ... In practice, we know who we are by what is familiar, understandable, usable, negotiable; we know who we are not by what is foreign, opaque, unwieldy, unproductive” (p. 153). Thus membership in a community of practice can be understood as competence in that community.

A second, more empirical approach to communities explores the notion of professional learning communities. Professional learning communities have been defined based on the dimensions of supportive and shared leadership, collective creativity, shared values and vision, supportive condition, and shared personal practice (Southwest Educational Development Laboratory, 1997). These communities develop among teachers through a process of forming group identity, navigating fault lines, negotiating tension, and taking communal responsibility for individual growth (Grossman, Wineburg, & Woolworth, 2001). They influence both classroom practice (Little, 2003) as well as several aspects of teacher professionalism (Talbert & McLaughlin, 1996). Research on

professional communities has explored the essential role of conflict (Achinstein, 2002) and various orientations toward knowledge (Cochran-Smith & Lytle, 1999).

Because of the narrow definition of both communities of practice and professional learning communities, I opt for a more inclusive approach. The ongoing reform in urban school districts, often challenging teaching conditions, and high rates of teacher turnover make it difficult to establish either communities of practice or professional learning communities in urban schools. Therefore, this study instead draws upon Westheimer's (1998) work, in which he notes that the discourse on community from social theorists and school reformers do not always coincide. His definition of communities incorporates both formal professional learning communities and well-structured communities of practice as well as loose associations among teachers that emphasize individuality. In the interest of capturing the relationship between the individual and the larger community while allowing for variations in types of work environments, this study uses the term "professional community", which refers broadly to interactions between professionals in school contexts. It incorporates the notion of competence from sociocultural theory as well as the notion of professionalism from professional learning communities, but broadens the definition to include a range of community interaction.

Newcomer Trajectories

The literature guides this study toward a focus on new teachers integrating into professional communities. The conceptual framework diagram (Figure 1) illustrates the proposed relationship between new teachers and their potential trajectories into and out of professional communities.

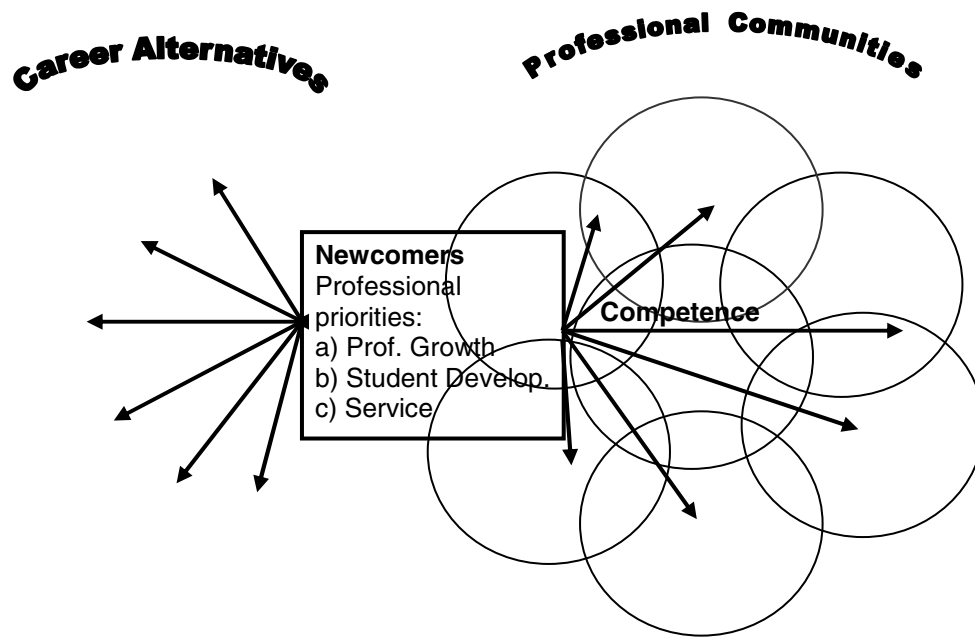


Figure 1: Original Conceptual Framework

In this framework, new teachers are conceived of as newcomers to professional communities. Literature on the sources of veteran teacher satisfaction suggests that teachers come to the classroom with priorities in three areas: professional growth for themselves, development for students, and service to the larger community. This conceptual framework indicates that these three types of priorities influence their participation in professional communities, their sense of competence, and their ultimate career direction. Once in the classroom, these new teachers participate in a variety of different professional communities, both within and outside of the school context. Through their participation, these teachers measure their success at achieving each of their priorities. Here again, literature in this area suggests that teachers who perceive great competence within these professional communities will proceed further into the profession, achieving more central participation in these communities. On the other hand,

those individuals who perceive less competence, or even a lack of competence, will retreat away from the professional communities and begin to consider professional alternatives. This framework incorporates literature on sources of teacher satisfaction, sense of competence, and professional communities in order to suggest a possible model for the careers of new teachers.

This conceptual framework suggests that data collection should concentrate in several areas: understanding teachers' priorities, capturing teachers' participation in professional communities, and observing teachers' career choices over time. Based on these initial understandings from the literature, four research sub-questions were developed to investigate urban science teachers' priorities, community participation, career decision making, and retention as well as respond to the overarching research question, "How do urban science teachers think about their careers and career moves?"

The sub-questions include:

- 1) In what ways do teachers define and enact their professional priorities?
- 2) In what ways do teachers participate in professional communities?
- 3) In what ways do teachers make career decisions?
- 4) How are teachers' professional priorities, communities, and decision making consequential for their career moves?

This initial framework was not intended to constrain the study, but to guide it toward these relevant concepts and methods. Yin (2003) points out that case study research such as this benefits from the development of theoretical constructs prior to data collection in order to guide the research process. However, while this framework informed the research design, it was ultimately modified significantly based on data analysis, in an effort to capture the experiences of the case study teachers. While I was guided by research and theory, I worked to seek the most reasonable interpretation from the data

(Graue & Walsh, 1998). Together, the literature on teacher retention, teachers' careers, and particular studies linking the two served as a foundation as well as a guide for data collection and analysis.

Chapter Three: Methodology and Research Design

The literature on teacher retention and teachers' professional lives provided starting points for inquiring deeper into the careers of urban science teachers. An initial conceptual framework was constructed, based on the literature, which guided data collection in this study. Data collection strategies consisted of a district-wide survey designed to select and situate participations, followed by eight individual case studies which were conducted over a period of 12 months. Data analysis was conducted iteratively throughout the data collection period, with a concentration over the summer, and again at the conclusion of the study. Within-case analysis preceded cross-case analysis, and data displays were used to explore, describe, order, and explain qualitative evidence (Miles & Huberman, 1994). This chapter describes the data collection methods which emerged from the initial conceptual framework. It then explains the selection of participants and situates them within the context of the larger school district. Finally, this chapter explains the data analysis process which led to a revision of the initial model and the findings of the research.

Procedures

This study utilized a qualitative approach and included a district-wide survey followed by eight case studies of urban, high school science teachers. Several researchers have called for more qualitative work in the field of teacher retention (Billingsley, 1993; Bloland & Selby, 1980). This project answers that call through a close examination of several teachers' careers and career moves. Within qualitative research, case studies were selected from the variety of methodologies for three important reasons. First, existing

literature exposes a gap in our understanding of how teachers think about their career moves. Case study methods have the particular ability to questions such as “how do teachers think about their careers and career moves?” Next, where ethnography focuses on culture, phenomenology examines the essence of a phenomenon, and grounded theory stresses the construction of theory, case studies offer holistic interpretations of single, bounded units, such as the professional lives of urban, high school science teachers (Merriam, 1998). Finally, instrumental case studies use careful analyses of a small number of participants to understand a broader issue of interest (Stake, 1995). This study, which consists of several instrumental case studies, uses in-depth analysis of the professional lives of eight teachers to better understand the broader issue of retention in urban, high school science classrooms. Case studies have been criticized for a number of reasons, including lack of rigor and the inability to make scientific generalizations (Yin, 2003). These challenges to high-quality case study research will be explicitly addressed through careful attention to validity and reliability, discussed in more detail in the rigor section of this chapter.

District Context

This study is situated in the William City Public Schools¹, an urban school district on the Eastern seaboard which enrolls approximately 90,000 students annually, making it one of the 30 largest school districts in the United States (NCES, 2001). Of those students, 88% are African American and 81% receive free and reduced meals (FARMS). William City reports low achievement academically, with a 54% graduation rate and a 36% passing rate on one of the major high school exit exams (State Department of

¹ All names are pseudonyms

Education, 2006). They also report an above-average FARMS rate as well as greater-than-average number of minority students, as compared with other large school districts in the United States (NCES, 2001). In its low-achievement and high-poverty situation, the William City Public School System shares many of the problems that urban school systems face nationwide.

William City has numerous teaching vacancies and spends an estimated \$19 million dollars on costs associated with teacher turnover (Malik, 2007, June 21). William City relies heavily on local and national alternative certification routes in the hiring of new teachers, with Teach for America (TFA) reporting over 500 teachers placed in the district since 1993 (Teach for America, 2005) and a local alternative certification program reporting almost 500 new teachers placed in the schools since 2002 (Residency, 2005). Moreover, the William City Public Schools recently reported an immediate need for science teachers at both the middle school and high school level (Urban Teacher Collaborative, 2000), indicating that they struggle to fill science teaching positions in particular. Here again, the William City schools face the same challenges with teacher employment that other districts report nationally (Ingersoll, 2003), making it an appropriate site for the study of teacher retention.

Survey

The study began in November 2005 with the administration of a survey to all first, second, and third year high school science teachers across the William City Public Schools. This survey (Appendix A) had three distinct purposes: 1) to characterize the population of new science teachers within this district 2) to provide a pool of potential case study teachers, and 3) to situate selected case study teachers within the larger

population across the district. Based on its purposes, this survey was strictly descriptive in nature, gathering information about an existing group rather than comparing characteristics between groups (Fink, 1995b). The survey included five sections, in which teachers were asked to 1) rank their importance and confidence in twenty different professional priorities 2) indicate their typical professional activities 3) characterize their current workplace context 4) indicate their long-term career plans and 5) provide relevant background information. Question construction was guided by the conceptual framework, using models of related survey instruments (M. A. McDonald, 2001; NCES, 2003a, 2003b, 2004a, 2004b). Questions in section four, school climate, were drawn from existing surveys on this topic developed at the Center for Research on the Context of Teaching (Center for Research on the Context of Teaching, 1991, 2001; Center for Research on the Context of Teaching & Manpower Demonstration Research Corporation, 2002).

In order to increase the trustworthiness of results, the survey portion of the study was pre-tested for content validity, defined as “how appropriate the items seem to a set of reviewers who have some content knowledge of the subject matter” (Fink, 1995a). In order to measure content validity, the survey was piloted with nine individuals, current and former teachers of science, who had knowledge of the conditions of urban education (Jaeger, 1988; Rea & Parker, 1997). Rea and Parker (1997) recommend that all surveys are pre-tested for question clarity, comprehensiveness, and acceptability. In order to achieve these standards, pilot teachers completed the survey and then provided feedback regarding what made sense, what did not make sense, what possible items might be missing, and whether the existing items appeared relevant.

The names of the target teachers were supplied by the William City Human Resources office and the surveys were delivered directly to the appropriate individuals, first through in-person delivery to the schools and second through the U.S. mail. I also visited graduate classes for alternatively certified teachers and meetings of the local teacher residency program in order to distribute additional copies of surveys. All teachers who returned completed surveys received a \$10 gift card to Amazon.com in order to compensate them for their time, and 40 out of 73 targeted teachers returned surveys, a 54.8% response rate. An identical survey, with a revised final section capturing teachers' career moves over time (Appendix B), was distributed to those same 40 teachers in the fall of 2006 in order to track their evolving perspectives and career movement. Twenty two out of the 40 teachers returned this second survey, a 55% response rate. This initial survey found, not surprisingly, that the majority of the respondents were female, White, and under 30 (Table 1). The group also incorporated a range of experience levels within the first three years and both traditionally and alternatively certified teachers.

Gender	35% Male, 62.5% Female
Experience	37.5% First year, 25% Second year, 37.5% Third Year
Certification	45% Traditional, 50% Alternative, 5% None
Age	35% <25, 42.5% 25-30, 10% 30-35, 5% 35-40, 5% 40-45, 5% >45
Ethnicity	30.77% African-American, 7.69% Asian/Pacific Islander, 56.41% White, 2.56% Latino/a or Hispanic

Table 1: Survey Respondent Demographics

Initial analysis of surveys included descriptive statistics and frequency counts of survey items using Minitab software. This was followed by a second analysis in which the survey questions were grouped together into codes (Appendix C). For example, the survey items “develop curriculum for others to use” and “incorporate new ways of teaching into my classroom” were combined into a code called “professional growth”.

Data were aggregated and graphed based on these codes in an effort to characterize beginning teachers in this district in a broad sense. Representative teachers were then selected for in-depth case studies based on a range on demographic, certification, and workplace variables.

Participants

The target population for this study, those who received the initial survey, were high school science teachers within the William City school district in their first, second, or third year of teaching at the beginning of the study. Data from the Schools and Staffing Survey, Teacher Follow-up Survey show that teacher attrition is highest during the first three years of employment, with 8.5% of public school teachers leaving and 13.3% moving during that time. After this initial induction period, both attrition and movement drop off. Among public school teachers with four to nine years of experience, only 6.5% leave teaching and 10.2% move to a different school (NCES, 2004c). Therefore, in order to capture those teachers who were most likely to make major career adjustments, this study focused on first, second, and third year teachers.

Moreover, the case study participants were part of what Johnson (2004) terms the “next generation of teachers”. She notes that teachers entering the workforce today face a markedly different labor situation than the previous generation, those who started teaching in the 1960s and 1970s. During this earlier era, a national focus on public service and limited professional opportunities for woman and minorities worked together to create a “hidden subsidy” for education, supplying larger numbers of teachers to the market at an often discounted rate (Johnson, 2004, p. 19). Because this study focused on new teachers, most of the potential participants were inherently part of this next

generation. However, Johnson (2004) also points out that there are a large number of career changers, with one survey of Massachusetts teachers reporting 46% of new teachers as mid-career entrants. Therefore, to ensure that all case study participants are clearly within the limits of this next generation of teachers, participation was limited to those who entered the general workforce after 1980, or who were under 45 years old. This is supported by data from the Teacher Follow-up survey showing that, apart from those at retirement age, teachers under 40 years old had the highest rates of attrition (NCES, 2004c).

Given these broad constraints, eight case study participants were selected from the larger pool of survey respondents using purposive sampling based on criteria already shown to be important in the teacher retention literature, including demographics (e.g., Bobbitt et al., 1991; Dworkin, 1980; Heyns, 1988), certification route (LaTurner, 2002), and workplace conditions (e.g., Rosenholtz, 1989b; E. M. Weiss, 1999). More specifically, the participants were selected using stratified purposive sampling, which Patton (1990) notes “illustrates characteristics of particular subgroups of interest” with respect to these three dimensions (Patton, 1990, p. 182). Potential case study teachers were contacted via telephone or email to arrange an initial informational meeting. These informal conversations allowed them to learn more about the project and also offered me the opportunity to assess whether they would be forthcoming case study participants (Bogdan & Biklen, 2003). Two potential teachers were eliminated because of apparent lack of interest in self-reflection. Eight teachers were selected, all of whom expressed a willingness to participate.

Selection variables included gender, years of teaching experience, age, race, certification route, subject area, professional background, school size, and school culture. The majority of these variables are self-explanatory, however two require some elaboration. Certification route was designated as either traditional, defined as a university-based program, or alternative, defined as a primarily non-university-based program which may partner with a university to fulfill some instructional needs. Case study participants were selected from both of these categories. School culture was determined based on responses to the questions in the school climate section of the survey. Weak school culture is defined as an average response of less than 3.0, moderate as between 3.0 and 3.5, and a strong culture is defined as greater than 3.5. Table 2 provides an overview of the eight case study teachers at the start of the study based on the selection criteria. The study was initially designed for six participants, but during the selection process it did not seem possible to capture the range of demographic, certification, and school context variables with only six participants. Therefore the project was expanded to include eight teachers. All names used are pseudonyms and the teachers are presented alphabetically by first name, both in this chart and throughout this study, except when otherwise indicated.

	Gender	Experience	Age	Race	Certification	Subject	Educational Work Background	School Type	School Culture
Alexandra	Female	2 nd year	20-25	White	Alternative	Computer Science	College	Comprehensive	Moderate
Alison	Female	3 rd year	25-30	White	Traditional	Chemistry	College	Restructured	Strong
Charlotte	Female	1 st year	25-30	White	Alternative	Physics and Earth Science	Masters	Alternative	Weak
Denise	Female	1 st year	20-25	Black	Alternative	Biology	College	Comprehensive	Moderate
Matthew	Male	3 rd year	25-30	White	Traditional	Environmental Science	Masters plus work	Restructured	Moderate
Mitch	Male	2 nd year	25-30	White	Alternative	Chemistry and Biology	PhD	Magnet	Weak
Raya	Female	3 rd year	40-45	White	Alternative	Environmental Science	Career Changer	Restructured	Weak
Talisha	Female	1 st year	30-35	Black	None	Chemistry	Career Changer	Restructured	Moderate

Table 2: Overview of Case Study Teachers

Analysis of the survey data situated the case study teachers within the larger school district, and graphs of the survey data indicate that the selected teachers followed the same general trends as the district population as a whole with respect to perspectives, practices, professional motivations, and long-term career plans. For example, Figure 2 illustrates how case study teachers and the larger group of beginning science teachers reported on their professional priorities. Although the case study mean was slightly lower throughout, it is important to note that the case study teachers ranked their priorities in the same order as the larger population, valuing student development followed by service and then professional growth. Moreover, their confidence in achieving these priorities did not appear linked to the importance of the goals, with mean confidence scores ranging only from 3.6 to 3.92.

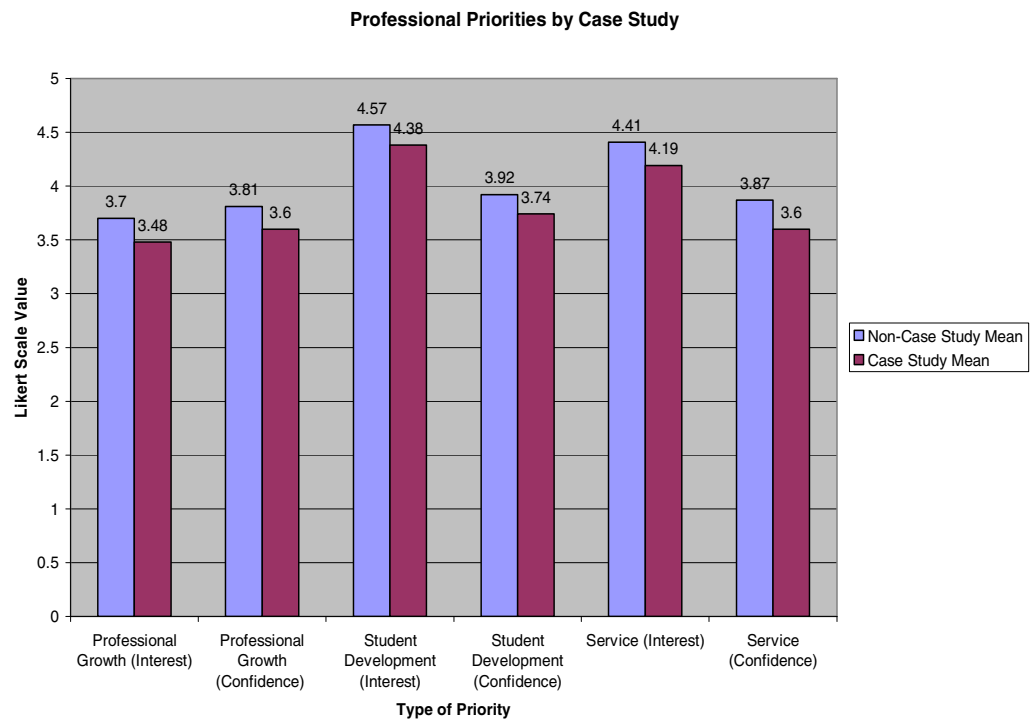


Figure 2: Professional Priorities

Next, the case study teachers appeared to engage in similar professional practices as compared with the larger population of science teachers district-wide. Figure 3 illustrates how teachers reported on their activities and the content of those activities in classroom, school, university, and district settings. The survey demonstrates that both case study teachers and non-case-study teachers reported independent work to be their most common professional activity, reflecting broader trends of isolation (e.g., Kardos & Johnson, 2007; Little, 1990), followed by social interaction with other teachers. Conversations around teaching and learning were actually ranked the lowest of all professional practices, an average of 0.38 on the Likert Scale for non-case-study teachers and 0.78 for case study teachers. Moreover, it is important to note that when asked how they would compare their level of participation in professional activities with their in-school colleagues, case study teachers had a higher mean than non-case study teachers, 3.56 and 3.11 respectively. This finding is not surprising, given that case study teachers agreed to complete a voluntary survey and participate in a year-long in-depth qualitative research study. Certainly the study participants were more likely to engage in professional activities than their counterparts, which should be kept in mind when interpreting study results.

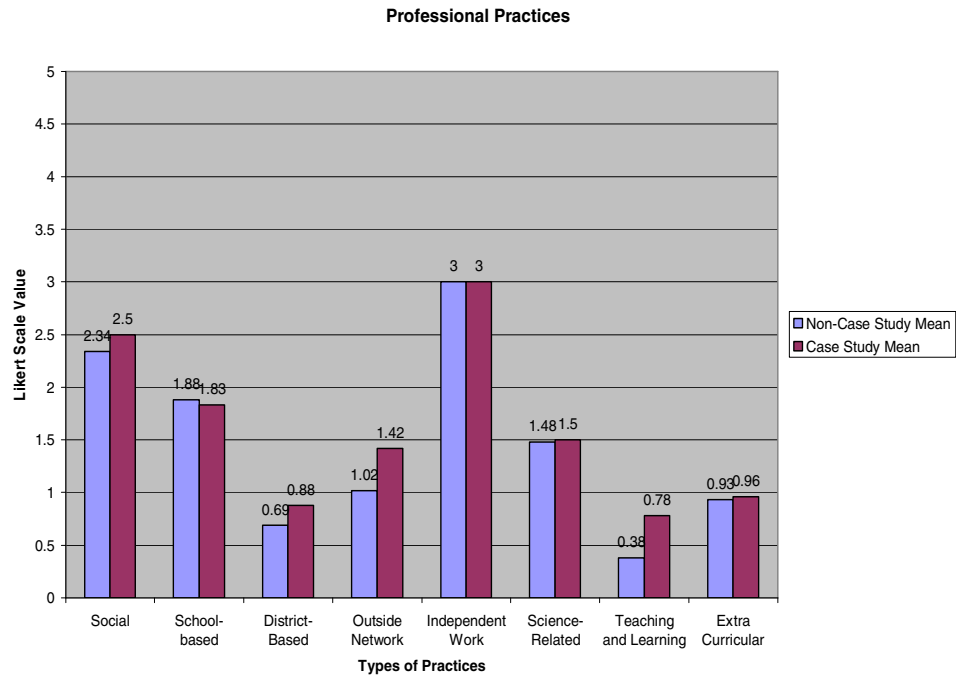


Figure 3: Professional Practices

Figure 4 shows how case study and non-case study teachers described their motivations for teaching, particularly in an urban context. Here again, the case study teachers appeared to follow the same trends as the group of science teachers district-wide. For example, both groups ranked service to society as the most important influence on their decision and continuity with their own educational experience in an urban setting and the least important influence. However, it is interesting to note that case study teachers reported being more motivated by material benefits than non-case study teachers, an average of 3.16 and 2.55 respectively. Likewise, case study teachers reported being more motivated by service to society than non-case study teachers, an average of 4.5 to 3.75. The elevated importance of these almost opposing motivations for case study teachers may suggest that the case study teachers have multiple and complex motivations for teaching, which might play a role in their process of decision making. Moreover,

fewer case study teachers cited continuity with their own experience in urban schools as an important motivating factor, an average of 1.0 to 1.91. This difference is most likely a result of the relatively small number of science teachers in William City who actually attended urban schools as students.

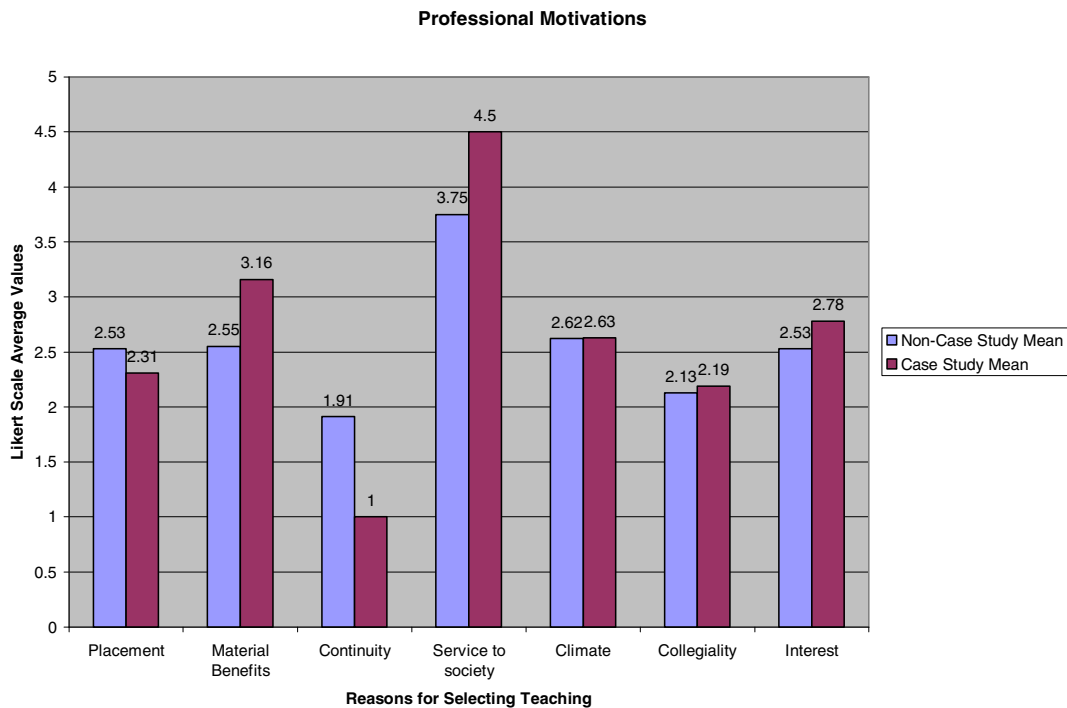


Figure 4: Professional Motivations

Finally, Figure 5 shows case study and non-case study teachers' professional plans. Few teachers of either group reported plans to leave the classroom for family reasons, with average scores of 1.44 for case study teachers and 1.7 for non-case study teachers. Moreover, the case study teachers appeared to be slightly more committed to urban schools than the larger population district-wide. First of all, they were less likely to see teaching as a short-term career as compared with non-case study teachers, an average of 2.5 on a Likert scale as compared with 3.13. Moreover, they appeared less interested in moving to non-urban contexts, such as suburban, rural, or private schools, a 2.13 mean as

compared with 2.84. And the case study teachers were more committed to non-teaching roles within urban schools, with a mean of 2.63 as compared with 1.91. In this way, the case study teachers represent a better-than-average situation, as they appear more committed to urban education and more interested in taking on a variety of roles within urban schooling. Once again, this seems reasonable given their choice to participate in a research study and should be considered when interpreting study findings.

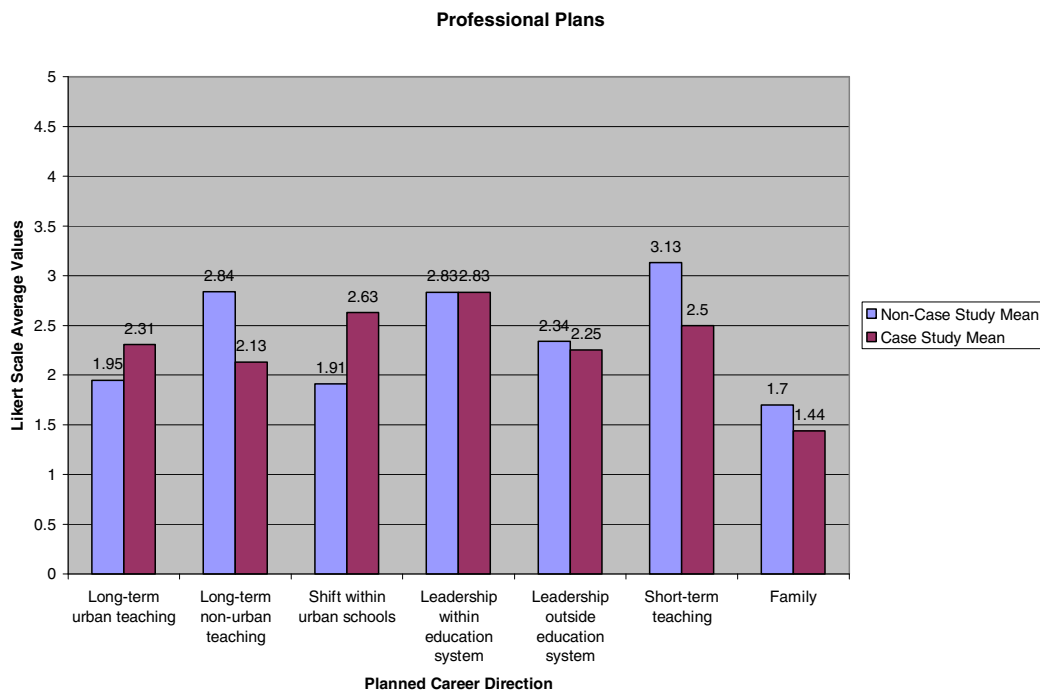


Figure 5: Professional Plans

In general, case study teachers were well situated within the larger population of first, second, and third year high school science teaching in this particular urban school district. In general, their professional priorities, practices, motivations, and plans appeared to follow the same patterns as the larger group of William City teachers. In a few cases, they reported slightly different inclinations in comparison with the larger group. I have made every effort to identify these situations when they did occur and

consider them as part of the larger analysis. Overall, the selection of case study participants was assisted and contextualized by an understanding of the larger population of beginning science teachers district-wide. These teachers also represented what is becoming more and more typical of urban districts and schools across the country, a demographic divide (Banks et al., 2005; Gay & Howard, 2000) between predominantly White, female teachers from privileged backgrounds and primarily underprivileged students of color. Although this particular group of case study teachers included individuals from a variety of backgrounds, on the whole there was a great disconnect between the backgrounds of the case study teachers and the background of the students they worked with on a daily basis.

Case Studies

After initial meetings with teachers, data collection for the case studies began in January 2006 and continued through December of the same year, with a break over the summer. Data collection was designed to take place over the course of two academic years in order to track case study teachers' career moves over time. Teachers who decided to leave education or switch schools at the conclusion of the first academic year remained participants in the study and continued to reflect upon their evolving professional path from their new vantage point. Multiple sources of evidence were used to develop a more complete understanding of teachers' career moves (Merriam, 1998; Yin, 2003). These case studies consisted of ongoing monthly interviews, professional observations, and collection of artifacts. The eight qualitative case studies addressed all four of the research questions, including how teachers define and enact their professional priorities, how teachers participate in professional communities, how teachers make

career decisions, and how teachers’ professional priorities, participation in communities, and decision making are consequential for their careers. Each data collection method was intended to address particular aspects of the research questions. These relationships are outlined in Table 3.

	Surveys	Interviews	Observations	Artifacts
How do teachers think about their careers and career moves?	X	X	X	X
1) In what ways do teachers define and enact their professional priorities?	X	X	X	
2) In what ways do teachers participate in professional communities?	X	X	X	X
3) In what ways do teachers make career decisions?		X		
4) How are teachers’ professional priorities, communities, and decision making consequential for their career moves?		X	X	

Table 3: Data Crosswalk

Depending on time availability and interview productivity, nine to 10 interviews were conducted with each teacher for a total of 76 interviews, each one to one and a half hours in length. Each interview was audiotaped and transcribed. In order to avoid loss of data, two audiorecorders were used during each interview (Merriam, 1998). At the conclusion of the project, each teacher received one copy of their tapes. The interviews were conducted at locations that were convenient for teachers, at their schools during a planning period or at a local café after school hours. The interviews were semi-structured in nature, based on a prepared interview guide (Appendix D). While the interview guide focused the conversation, the style was casual and conversational, with much interaction between myself and the teacher (LeCompte & Goetz, 1984) in an effort to build rapport and establish trust (R. Weiss, 1994). I frequently followed-up on the prepared questions with probes for elaboration, detail, and clarification (Patton, 2002). Most importantly, I tried to maintain a naïve stance in which I was learning from the teacher, making every

effort to, as Glesne and Peshkin (1992) recommend, be both dominant toward the direction of the conversation as well as submissive toward the answer.

The spring interviews, those conducted between January and June, covered a range of topics based on the conceptual framework, including teachers' everyday professional experiences, background, ideas about the role of a teacher, support, and reflections on the year and expectations for the coming year. In addition to the prescribed questions, I also allowed some time, with certain teachers considerable time, to catch up on ongoing professional rewards and frustrations. The fall interviews differed slightly. Over the summer I was able to conduct initial data analysis, and fall interview questions followed-up on emerging themes, gathering more information and checking initial impressions with case study teachers. In these fall interviews, we continued our ongoing reflection of rewards and frustrations and also addressed topics such as the urban educational system, relationships in the workplace, and career plans. Interviews provide a window into what cannot be seen (Glesne & Peshkin, 1992) and, in this way, informed a developing understanding of how teachers think about their careers and career moves.

In addition to the interviews, I completed 57 professional observations, which consisted of several multi-session events (Table 3). These observations included situations in which I was able to observe the case study teacher interacting in various professional communities, including classroom observations, faculty meetings, university classes, and social events, and artifacts were collected whenever available. These events were selected by the case study teachers based on where they thought I would learn the most about their professional lives. Moreover, except for classroom observations, I tried to visit each context only once in order to capture a more comprehensive range of their

professional communities. Initially, I intended to conduct one interview and one professional observation of each teacher every month when school was in session. However, it took time to build trust with the case study teachers and it was not until February that I felt teachers would be comfortable bringing me with them into their professional communities. Even then teachers seemed a bit uncomfortable with my presence, but they became more relaxed over time. Moreover, when teachers felt time pressure from participation in the study, I prioritized interviews over observations. Finally, some teachers moved around, with Mitch moving out of state and Talisha leaving the school district, making professional observations geographically difficult. For these individuals, I visited their work site once in the fall and conducted interviews by telephone. Therefore, there were slightly fewer professional observations over the course of the year.

	February	March	April	May	August	September	October	Nov/Dec
Alexandra	University Class	Class Observation	Staff Meeting	Theatre Rehearsal	Professional Development	Class Observation	Advisory	
Alison	Professional Development	Professional Development	Softball Game	PTA Meeting	Teacher Training	Leadership Meeting	Class Observation	
Charlotte	Department Meeting	Class Observation	Staff Meeting	University Course	Teacher Preparation	Class Observation	Class Observation	Faculty Meeting
Matthew	Staff Meeting	Class Observation	Tennis Game		Professional Development	Class Observation	Student Government	Extra-Curriculars
Mitch	Class Observation	Happy Hour	TFA Meeting				School Site Visit	
Raya	Class Observation	Leadership Meetings	Cohort Meetings	Staff Training	Content Meeting	Class Observation		Professional Development
Talisha		Class Observation	School Event	Lunch			Site Visit	

Table 4: Professional Observations

The observations provided a unique opportunity to witness the case study teachers interacting with others, both students and colleagues, to better understand how they enacted their priorities and participated in professional communities on a regular basis.

The observations were primarily non-participatory and non-interventionist in nature (Adler & Adler, 1994). While I was clearly a new and different presence, I did my best not to interfere with the events taking place. In these observations, I focused on the physical setting, participants, activities, interactions, and conversations, as well as my own behavior (Merriam, 1998). During these observations, I took open-ended field notes in an attempt to capture apparent enacted priorities as well as how these priorities played out in professional communities. I elaborated on these fieldnotes as quickly as possible, often the same day (Bogdan & Biklen, 2003). I also attempted to scrutinize my own assumptions and behavior (Bogdan & Biklen, 2003) in an effort to reduce researcher bias, frequently commenting in my fieldnotes and personal journal on events I found surprising, circumstances which confirmed emerging themes, or ways I could make the participants feel more comfortable.

During the observations, I also collected relevant documents as artifacts of the particular situation. From the classroom, this included student assignments, scoring rubrics, and assessments. From professional activities, documents took the form of agendas, handouts, and professional development materials. These documents served as additional evidence to triangulate findings (Merriam, 1998). Rather than being researcher-generated, like interview transcripts and observation fieldnotes, these documents were participant-generated and provided an additional window into how the case study teachers see their world (Bogdan & Biklen, 2003).

Data Analysis

Data analysis was an iterative process both during and following data collection, with ongoing analysis guiding future data collection (Bogdan & Biklen, 2003). During analysis, I made every effort to attend to the research questions and conceptual framework while also being responsive to the experiences of the case study teachers. I used several techniques to analyze the case study data over the course of the study. First, I annotated all data as I collected them, making note of emerging themes, surprises, and confirmations within, and at the conclusion of, all interview notes and fieldnotes (Emerson, Fretz, & Shaw, 1995). This helped me to think carefully about each individual case study teacher. I designated time for thinking about themes that cut across all eight teachers and wrote memos on a variety of topics for a total of 30 cross-case memos. I also kept a personal journal, with 14 entries, which helped me to reflect upon my own relationship to the study and critique my actions in the field (Bogdan & Biklen, 2003). Once I felt confident about the existence of a particular theme, I solicited feedback as part of two ongoing graduate student research groups, one within and one outside of my home institution. I also shared my initial findings with my advisor through a series of six updates on my work. Based on feedback, I revised my initial thoughts and modified the focus of future interviews and observations. This iterative process kept me reflective throughout the course of the study.

Between June and August, when data collection paused for summer vacation, I was able to take a step back and do more in-depth data analysis. I started by coding the interview transcripts and fieldnotes to date using NVivo qualitative data analysis software. The initial coding structure was generated from concepts I knew to be

important from the initial conceptual framework, including priorities, engagement, success, and movement. On top of these initial themes, I added codes which emerged from the experiences of the case study teachers, such as background, school culture, classroom activity, and compartmentalization (Graue & Walsh, 1998). I also included a code for researcher positionality in order to assist reflection on my own role in this process (Bogdan & Biklen, 2003). In total, I developed a coding structure which included 7 free nodes and 150 tree nodes. Using these coded data, I crafted an initial case for each of the eight teachers in an effort to conduct within-case analysis prior to cross-case analysis (Merriam, 1998). I initially started writing a narrative for each teacher, but later chose to streamline the process by creating an informal chart highlighting key experiences for each of the eight teachers, organized thematically. A sample case is included as Appendix E. I solicited feedback on these initial case memos from peers and mentors and, once I felt comfortable that I understood the most salient events for each teacher, moved on to cross-case analysis.

I conducted cross-cases analysis using the guidance of Miles and Huberman (1994), who suggest the creation of matrices to first explore and describe and then order and explain qualitative data, arguing that reducing data into data displays provides an organized and coherent mechanism for thinking about both individual cases and the larger research questions. Guided by examples from Miles and Huberman (1994), I crafted a total of 13 matrices over the course of the study in an effort to reduce, describe, and order variables such as recruitment, retention, perspectives, and support. A sample matrix is included as Appendix F. Throughout this process I made an effort to look across variables while maintaining the integrity of the individual cases, drawing conclusions

without reducing qualitative cases to just their quantitative features. The variables selected for further analysis in these matrices were those that emerged as relevant to a majority of the case study teachers. Initial analysis of the matrices led to the development of three rough models, each emphasizing a particular variable, including emotional involvement, support and loyalties. I again received feedback from peers and mentors and used this initial analysis to construct follow-up questions for the fall interviews (Agar, 1996).

From late August to December I returned to the field with a new set of interview questions and several preliminary claims. I used this time with teachers to follow up and confirm, modify, or reject these initial ideas, while continuing to attend to their ongoing experiences in schools. I also coded new data, wrote ongoing memos, and consulted with peers and mentors. Late in the fall I made a change in my data analysis strategy. Previously, I had been looking at which individual variables might matter for teachers' career decisions and developing models which concentrated on single inputs and outputs. At this point I began to cluster cases and build more complex models which incorporated a number of relevant variables (Miles & Huberman, 1994). I started by going back to the original conceptual framework and modified it based on key concepts from the eight case studies into an overall model and three sub-models. These new models were then challenged and revised, undergoing seven iterations before reaching their current form. In January 2006 I completed each of the individual case studies and distributed them, along with an early form of the models, to the case study teachers for member checking. I also scrutinized and challenged my existing models, examining them in relation to the research questions, individual cases, outliers, and participant feedback in order to secure

trustworthiness (Becker, 1998; Miles & Huberman, 1994). Like many qualitative researchers, I faced a particular challenge in linking my findings back to evolving research questions (Lareau, 2000), and revisited the research questions again and again to be sure the data I collected and analyzed spoke to the study purposes. Study conclusions and models were further tested through a series of job talks, conference presentations, and ongoing communication with study participants, which together provided feedback from a variety of perspectives.

In writing this dissertation, I followed Stake's (1995) advice of telling a single story rather than every story and allowing readers the opportunity to see evidence and reason through findings for themselves. In an effort to achieve this goal, I opted to let the teachers speak for themselves whenever possible. Their quotes have been edited to remove verbal fillers such as "um", "like", and "you know". This editing was intended solely to clarify teachers' intentions and make the document more reader-friendly, rather than change the meaning in any way. I also recognized my own role in re-presenting (Clifford, 1986) the experiences of these eight individuals through writing. I aimed to strike a balance between allowing the teachers to speak for themselves and also including my own role as researcher in this process. While I lean toward a realist approach (Van Maanen, 1988), I made an effort to make my personal role as explicit as possible.

Rigor

Merriam (1998) notes that "All research is concerned with producing valid and reliable knowledge in an ethical manner" (p. 198). However, while all research seeks to reach trustworthy results, different research methods achieve standards of rigor in different ways. Quantitative work generally pilots and pretests the data collection

instrument and the survey portion of this study followed those guidelines (Fink, 1995a). However, in qualitative work the researcher is the primary instrument of data collection (Merriam, 1998), therefore ongoing interventions must be built into the structure of the study to ensure rigorous results. This project aims to achieve high standards of internal validity, external validity, and reliability in all aspects of the work.

High standards of internal validity, external validity, and reliability were sought using strategies that are adapted for this type of research. Internal validity has been defined as “the extent to which scientific observations and measurements are authentic representations of some reality” (Goetz & LeCompte, 1984, p. 210). This study was designed based on several of Merriam’s (1998) recommendations for increasing internal validity, including triangulation of findings with multiple sources of data, long-term observation in the field, and member checking of tentative conclusions. Moreover, the development of the conceptual framework and interview questions was guided by an earlier pilot study (Rinke, 2005) focused on urban science teachers’ goal, purposes, and perspectives in relation to environmental education.

External validity, often conceptualized as generalizability or transferability, has been defined as “the degree to which ... representations can be compared legitimately across groups” (Goetz & LeCompte, 1984, p. 210). Although case studies have been criticized for lack of generalizability (Cusick, 1983), this study was designed in an effort to address both analytic (Yin, 2003) and case-to-case (Donmoyer, 1990) generalizability. The narrative aimed to develop models which inform theory around teacher retention, thus providing analytic generalizability and expand theory, while also including rich, thick descriptions of professional contexts which allow readers to assess for themselves

the transferability of the case studies to other local settings (Donmoyer, 1990; Schofield, 1990).

Finally, reliability, which “refers to the extent to which studies can be replicated” is also an essential feature of study rigor (Goetz & LeCompte, 1984, p. 210). Because of the impossibility of precisely repeating a naturalistic case, this study instead maintains a “chain of evidence”, as recommended by Yin (2003), such that readers can follow the logical progression from study questions to protocol, database, and final document. This chain of evidence is detailed throughout the chapters, illustrating how the initial conceptual framework was developed, the ways in which it informed data collection, the iterative process of data analysis, and the revision of the models based on evidence. The clarity of this process aims to make study design, data collection, and analysis transparent to readers, thus maintaining a high standard of potential study reliability.

Ethical Considerations and Researcher Positionality

Research in general and qualitative research in particular is wrought with ethical dilemmas, including issues of respect, privacy, cooperation, and truth (Bogdan & Biklen, 2003). In this particular research study, the most pressing ethical issue involved my potential influence upon the career direction of participants. Researcher influence is usually discussed with respect to the results of the study. However, in this case, my work could have an additional and potentially more serious impact: my presence and interaction with case study teachers could impact their career moves. This has serious and long-term consequences for the lives of both teachers and students. Because of this concern, I took extra precautions to ensure that I did not inadvertently encourage a particular career direction or even plant ideas in the minds of participants. In order to

avoid this potential ethical dilemma, I did not explicitly discuss the issue of career moves or teacher retention until the final interview. Instead, I looked at teachers' professional priorities, participation, and sense of competence, as directed by the conceptual framework, in an attempt to get at the process of career decision making. If teachers initiated a discussion about potential career moves, I was willing to listen, and many did time and time again. However, I refrained from generating that type of conversation until the conclusion of the study.

Moreover, it is critical to be explicit about my own role as a researcher in this study. All qualitative researchers enter the field with a particular perspective and biases (Bogdan & Biklen, 2003). Graue and Walsh (1998) suggest that, rather than collecting data, researchers actually generate data, noting that "Data are not out there, waiting, like tomatoes on a vine, to be picked. Acquiring data is a very active, creative, improvisational process ... The researcher is there. She cannot be otherwise. She is in the mix" (Graue & Walsh, 1998, p. 91). Rather than letting their perspective get in the way, qualitative researchers attempt to control their biases by being explicit about their point of view (Bogdan & Biklen, 2003). In this study, the development of a detailed conceptual framework was one attempt to be clear about my own perspective. A second important step involved scrutiny of my own personal interest in and relationship to this study.

My own background is not dissimilar from my case study participants. I earned an undergraduate degree in human biology, developed an interest in teaching after college, and enrolled in a Masters certification program to study secondary science education. My first two years in the classroom were at Central Park East Secondary School, of Deborah Meier fame (Meier, 1995), in East Harlem, New York, teaching secondary science and

math. My colleagues at the school were mostly young and new like myself, a combination of White, African American, and Asian American teachers. We worked together closely as a team, putting in long hours trying to make the school's innovative curriculum work for our students. However, despite working at one of the most respected urban schools in the country and having a strong network of support within the school, I felt incompetent to make a difference in the lives of my students. I did not see school in general impacting their lives in a meaningful way, and I eventually concluded that I could make more of an impact in a school where the system was set up for teacher and student success. Ultimately, I decided to leave urban education for a suburban position. However, I was not alone. In my division, 11 of the 13 teachers also left for a variety of career alternatives, moving to different urban schools, suburban schools, and leaving teaching altogether. We never discussed exactly why so many teachers left the school that year, but the two who remained were the only ones who did not fit the profile of a newcomer: one teacher was a twelve-year veteran of the school, the other an experienced social worker, herself a graduate of the New York City schools. This experience sparked an initial interest in more fully understanding the problem of urban teacher retention, and suggested to me that competence and new teacher trajectories might be consequential for understanding career moves.

After leaving Central Park East, I went on to teach biology in a semi-rural community in California. I left this teaching position to return to the east coast for my now-husband's career, again reflecting the highly mobile nature of today's teacher workforce. After moving to Maryland, I taught high school biology in an upper-middle-class suburb, where I again observed problems with teacher retention. Two of the seven

teachers in my science department left mid-year, and many of the teachers in the school that I chatted with casually talked about teaching for a few years before pursuing other career alternatives. I began to wonder about the future of the teaching profession and the sources of this apparently wide-spread problem of teacher retention. Intrigued by the opportunity to look at issues of teaching from a broader perspective, as well as the options for professional growth, I returned to graduate school to study these issues from a broader perspective.

I recognize the inherent tension in my situation: I am a former teacher studying how others decide to stay or leave the classroom. I have made my career decisions, first out of urban schools and then out of the classroom altogether, but I am asking other teachers to reflect upon their own process of career decision making. However, I do believe that my interest in the topic and my concern for both teachers and students allows me to seek a fuller understanding of how teachers think about their careers and career moves. While I may not be able to resolve the challenges inherent in this situation, I can manage them so that they do not unduly interfere with my work. I envision my current professional position as part of the larger spectrum of educational career possibilities, working in a field which impacts education but outside of the classroom and the formal educational system. Therefore, my current situation is linked to urban teachers, not separate from them, and I shared my background with case study teachers in an effort to build rapport. Certain teachers asked for more in-depth information about my life and, when requested, I openly shared. However, with others I remained exclusively focused on the teachers' experiences and perspectives.

At the conclusion of the study, I believe that I formed strong and trusting relationships with my case study teachers. The final interviews were filled with warm comments, a mutual exchange of gifts, and invitations to dinner following the conclusion of the study. Several of the teachers introduced me to their colleagues and students as a “friend”. Moreover, a number of the case study teachers noted that they found our conversations to be therapeutic. While this could be considered a limitation, a case in which I played an intervening role in providing emotional support, it can also be seen as an indication of the openness of the relationships and thus the trustworthiness of results. In one instance toward the end of the study, Alexandra wrote in an email, “I will miss talking to you. One of the things you should suggest is that new teachers get an hour of unwind time to really think about their job and just talk talk talk to get those problems off their chest. I always feel better after our chats” (10-25-06). While the connection varied from individual to individual, in general my relationship to participants felt to me a close one.

Chapter Four: Career Trajectories

Analysis of the data re-shaped my initial conceptual framework. The original framework, which was based on a synthesis of the literature, highlighted teachers' priorities, professional communities, and perceived competence as key factors in their career development. The experiences of the eight urban science teachers led to a re-shaping of this framework such that their entry points into the profession, relationships and school context, and sense of confirmation interacted to shape their career direction. This chapter presents the revised model, compares it with the original conceptual framework, and explains two possible paths through the model, from entry points to career direction. Chapters Five, Six, and Seven then develop particular aspects of this model in greater detail and present data from case studies to illustrate each point.

Revised Conceptual Framework

These urban science teachers each had unique experiences before, during, and in some cases after their time in the classroom. However, there were also common features that cut across the professional lives of all eight individuals. Each teacher was engaged in negotiating a constancy in perspective with ongoing change in career plans while searching for professional confirmation (Figure 6).

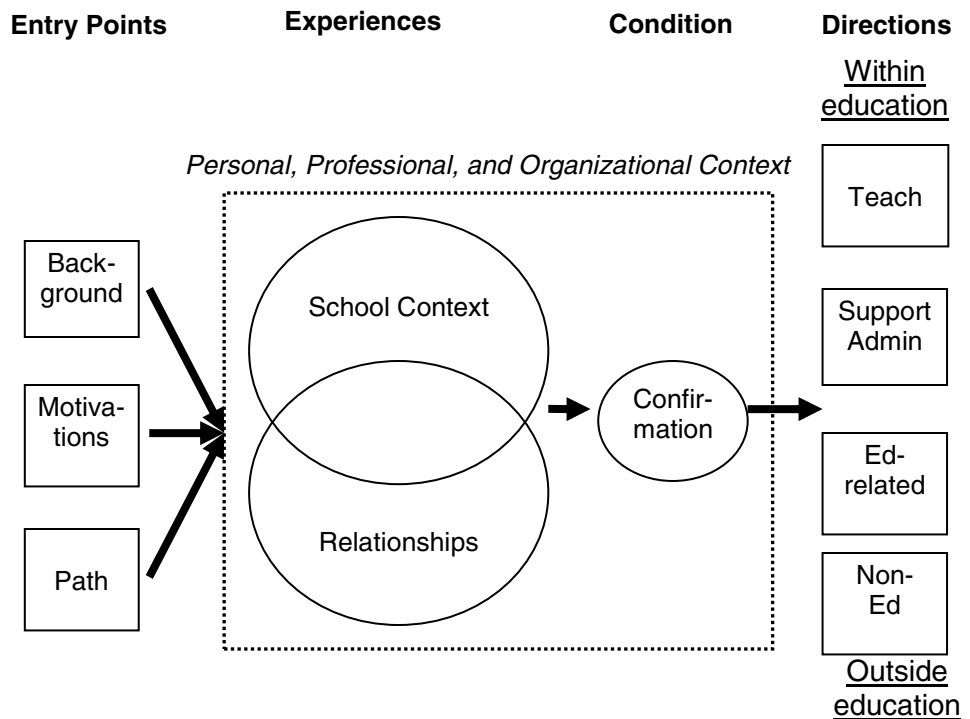


Figure 6: Urban Science Teachers' Career Trajectories

This model highlights several core elements in the evolving careers of these eight urban science teachers. First, it points to the role of entry points into the profession, including background, motivations for teaching, and path into the classroom. Background is defined as demographic information such as age, gender, race, and socioeconomic class, along with other qualities such as experience in urban environments and relationships with teachers and the teaching profession. Motivations for teaching consist of teachers' stated reasons for entering the classroom, which again vary widely. For example, Mitch always dreamed of being a teacher while Raya wanted to give back to the community. Finally, path into the classroom refers to the teachers' educational background, work experience, and certification route prior to entering the classroom.

These again varied, with Alison, for example, taking a more traditional university-based path and Talisha starting to teach without any formal teacher education.

These entry points were added to the model, not part of the original conceptual framework. However, the idea that these factors shape career direction is nothing new. For years researchers have explored the relationship between demographic characteristics and teacher retention (e.g., Bobbitt et al., 1991; Heyns, 1988) and significant research has been done on motivations for teaching (e.g., Lortie, 1975; Schutz et al., 2001) and certification route (e.g., Jorissen, 2003; LaTurner, 2002). What makes this model unique is the way in which these entry points came together to influence teachers' experiences in classrooms and schools.

Each teachers' unique combination of entry points interacted with key features of the school context and relationships with administrators, colleagues, and students to shape teachers' experiences in schools. Here again the model differs from the original conceptual framework. In the initial model, newcomer teachers participated in a general way in a variety of professional communities, but that participation was conceived of quite abstractly. This model unpacks beginning teachers' participation in professional communities such that teachers' experiences in schools were rooted in particular school contexts and relationships.

Next, this model includes the notion of confirmation, discussed in greater detail in Chapter Seven, as a key condition for career development. The case study teachers pursued this sense of confirmation in a variety of ways, but each sought, and many ultimately achieved, an internal sense of professional success and acceptance into the larger community of practice. This, again, is a change from the original model. In the

initial conceptual framework, teachers participated in professional communities. Based on their perceived competence in those communities, they either proceeded further into the profession or retreated away.

In this graphic, a box around school context, relationships, and confirmation indicates the underlying personal, professional, and organizational context in which the case study teachers operated on a regular basis. This underlying context might include family life, professional development experiences, or even membership in an organization with a particular mission such as Teach for America (Lipka, 2007, June 22). This vast and complex background context like the school and relationship context, also interacted with teachers' entry points to shape their experiences in schools. This graphic recognizes that there are multiple and complex active factors at work for each of the case study teachers. However, it depicts these factors as an underlying context because they were not a focus for this research.

This model makes several changes to that original conception. First, it develops the notion of perceived competence, an internal construct, into confirmation, with has both internal and external dimensions. Second, it identifies the ways in which teachers move on to new roles and responsibilities after achieving that sense of confirmation. And finally, it underscores the unidirectional aspect of teachers' career trajectories. Rather than testing out teaching, failing, and retreating away, this model illustrates the ways in which teachers enter the classroom, seek confirmation, and then proceed on professionally either within or outside of the classroom.

This model also unpacks potential career outcomes. In the original conceptual framework, teachers either proceeded further into the profession or retreated away. This

model shows that these teachers instead planned to move forward to a variety of outcomes along a continuum from within the educational system to outside the educational system. Some of these case study teachers were oriented toward the educational system and planned to pursue career alternatives on the within that system, such as urban or suburban classroom teaching, administration, or support. Other teachers were orientated outside of the educational system and likewise planned to pursue career alternatives outside of the system, either education-related like Talisha's move to a mobile educational lab or non-educational like Alexandra's plans to enter public health. While the specifics of their future roles varied widely, they can be understood along this continuum from within to outside the educational system.

One final aspect of this model that is not visually represented is the ongoing change that took place with teachers' career plans over time. Although teachers' views on teaching remained relatively constant over time and in broad ways shaped their career directions, teachers also experienced ongoing change. These eight case study teachers were continually evaluating their career alternatives, either within or outside of the educational system. Thus while the teachers proceeded in a unidirectional manner through this model, they also experienced ongoing iterations of change as they moved through. They headed in a general direction, but continually re-evaluated and sometimes shifted professionally in light of alternatives.

Comparing the original conceptual framework to the new model can shed light upon what may be missing in the existing literature and the potential contributions of this study. Whereas the original conceptual framework began with experiences in schools, this model incorporates entry points. The original framework discussed priorities, this

model the notion of professional perspective. The original model dealt with experiences broadly, this approach unpacks that participation within a school context. And where the initial conceptual framework allowed for progression or retreat, this model is unidirectional. The development of this model illustrates the centrality of background, context, and career growth to these urban science teachers.

Two Directions along a Continuum

The case study teachers resided in a variety of places along a continuum, determined by both their entry points and their orientation toward the educational system (Figure 7). One direction on this continuum was characterized by those individuals who entered teaching with a goal of *integration* into the educational system. Alison, Denise, Matthew, and Mitch were inclined toward this direction. All four, in one form or another, respected teachers and wanted to become a teacher. Moreover, these individuals valued the educational system and aimed to become an integral part of that system, either in the capacity of a classroom teacher or through educational leadership such as mentoring or administration. While they experienced ongoing debate over the course of the study, these teachers felt they were already in their ultimate occupation. The other path included those individuals who entered teaching with a goal of *participation* in the educational system, intending to work in the classroom for a short period of time before leaving to pursue other professional endeavors. Alexandra, Charlote, Raya, and Talisha were headed in this direction. Each of them, again in a variety of ways, came to teaching as a way of giving back. While social service has long been a motivator for teachers (Lortie, 1975), these individuals saw teaching not as a profession with a strong social mission but rather as a sort of short-term service that was separate from their real occupation. These

individuals did not aim to become part of the educational system. Rather, they hoped to make an impact during their brief tenure there and then move outside of the system to other professional pursuits. Each of these teachers was headed toward a career, either education-related or non-educational, outside of the system. The eight case study teachers envisioned a variety of career directions along a continuum from within education to outside education. Within that continuum, they were oriented more strongly toward integration or participation. These general perspectives along the continuum shaped their experiences in schools, decision-making processes, and ultimate career plans.

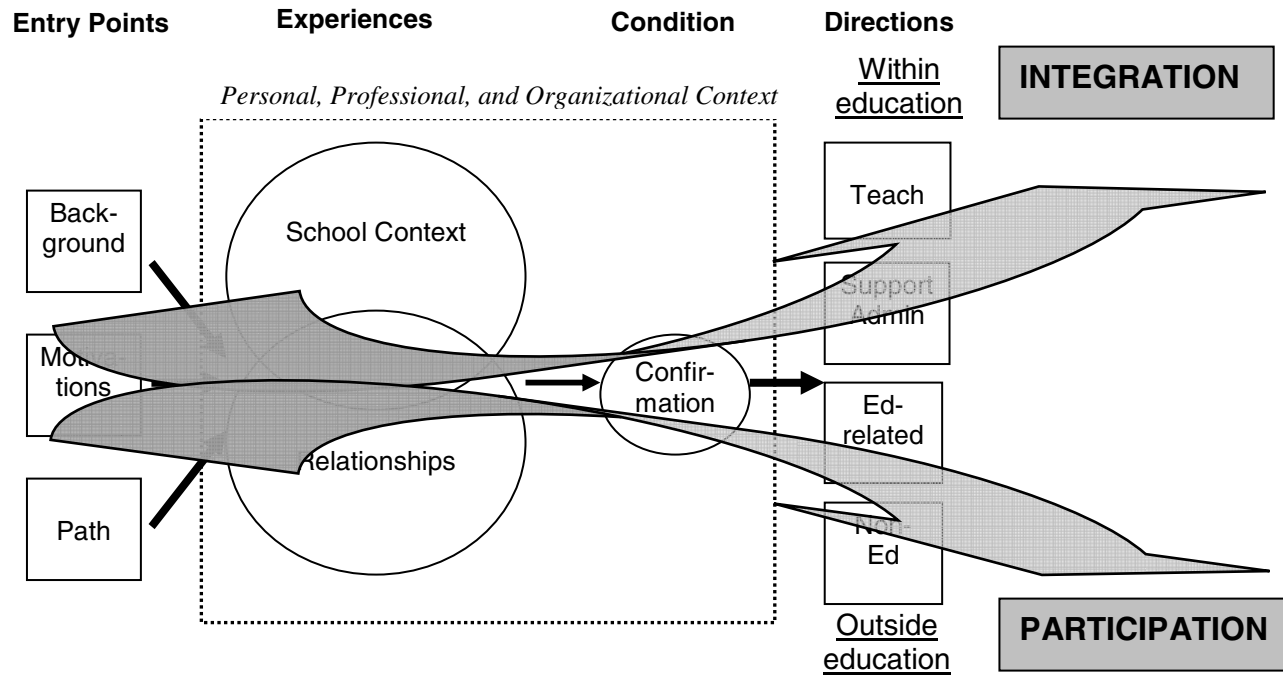


Figure 7: Two Directions in Urban Science Teaching

Integration

Alison, Denise, Matthew, and Mitch all came to teaching with an orientation toward integration, planning to end up within the educational system in some capacity. Their experiences were hardly interchangeable. They all came from unique backgrounds, experienced teaching in multiple and complex ways, and held a range of plans for their professional futures. However, these individuals shared a general orientation of respect for teaching and a desire to become part of the educational system. This section provides a brief introduction to these four case study teachers, explaining their background, orientations toward teaching and career plans as of the conclusion of the study. In this way, this section demonstrates the particular ways in which they follow the direction of *participation*. The other four teachers are introduced in the next section.

Alison grew up in a middle class household in predominantly White small-town Pennsylvania, her father an economic developer and her mother an editor. Alison described her early educational experiences with great enthusiasm, explaining “I loved school” (Interview 2-28-06). She was involved in her high school’s community service organization and environmental club, sang in the chorus, and was an enthusiastic spectator at the sporting events. Moreover, Alison had inspiring experiences with science during high school. She described a strong relationship with her biology teacher and explained that she took all of the science courses offered at her school and planned to pursue a science-related occupation. She attended the University of Pittsburgh because her family originally came from Pittsburgh; she earned a chemistry degree there. During this time, Alison kept the idea of teaching in the back of her mind, explaining “I felt like I

might ... want to teach. Oh, that'd be fun to teach, or when I'm a teacher, type of things in my head" (Interview 2-28-06).

After graduating, Alison decided to spend a fifth year earning a traditional university-based teaching certificate and student teaching. During this program, Alison formed a close relationship with one of her instructors who had previously worked in urban schools. After taking the course, Alison decided that she, too, wanted to work in an urban environment, explaining, "After working with her, I knew that's what I wanted to do ... I ... wanted to have a bigger impact, and I feel like I can have a bigger impact in the urban cities, [with] urban kids" (Interview 2-28-06). At the conclusion of this program, Alison applied for teaching positions in a variety of school districts, but ultimately accepted the offer in William City because they could guarantee her a job in April, as opposed to the more typical July. Shortly after starting her job, Alison bought an older home in the city and began renovating it bit by bit, illustrating her commitment to the community and her teaching position.

Alison initially started teaching chemistry in a large comprehensive high school, but this school was closed by the district and divided into several smaller learning communities after her first year. Alison stayed on in one of these smaller schools, taking on an informal mentor teacher role in the science department. Although there was high turnover among the staff, Alison had a tight friendship with one of the English teachers and also worked closely with the school principal. After her third year, Alison was promoted to support teacher and at the conclusion of the study was finding her way in this new role. She planned to pursue a Masters in science education and stay on within the educational system in either a teaching or mentorship capacity. In her survey, Alison

indicated that it was not likely, a one out of five on the Likert scale, that she would change to a non-education related field. Alison expected to remain in her current position through her fifth year, then reassess the urban context. Because of her initial desire to work as a teacher, her traditional certification route, and her intention of remaining within the educational system, Alison was oriented toward *integration*.

Denise grew up in public housing in New York City and attended the city schools. As a child, Denise never had the option of missing school. Denise described how important school was to her mother, saying, “we ... grew up and school was school, you know. It was like, you go to school. I never woke up and was like, oh, I’m not gonna go to school today or anything because ... you didn’t even ask ... you just went to school” (Interview 2-24-06). As one of five siblings, Denise felt the need to distinguish herself and did so through her academic success. She always earned high grades, so much so that when she transferred during high school, the school counselor thought there had been some mistake with her transcript. At home, Denise enjoyed playing school with her four younger brothers, and she was always the teacher. Based on these positive experiences with education, Denise always thought she would become a teacher.

Denise applied to several colleges, many of them Historically Black Colleges and Universities (HBCUs), and was accepted at every one. She planned to attend a college in William City but was short \$1600 for her first semester so her grandmother held a raffle and raised the money. As she was the first in her family to attend a four-year institution, the raffle was an enormous success. She explained, “People was buying like a hundred raffles” (Interview 2-24-06). In college, Denise worked hard because “I don’t want to disappoint all these people when they sent me here” (Interview 2-24-06). She studied

biology and considered medicine, pharmacy, and laboratory research before returning to the idea of teaching. In the spring of her senior year of college, Denise applied to William City's teaching residency program, an alternative certification route, and was accepted. She started teaching full-time and enrolled in a Masters in teaching program at a local university.

Denise began teaching at a large comprehensive high school which contained several smaller learning academies. She worked closely with a supportive department chair and more seasoned science department teachers. Denise also talked with other teachers in her residency cohort, sharing classroom struggles and teaching resources. She was responsible for biology, a subject which culminated in a high-stakes statewide exam, and her students performed well at the end of the year. Despite a number of changes over the course of the year, at the end of the study Denise intended to continue on as a teacher in the William City schools, learn to teach Advanced Placement biology, and ultimately become a school administrator. In fact, she ranked "become a principal" as very likely, a five out of five, on the district-wide survey. Denise's dedication to education and high regard for the educational system shaped her professional path toward *integration*.

Although Matthew spent his early years in a suburban community outside of Washington D.C., he attended an international school in Kenya from 4th through 9th grade while his father served as a government accountant there. Although Matthew described himself as a class clown, he remembers two teachers who "took me under their wing" (Interview 2-6-06), bringing him along on a four-day safari. This sparked a deep and lasting interest in wildlife biology and his family worked hard to foster this enthusiasm during their time abroad, taking weekend trips into the bush. After returning to the United

States to complete high school, Matthew was less successful academically, a change he attributes to the different expectations of his new peer group.

Matthew's father helped him to select Colorado State University for its strong wildlife biology program, but after his first year he transferred back to Virginia Tech for the in-state tuition. However, he loved Colorado and told himself that he would return later in life. After college he tried working in the wildlife management field, doing office work for a non-profit organization and field work with endangered species. However, these were both seasonal positions and he continued to spend his summers working with kids at camps and State Department international programs. He loved working with children and decided to pursue work in that field. He explained:

I love working with the kids. I've always wanted to work with kids ... so when I was doing this wildlife stuff I'm thinking, man, I'm not that into wildlife ... I love hiking. I love all that stuff. I can do that stuff on my own ... But ... I really like working with kids ... I always had a connection with them somehow. I felt like I was making a difference in their lives. (Interview 2-6-06).

Matthew wanted longer-term contact with kids and decided to enroll in a Masters Certification program in William City. The choice of teaching also pleased his father, who wanted him to have a stable job. He explained that teaching was "a good fit for me because they're happy and I'm happy ... it's respectful ... you're educating people" (Interview 2-6-06).

Matthew worked for two years at a different high school in William City, then transferred in order to find a more supportive work environment. During the study, Matthew served as an environmental science teacher in a small restructured high school where, as a third year teacher, he was one of the more senior staff members. While he contemplated moving out of urban education and into the suburban schools, Matthew

never questioned his decision to enter education. He hoped to someday become a department chair, supporting other teachers in their efforts to carry out field trips and environmentally-oriented projects with their students. Matthew ranked “mentor other teachers” as a very likely career path, a five out of five, on his survey. Matthew selected teaching as a stable job that worked with both kids and the environment, a good fit for his interests and a solid middle-class occupation. He planned to stay and ultimately move up within the educational system, following the career direction of *integration*.

Mitch grew up in a military family, moving from Maine to Virginia, Georgia, Mississippi, Alabama, and finally Nebraska. His father started as a computer technician for the Air Force, but later completed his college degree and moved up to high-level computer security. As a child, Mitch was close with his teachers, relationships that he maintains to this day. He was also successful academically. He described how he beat out the competition for the highest scores in the eighth grade and ultimately graduated as the valedictorian of his high school class. Mitch dreamed of being a teacher, but his family discouraged it. He said, “And we had to do a report on jobs when we were in 8th, and I did it on elementary school teachers because that’s what I wanted to be. Well, my family and others just kept saying, well, you’re gonna waste yourself if you’re a teacher” (Interview 3-8-06).

Mitch originally planned to attend the Air Force Academy, but because of health problems was forced to give up his scholarship and attend a local commuter college in Omaha, Nebraska, where he continued to live at home. He completed a dual degree in biology and chemistry and planned to attend medical school, but was concerned about the compatibility of medicine with family life. Moreover, Mitch still held onto his dream of

becoming a teacher. After college, Mitch enrolled in a doctoral program in chemistry, selecting Clemson University because their strong chemistry education program. He hoped that he could improve science education in this country through his research. During graduate school, Mitch learned about Teach for America and became interested in its mission. However, his parents were not supportive. Mitch explained, “My parents really were against me going into Teach for America, really, and I just said, I’m doing it ... I have to do this because it’s something that I need to know” (Interview 3-8-06). After graduate school, Mitch joined Teach for America to test out his lifelong dream of being a teacher.

Mitch took a position at an all-girl’s magnet school in William City. As a magnet, this was an unusual placement for a Teach for America teacher, but the school was very impressed with his subject matter credentials. Mitch was one of the only novice teachers in the school, but he formed strong friendships with a number of his more veteran colleagues. After his second year at the school, Mitch left to try out teaching at a Knowledge is Power Program (KIPP) high school in a rural area near his family. Despite continued pressure from his parents, Mitch planned to stay within the KIPP movement and ultimately move into some form of educational leadership. Although Mitch took a more circuitous route to the classroom, earning a PhD before beginning to teach, he also followed a path of *integration*. He valued his own teachers, held lifelong dreams of becoming a teacher, and ultimately found his way past the external pressures to work in the classroom.

Participation

Alexandra, Charlotte, Raya, and Talisha came to teaching with the idea that they would contribute for a while and then move on to other occupations. All of these individuals had unique background experiences and entry points, but came to the idea of teaching later in life. As opposed to Denise and Mitch, who as children dreamed of becoming teachers, these individuals were college students or adults when they made the decision to teach. They did not consider teaching to be their lifelong career, but rather one step in a complex career path. Finally, these case study teachers were oriented outside of the educational system. Three of the four planned to seek their next job outside of the educational system and the fourth already left. The urban science teachers entered the classroom not with the idea of *integration*, but rather the intention of simple *participation*.

Alexandra grew up in an affluent suburb of New York City and attended a science and technology magnet high school. From an early age, Alexandra was interested in both science and the arts and hoped to find a way to combine the two. For example, she thought she might translate technical material for the theatre. Alexandra maintained an orientation toward these two career directions, alternately considering medicine, psychology research and off-Broadway stage management. She never considered teaching, but when she found herself in her senior year of college without a job for the fall, Alexandra decided to apply to Teach for America. She saw Teach for America not as an ultimate career direction but rather as a temporary holding pattern. Alexandra explained that teaching would allow her two more years to figure out what she wanted to do with her life.

Alexandra was placed in a large comprehensive high school in William City, a place where she found some support within the science department but much anonymity in the school as a whole. She began dating a fellow teacher in the history department, a relationship which ended toward the conclusion of this study. She also started working toward her Masters in teaching. At the end of her second year, Alexandra felt stressed by the responsibilities of the job and frustrated with the lack of commitment from the students and parents. After considering leaving teaching altogether, she ultimately decided to move to a charter school in William City where she took on a technology coordinator position with a reduced teaching load. Alexandra stayed beyond her two-year Teach for America commitment because she was not sure where else to turn, explaining, “My biggest issue, the reason I don’t just say I’m gonna drop it at the end of the year and just move on is because I don’t know what I want to do. I’m running into the typical 20-something, what am I gonna do with myself?” (Interview 3-27-06).

Alexandra used her time in the classroom to help her figure out where to go next. She never intended to move up within the educational system, ranking “school principal” and “work at the district or state level” as not likely career directions on the survey, both one out of five on the Likert scale. Instead, her experience working in urban schools sparked an interest in public health, “Whether it be kids getting pregnant or just people getting a cold and how it transfers so quickly ... I think [teaching] helps me see the public health end of it” (Interview 12-11-06). She planned to stay in William City and begin working toward a Masters in Public Health at the district’s expense. Then she planned to leave teaching and the educational system as a whole to pursue a career fighting disease in human and animal populations. Alexandra came to teaching as a

temporary position, used her time in the classroom to figure out her career directions, and once that was settled aimed to leave the educational system entirely. In this way, she intended to *participate*.

Charlotte was born in Mobile, Alabama into a highly scientific family, counting five engineers, one chemist and one marine ecologist relative. She was interested in science from an early age, explaining, “So there’s no way out of that one ... I was ... a born ... scientist type. From ... day one I was always really into math and ... science. Even my hobbies were science. I was very into ... exploring things.” (Interview 2-7-06). Charlotte described how, as a student, she always talked to teachers as if they were her peers because she never learned any other way. As a young teenager, Charlotte decided that she wanted to attend boarding school and applied out of state to a science and math-oriented academy with PhD faculty and a college curriculum. During high school, Charlotte became frustrated that scientific subjects were made to seem unnecessarily difficult, explaining, “I hated my physics teacher, I hated the class ... it seemed really weird to me. ... It wasn’t that hard, but he made it hard. ... He made it harder than it needed to be” (Interview 2-7-06). She believed that because scientific subjects were complex, a teachers’ job was to make them comprehensible.

Charlotte attended Georgia Tech, where she majored in physics and served as a calculus instructor. Following college she enrolled in a doctoral program in astrophysics. She always thought she would become an academic, explaining, “My plan was always to ... finish my undergraduate degree, go get my masters and my PhD and spend the rest of my life in academia, doing research and maybe occasionally, begrudgingly having to teach ... an undergrad” (Interview 2-7-06). However, after two unhappy years in Baton

Rouge in a doctoral program at Louisiana State University, Charlotte changed her plans. She decided to leave with her Masters and transfer to a different institution for the remainder of her degree. Seeking a temporary position which would make her time out of academia look legitimate and also make a positive impact on science education in this country, Charlotte decided to teach high school for two years. She enrolled in the teacher residency program in William City because she had a friend who lived there. Charlotte explained that most people who knew her were shocked by her decision, it was “an unusual thing for me to do” (Interview 2-7-07).

Charlotte started teaching in William City’s alternative high school because it was the only physics position she was offered, but when the school was shut down at the end of the year she moved to the city’s top math and science magnet school. She briefly considered staying on in education, but by mid-fall in her second year had decided to return to graduate school as planned and started working on her applications. At the conclusion of the study, Charlotte had completed a first round of applications for doctoral programs in mathematics. If she was not accepted in the first round, she planned to teach one more year and apply more broadly the following year. Charlotte was always interested in science and never intended to teach at the high school level. In her initial survey, she indicated that she was very likely, a five out of five, to “change to a non-education-related field”. However, when she needed a temporary position it met her needs perfectly. She taught for a short time, but ultimately planned to leave the educational system.

Like Mitch, Raya grew up in a military family, moving every two years to bases around the United States and abroad in Germany. She always attended public schools,

even when she and her siblings were the only White students in predominantly African American rural schools. She spent her high school years in a very large suburban high school outside Los Angeles, California. Raya was active in sports, sang in the chorus, took honors courses and graduated at the top of her class. Growing up, she never planned to become a teacher, commenting, “I was never interested in becoming a teacher because they were really boring people. They weren’t very interesting to me” (Interview 1-30-06). Raya describes herself as a Victorian naturalist rather than a 21st century scientist. She studied marine biology and earned a Masters degree in science writing at the University of California. Her varied two-decade career included work on a boat as part of the Merchant Marine, followed by positions as a journalist, director of communications, television science producer, and developer of interactive media.

As part of her work in interactive media for the Discovery Channel, Raya enrolled in courses on instructional technology and began developing an interest in teaching. She lived in William City and started exploring the city schools, sitting in on classes and reading books on urban education. Based on these experiences, Raya decided in her mid-40s to make a career move into teaching. She explained that she had a full and satisfying career and now was the time to give back. Raya described teaching as her Peace Corps, explaining “This was my Peace Corps duty that I was gonna spend a few years doing this inner city teaching” (Interview 12-11-06). Raya took a 50% pay cut, enrolled in a local Masters in teaching program, and started teaching at a small restructured high school in William City.

In her new role as a classroom teacher, Raya maintained the same opinion of other teachers. In describing her colleagues she commented, “They’re not very interesting

... they don't read, ... they're just not very lively minded" (Interview 1-30-06). Raya believed that teachers need a couple years of experience before they are able to give back in the classroom, and it frustrated her to see her younger colleagues leaving after only one or two years. She intended to stay longer – but not forever. First, she was adamant about wanting to remain in the classroom rather than moving into administration, turning down several opportunities to move in that direction. She ranked “become a principal” and “work at the district or state level” as not likely career directions, one out of five, on the district survey. At the conclusion of the study, Raya planned to teach for a while longer and then move out of the educational system into some form of educational consulting. Raya's interest in contributing socially for a limited period of time, her opinion of career teachers, and her long-term plans to move out of the educational system put her in the *participation* direction.

Talisha grew up in a racially mixed neighborhood in what she describes as the “good part of the Bronx” (Interview 1-6-06) in New York City. Her mother worked at a daycare center and her father served as a police officer. Talisha was close with one aunt, the only college graduate on her mothers' side of the family, and aspired to be a nurse because she knew women became nurses. However, her father pushed her to become not a nurse but a doctor because they earned more money and respect. When the time came to select a high school, her father encouraged her to attend a biomedical research track at a neighboring high school. Talisha received tremendous support in this program, which she called a “microcosm” within the larger school system (Interview 1-6-06). She spent her summers at a boarding school in New England doing college-level academics and was received tutoring to increase her scores on the Scholastic Aptitude Test (SAT). For

college, Talisha enrolled at Wesleyan University, where she studied biology and African studies.

Although Talisha dreamed of attending medical school, she wanted a back-up plan and enrolled in the combined program to earn both a Bachelors and a Masters degree. In this program, she became involved in cutting-edge genetics research. After graduation, Talisha was in the process of studying for the Medical College Admissions Test (MCAT) when she became pregnant with her son and decided to forgo medical school and instead enter pharmaceutical research, which she perceived as a more family-friendly career. Talisha followed that career path for several years, in a variety of positions, but ultimately became unhappy with the direction of her job because she starting spending more time behind the computer and less time in the lab. She was almost thirty, hoping to have a second child, and ready for a career change.

Her husband, a math teacher, had a connection to the William City Pride School, a small reform-oriented academy, and Talisha came to visit. She perceived this school to be a supportive microcosm within the larger system, like her high school's biomedical research track, and accepted the position without any formal teacher preparation. Talisha believed this job would allow her to help students develop science skills while still providing time for her to spend with her family. However, she explained that the dream of medical school was not gone, simply on the "back burner" for the time being (Interview 1-6-06). Talisha taught one year at this school, then left for a position working in a mobile educational lab, which offered her more money and complemented her interest in laboratory research. Plus, she explained, "in six years I'll be 40, and I don't want to be a teacher when I'm 40, I don't want to say that I'm a teacher when I turn 40"

(Interview 9-8-06). Even in this new position, the idea of medical school continued to surface and she once again considered a switch to medicine or nursing. Talisha followed the career path of wanting to *participate*, coming to education late in life, not wanting to portray herself as a teacher, and staying only a brief period.

Analysis

Each of the eight case study teachers had unique entry points, experiences, and career directions. However, they followed one of two general paths, either wanting to *integrate* or wanting to *participate*. These categories, which are based on their ideas about teachers, teaching, and the educational system, grew out of their background, were often manifest in their motivations for teaching, and shaped their ultimate career direction. It was almost as if these case study teachers operated within a particular paradigm (Kuhn, 1962), only aware of career alternatives either within or outside of the educational system. Although other alternatives existed, their particular perspectives on teaching allowed them to see only the possibilities that lay ahead on their career path. These findings echo related work showing that initial commitment and early experiences are central to models of teaching careers (Chapman, 1984; Chapman & Hutcheson, 1982).

This is certainly not the first study to identify career trajectories for teachers. Weiner (1993) identifies a related notion about how teachers, and urban teachers in particular, view their professional lives, namely teaching as a job versus teaching as a calling. Similarly, Johnson (2004) identifies exploring and contributing as contrasting orientations for this current generation of teachers. The latter notions even allude to the short-term and long-term orientations of different teachers (Peske, Liu, Johnson,

Kauffman, & Kardos, 2001). However, these notions of *integration* and *participation* build upon prior notions while remaining distinct in one very important way. These trajectories recognize that these urban science teachers held multiple and complex priorities for themselves and their students. It accepts that all eight of the case study teachers, however long they intended to stay, hoped to make a contribution through serving a high-need community. However, these career paths suggest that one sub-group of teachers intended to do so as part of their primary occupation, while another sub-group saw their contribution as a detour from their ultimate career direction. These career paths are not distinguished based on teachers' goals or intentions, rather they concentrate on their relationships with the larger educational system.

The case study teachers who wanted to *integrate* were distinct from those who planned to *participate* in a variety of ways. First, they emerged from somewhat disparate socioeconomic backgrounds. Those who wanted to integrate came from disadvantaged or middle class backgrounds and appeared to hold middle class aspirations. On the other hand, those who wanted to participate came from middle or upper class backgrounds and seemed to have more upwardly mobile professional ambitions. One exception to this pattern is Talisha, who came from a working class background but wanted to teach for a short period. However, Talisha was ambitious from a young age and spent 10 years working as a professional before entering the classroom. Just as the social class of students and parents impacts their experience of schooling (Lareau, 2000), so the social class and professional ambitions of teachers also appeared to make a difference for these teachers. This seems to parallel workforce patterns internationally, as countries where teaching is considered to be high-status have more teacher recruits than countries where

teaching is losing status (Alliaud & Davini, 1997; Wang, 2004). Second, these two groups of teachers varied in their opinions of teachers and education. Those who wanted to integrate were raised with a respect for teachers and education, whereas those who wanted to participate either disparaged teachers or did not give them much thought at all. The first group aimed to work within the system, the latter perhaps to fix it (Bulman, 2002). These underlying opinions and respect for teachers, teaching, and the educational system appeared to matter for their experiences in schools and ultimate career direction.

There were also two surprising areas of overlap between the two groups. First, despite a common assumption that alternatively certified teachers tend to leave the classroom (Boyd, Lankford, Grossman, Loeb, & Wyckoff, 2006), these career paths did not appear to align with certification route. Alison and Matthew both completed post-baccalaureate university-based teacher education programs which required a large investment of both time and money. Perhaps because of this initial investment, they were both oriented toward *integration*. However, the remaining six teachers were all alternatively certified and fell across both the *integration* and the *participation* categories. This complicates popular notions about alternative certification, for both Mitch and Denise completed alternative certification programs but wanted to be teachers. Moreover, two of the four teachers in the *participation* category – Alexandra and Raya – completed Masters in teaching degrees while working as teachers, but planned to ultimately leave the educational system. Therefore, teacher education route and investment in teacher education does not appear directly linked to these categories and career paths.

Second, these categories challenge traditional notions about gender. While teaching is often considered to be women's work (Biklen, 1995) and the majority of

teachers continue to be women (Murnane et al., 1991), both of the men who participated in this study fell into the *integration* category. Mitch in particular dreamed of becoming an elementary school teacher, a heavily female field, and Matthew felt he had found a respectable career in teaching. While science education is traditionally less female-dominated, it remains surprising to find both of the male case study teachers following the *integration* career path.

These career paths remain important in a variety of ways. This chapter presented the overall career model for these urban science teachers and introduced the two groups of teachers. The following chapters focus in on specific aspects of this model. Chapter Five shows how teachers' perspectives impact their experiences and relationships in the school context. Chapter Six illustrates how teachers' ongoing evaluation of career alternatives is shaped by their particular path. Chapter Seven demonstrates the ways in which teachers in both groups seek professional confirmation before moving on professionally. In each of these chapters, I highlight the experiences and perspectives of two to three teachers in an effort to present an in-depth narrative of each teacher at least once. The experiences of the remaining case study teachers are described in a brief overview in each chapter. I selected the narratives of specific teachers with two purposes, to clearly illustrate the larger point and to describe a range of experiences that nevertheless follow the same pattern. Because these career orientations are so central to these teachers' career direction, they are used to organize the narratives in the upcoming three chapters.

Chapter Five: Constancy

These urban science teachers entered the classroom with particular backgrounds, motivations, and paths into teaching. These entry points put them on particular paths through the profession, some who wanted to be teachers and some who wanted to teach. These paths shaped the teachers' experiences in schools as well as their ultimate career directions. This chapter focuses on one specific aspect of the overall model, in which urban science teachers' experiences and relationships in school contexts vary according to their career path (Figure 8). This portion of the model speaks to the constancy of these paths throughout the case study teachers' interactions within the school context. The experiences of the case study teachers illustrate the ways in which orientations toward teaching remained a relatively static foundation upon which individuals interpreted workplace experiences and constructed long-term career plans. While day-to-day interactions certainly impacted the case study teachers, their experiences were filtered and understood based on their particular perspectives on teaching and the educational system.

A substantial body of research addresses the role of workplace conditions in teacher retention (e.g., Dworkin, 1980; Rosenholtz, 1989b; Theobald, 1990), demonstrating the importance of variables such as school size, demographic makeup, organization, culture, and support in teacher satisfaction and retention. The findings from this study do not contradict this existing research. Instead, they argue for the importance of also considering the role of teachers' orientations toward teaching in understanding their experiences and career paths, and for this reason the model depicts career path as the central factor shaping career direction either within or outside of the educational system.

This work does not challenge earlier findings, rather it adds to them. It stresses the central position of career route as a mediator between entry points, school context, and ultimate career direction.

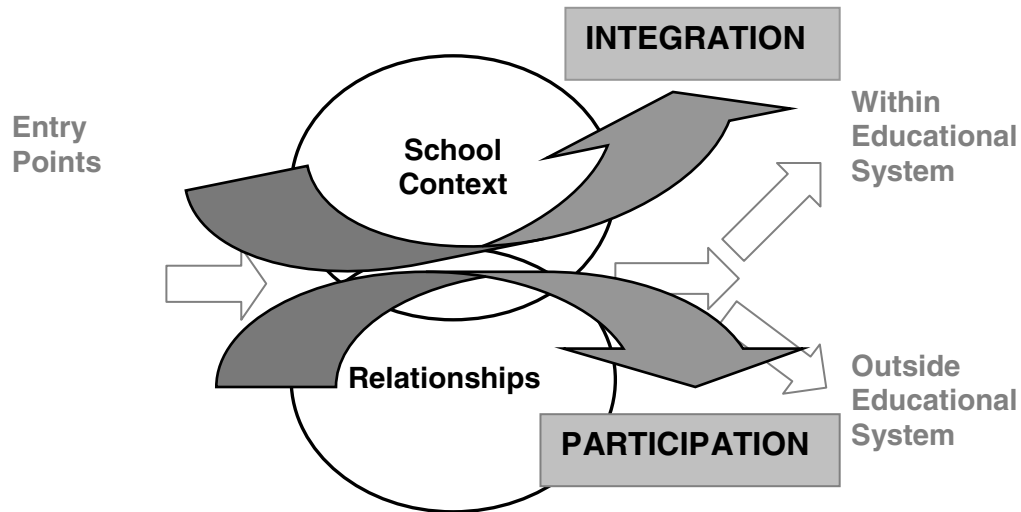


Figure 8: Experiences

This chapter is organized around the two orientations toward the profession, integration and *participation*. I provide in-depth narratives based on the experiences of three of the case study teachers, Alison in the *integration* direction and Charlotte and Raya in the *participation* direction. For each of these teachers, I draw upon interview and observation data to illustrate the ways in which their experiences in schools differ based on their paths through the profession. These three case study teachers were selected for in-depth analysis in this section because they illustrate a range of experiences, with Alison prioritizing school-wide reform, Charlotte focusing her attention on subject matter, and Raya emphasizing curriculum design and instruction. In addition to the three

teachers highlighted in this chapter, I also intersperse the experiences of the remaining five case study teachers in a more general sense, again organized around their particular path through the profession. Although the case study teachers had multiple and complex experiences in school contexts, these narratives highlight their participation in professional activities, relationships with colleagues, and relationships with students. The first two aspects of the school experience were attended to because they directly informed the research questions, particularly the ways in which teachers participate in professional communities. Relationships with students was also relevant to the research questions but became a particular focus of the study when they emerged as centrally important to the experiences of many of the case study teachers.

Integration: Alison

As previously mentioned, Alison grew up with positive educational experiences, always thought she would become a teacher, and pursued traditional university-based teacher education. She came to teaching with an orientation toward *integration*. Alison's experiences and relationships within her school context were filtered through this orientation in a number of ways. Despite ongoing upheaval in her workplace context, Alison remained committed to her school. Her first year, Alison started as a chemistry teacher at a large, comprehensive high school. She explained that teachers only took responsibility for students within the walls of their classroom, ignoring the larger school culture. She commented, "You didn't have any of the control over discipline and what happened to your kids. ... The school was so big. No one really did much of anything and the kids kind of ran the building" (Interview 5-16-06). At the end of the year, the school district broke this large school into several smaller learning communities and Alison

opted to stay on at one of the break-out schools focused on medical careers. She felt that the school climate was significantly improved by the break-down and became actively involved in reform initiatives. She believed that because this school was new, it allowed for greater teacher investment, commenting,

I think in other schools and other districts ... I don't think that they're having the same initiatives ... so, I don't think that you have ... the need to have a whole school improvement plan. I think things are already going well. I think in other schools, things are already well established and ready to go, so because this is a new school, I think that that makes... people ... active. (Interview 5-16-06)

When I met Alison at the beginning of the study, she appeared to be integral to the daily functioning of her school. She was involved in leading daily professional development sessions, held from 7:30-8:30 each morning before the official school day. In this role, she designed an advisory curriculum and crafted a consistent school-wide discipline policy. Alison also sat on several committees, including the School Improvement Committee, the Student Support Team, and the Instructional Leadership Council, in addition to serving initially as an informal and later as the official content leader for science. Alison eagerly helped out with administrative tasks in an effort to build goodwill among the office staff, explaining:

I try and go in and make sure I help out the office people ... I've always been like that. When I worked in a restaurant, I always went back and helped the cooks, and I always went and helped the hostesses because they're the ones who determine your life as a waitress. It's the same way here ... you don't realize how much [the secretaries] run the building. (Interview 6-8-06)

Finally, Alison was a general go-to person for her principal, willing to assist with projects as needed. For example, despite the fact that she was not a school counselor, Alison was asked to help prepare for an audit of guidance folders, a large-scale reorganization of school records for hundreds of students in order to meet current state requirements.

Alison spent numerous planning periods, weekends, and even some of her spring break working on this project. She received a small stipend, but commented that while the money helped, she put in the time in order to support her school. Alison said, “I don’t mind doing it ... It needs to get done and I don’t like it when our school fails things” (Interview 4-18-06). On the survey, the case study teachers reported participating in an average of 4.5 professional activities per week. However, Alison reported double that commitment, reporting a total of nine professional activities each week. Given her tremendous efforts on behalf of the school, it is not surprising that Alison received the award for “Best Team Player”.

Perhaps because of her commitment school-wide, Alison was less focused on her classroom. At the start of the study, she was in her third year of teaching and had already developed her lesson plans. At this point in her career, Alison felt confident simply pulling an existing lesson plan from her binder. In fact, what concerned her most was how to properly fill the time during class so that her students would not have any free time. She commented, “I hate free time” (Interview 5-16-06). In talking about her final exam, Alison worked hard to assure that it would be long enough to fill the allotted two-hour exam period. She explained:

I’m not gonna give an exam that’s gonna last 45 minutes ... My tests are long. My tests are usually 200 questions. But ... the questions are so easy ... Half of them are ... you look at a periodic table, and it’s like what’s the symbol for iron?... And they just have to look it up ... I put in ... reading passages ... [with] really easy questions ... but you just have to take the time to go back and look, just to kill time ... I always put in a word search at the end so that the kids ... who finish early have something to do. They like word searches. (Interview 5-16-06)

In her fourth year of teaching, Alison described her biggest concern instructionally as managing

the transition from 90 to 45-minute classes and figuring out how best to fill the period.

In her classes and throughout the school, Alison was committed to helping her school reach official benchmarks and measured her own progress based on these goals. For example, Alison was invested in helping her school meet the attendance requirement for Adequate Yearly Progress (AYP) as determined by No Child Left Behind (NCLB, 2001). At one point, she expressed frustration because the federal guidelines did not recognize her school's considerable improvement:

There's no way this population of kids is going to go from 60% to 94% attendance. It's never going to happen. No population of any kids at 60% is going to make 94. They're not going to make 90. You should've been hugely impressed with 80%. Maybe 80 to 85, but it's always 94, that's how you make AYP and we never make it because of that. But our kids were at about 80, 79 our first year, then the next year 82, we're getting better each year. (Interview 10-4-06)

Alison also measured her success in the classroom based on district guidelines. During one classroom observation, Alison showed me her grade book and explained that she was pleased because the district required a 75% pass rate and her students met that requirement. She appeared to value these official goals and work toward them both in the classroom and school-wide efforts.

At the end of her third year of teaching, the district once again made changes to Alison's teaching context. They decided to sell her school building and move her school to a nearby location as part of a district-wide plan to save money through streamlining facility use. However, the school building was not entirely ready when they arrived in late August. The boxes were delivered just days before school started, without sufficient time for unpacking. Alison and several other teachers stayed until 10:00 at night the week before school started to prepare the building. Once school opened in the fall, things continued to remain unsettled. Alison explained that there was great confusion on the first

day of school and in an effort to manage chaos teachers were told to get students into seats and keep them there for the remainder of the school day. There was no cafeteria in the building and the district trucked in boxes of food for students. All teachers were now asked to share rooms and move their belongings around between class periods; several teachers worked in portable classrooms that leaked in the rain. Moreover, capital improvements, which were originally promised by the beginning of the school year, were now slated for completion the following fall, a full year late. Despite the considerable disruption and additional work required by the move, Alison remained positive about her new work situation. She noted, “I think it’s gonna be good. I think everything’s gonna get better” (Interview 9-6-06). She saw the benefits of the move, including a newer building, a swimming pool, albeit currently out of service, and the potential to develop a laboratory setting for teaching medical skills in support of the school-wide medical theme. Throughout the course of the study, Alison was committed to her school site and active in school-wide reform, despite ongoing interruptions.

Alison was also deeply invested in and positive about her professional relationships. She had a very close relationship with her principal, who she considered a mentor and a source of support, explaining, “I feel like most of the time, any time I have a problem, Dr. Johnson supports me” (Interview 6-6-08). Alison respected her principal because Dr. Johnson gave Alison the autonomy to become involved in the school, explaining, “She’s willing to take suggestions and she’s willing to think about things because she ... knows that she doesn’t know all the answers” (Interview 5-16-06). She also noted, “In my three years here, Dr. Johnson has never said to me once, nor have I ever heard it said to anybody else, I’m the principal, and that’s how we do it.” (Interview

6-9-06). From what I observed at an instructional leadership meeting, Dr. Johnson solicited input from teacher leaders, addressed teacher concerns, involved teachers in decision-making processes, and made her reasoning transparent so they could understand how and why she made decisions. She appeared to use the same approach with parents during a Parent-Teacher Association meeting. The combination of Dr. Johnson's shared leadership style and Alison's investment in school-wide reform efforts resulted in a tight relationship. Alison valued her principal to such a degree that if she had been offered the promotion to mentor teacher at another school, she would have passed it up to stay on at her current school.

Despite her close relationship with the principal, Alison butted heads against a new assistant principal who came on in the fall but did not initially understand Alison's central role in the day-to-day operations of the school. Alison and a close friend, Dana, worked over the summer putting together materials for use school-wide, including a letter to be sent home regarding excessive student absences. According to Alison, at an initial staff meeting the new assistant principal revised the letter and handed it out to teachers without crediting them for their work. Alison described herself as "frustrated and angry" (Fieldnotes 8-24-06) regarding the incident. She ongoing continued conflict with this assistant principal as the year progressed, including one situation in which the assistant principal asked Alison to do an extra hall duty. Alison protested and explained that the assistant principal then used her authority, replying, "I'm just asking ... as your administrative personnel" (Interview 9-6-06). This infuriated Alison and harsh words were exchanged. As the year progressed, Alison and her assistant principal came closer to understanding each other, but Alison's vision of herself as central to the functioning of

the school shaped both a tight relationship with the principal and a clash with the assistant principal.

Alison's orientation also played out in her relationships with colleagues. Alison described the faculty at her school to be divided into three groups, the "older teachers" who were not highly engaged, the "core" teachers who were involved with schoolwide reform efforts, and, although they were only a year or two younger than her, the "new kids" who were still learning and unlikely to stay long (Interview 4-18-06). She placed herself in the "core" group of teachers. Alison was especially close with one English teacher, Dana, and they collaborated on school-wide efforts such as the discipline plan and guidance folder audit, working together on the weekends and over the summer on school-related projects. However, despite her close friendship with Dana, Alison experienced tension with other teachers who were less invested in school-wide success. Alison described one incident in which a student threatened to "snuff" another teacher (Interview 10-4-06). The teacher took the threat seriously and threatened to quit unless the student was removed from his class. Other teachers, including Alison, thought the teacher overreacted in order to prove a point and backed the principal's approach of conferencing with the students' parents instead. Alison's perception was that this teacher was less committed to the school and more committed to his own well-being and this caused a rift in their relationship.

Finally, Alison nurtured strong personal relationships with both students and families. Alison was close with a number of students, both in her classes and across the schools. Her classroom was filled with glamorous photographs of students and they poured in to visit her between classes. During one observation, I noticed a student who

offered to sweep Alison's floor just so that she could spend time in Alison's room. When asked about the most important aspect of her job, Alison replied, "talk to the kids ... on a little bit different level ... talk to them about something that's happening at home or ... who they're living with now ... Try and relate to my kids" (Interview 5-16-06). Alison described one instance in which she attended a school dance, took photographs of students, and handed them out in class in order to make a connection on a personal level. She also explained how she advocated for special needs students who complained that they were not getting the accommodations they needed in French class. On one occasion, I joined Alison at an after-school softball game, which she attended to support her schools' players. Although only a few of the girls were in her classes, Alison knew the name of everyone on the team. I observed her use this informal opportunity to talk with students about missing her class and connect with a parent about a student's academic difficulties, a conversation which concluded with the mother giving Alison her cell phone number and telling her to call anytime.

Alison's orientation toward teaching was certainly not the only factor influencing her experience in the school context. The availability of opportunities for teachers, the strong leadership of the school principal, and the makeup of the faculty certainly played a role in shaping her work in school. However, Alison's experience in the school appeared to differ from those who took the other career path. She was highly invested in the success of her school, close with administrators who allowed her a voice, and divided from other staff less involved with school-wide initiatives. Her positive orientation toward the school system also shaped her process of career decision making. Alison was clear that despite her closeness with administration, colleagues, and students, individual

relationships did not shape her career decisions, at least not in the long term. Alison explained:

When things are going well with Dr. Johnson, it makes it easier to stay. Same thing with Dana. ... But I think if I'm not here and she is here ... I still think we'll hang out and I don't think that'll really affect us ... I think with the kids ... there's always gonna be relationships and if you wait for the relationships with the kids to stop you ... you're not gonna ever get out of here ... I mean Dr. Johnson and people here would be a reason that I would stay ... one or two years. It wouldn't be the reason I'd stay for 15, 20 years. (Interview 12-6-06)

Instead, her positive feelings about change in the system kept her there year after year.

Despite high teacher turnover, Alison stayed on, moving from a classroom to a mentor teacher. She explained that she made her decision year by year, based on the possibilities the new school year would bring:

As the year comes to an end, I try to figure out what I liked and what I didn't like ... If I feel like what I didn't like is gonna change or could get better, then I choose to stay. If I feel like what I didn't like is only gonna get worse, then I ... start thinking about doing other things. Because every year up till now, the things that I didn't like about the school [changed]. (Interview 12-6-06)

Alison saw possibility in change and a reason to continue working within the educational system.

Integration: Denise, Matthew, and Mitch

Although they worked in a wide range of school environments, the other three teachers who followed the *integration* career path had some similarities in their school experiences and workplace relationships. These teachers were invested in the educational system and looked for opportunities to become involved outside of the classroom. They formed relationships with administrators and colleagues who were equally invested in educational success. And all of these teachers had close bonds to students. Together, these qualities characterized the school experiences for those case studies who aimed to

participate. This section will briefly describe the school experiences and relationships for Denise, Matthew, and Mitch.

Denise was in the middle of her first year of teaching at the start of the study and busy developing lesson plans and taking graduate courses toward her Masters degree. However, she found the time to become involved in her school and take part in several learning opportunities. In the spring, Denise was more than willing to give up her Saturday mornings for test preparation sessions just before the statewide exam. She was also involved in social events for her learning academy, planning a regular benefit night for her students at a local diner and securing donations for a silent auction. Over the summer, Denise tutored elementary school students but also participated in two professional development workshops, one focused on preparing her students of the statewide biology exam and the other for teaching about ecology in the classroom. In fall, Denise volunteered to coach cheerleading three afternoons a week, took classes toward a Masters degree, and offered tutoring for her students, which together filled all of her afternoons. She commented, “I like the sports thing” (Interview 12-4-06) at her school and spent time not only coaching but also cheering on her student athletes.

Denise explained that she had mutually supportive relationships with a number of her teaching peers. In particular Denise had strong friendships with other new teachers in her teaching residency cohort, commenting “I ... collaborate with other people ... When I get there I usually say ... I’m doing this unit. What did ya’ll do for this? So we ... talk, we’re nice to each other, ... we share information and resources and pick each other up” (Interview 4-24-06). Moreover, when Denise had a conflict with her academy principal, she turned to her residency cohort for support managing the politics of school, and based

on their suggestion started documenting all of their interactions. Within her school, Denise was also close with her department chair, commenting, “She’s ... very supportive. I mean she’s wonderful. I love her” (Interview 3-23-06), and turning to her for lesson ideas, material needs, and political support.

Finally, Denise described personal relationships with a number of students, explaining, “I have a few that ... cling to me” (Interview 1-23-06). When I walked through the halls with her, Denise was bombarded by calls of “Hi Miss Sargent!” She explained that there were a number of students who came by her classroom before school, between classes, and after school just to talk with her. And when asked about the most important parts of her job, Denise mentioned listening to and supporting students.

She said:

Listening to those kids! [laughter]... Building ... self confidence ... Once they believe that they can do it, then they’ll probably be able to do anything. But I think they [think] oh, I’m just gonna fail so I don’t even try, instead of believing that they can do it ... Building self confidence and just being a good listener. (Interview 3-23-06)

Over the course of the year, Denise talked about several students who turned around after she reached out to them on a personal level. She explained her experiences with one student:

She’d ... come and just read her books ... I gave her an assignment to read this book called *HotZone* [for] extra credit ... because I knew she liked to read and it was dealing with science ... By showing her that ... I cared about her, now she does a lot more for me ... And, I mean, we’re real cool ... She comes in to sit in my class and talk to me about this stuff going on in her life ... She bought me all types of gifts for Christmas ... (Interview 1-23-06)

Denise’s experiences in schools were characterized by pursuit of professional learning opportunities, mutually supportive colleague relationships, and close bonds to students.

At the beginning of the study, Matthew was in his third year of teaching environmental science. He had always been heavily involved in school activities, but these commitments accelerated as the year progressed. When we first started working together, Matthew had received a grant from a local foundation to build a schoolyard garden and took his students outside regularly to work in that garden. He also planned field trips, including a canoe trip and a visit to the local science museum. Later in the spring he coached the tennis team and over the summer Matthew helped his school move into their new building, packing, moving, and unpacking boxes in excruciating heat. When Matthew returned in the fall his school-based activities had grown exponentially. He led twice-weekly student government meetings, sponsored the science club, advised the freshman class, and served as an assistant coach for the boys' soccer team, in addition to continuing his environmental grants and field trips. He was so invested in his job that his girlfriend noted, "School is our life" (Interview 6-16-06).

Matthew was close with a number of his colleagues. He made an effort to involve the other science teachers in his projects, inviting them to bring their students on his field trips or join his class when he had a special speaker. He was also friendly with several of the other teachers, and he and his girlfriend played on a bowling league with another couple from the school. But perhaps most importantly, Matthew considered himself to be a liaison between the staff and the administration. Matthew believed he could understand both the teachers' and the administrators' perspectives. He described one instance in which he mediated between the teachers and the administration. Several of the teachers were upset because they had been reprimanded for not having emergency lesson plans on file, but they felt these lesson plans were unnecessary because they were never used by

the substitute teachers. Matthew talked with the teachers and the assistant principal and attempted to bring the two closer together:

I'm helping other teachers ... sort of like a liaison between the teachers and the administrators... I'll go to ... Ms. Tucker, the administrator, and be like ... I'm hearing from a lot of teachers about this issue ... Can we fix this? ... I wanted to keep the school as good as I could because I came in here going, wow, this is a great school ... And everybody else was complaining about things. I'm like guys, stop complaining ... We got it good. So then I would go to the administration. Ok, well they have a valid point ... I'm sure your hands are tied behind your back, you can't fix it ... for whatever reason, but I just want you to know what the teachers are thinking right now, and it's not just one teacher, it's many teachers. So I do that kind of stuff. (Interview 4-21-06)

Matthew attempted to improve the climate school wide through offering instructional opportunities for newer science teachers and mediating conflicts between teachers and administration.

Finally, Matthew had close personal relationships with students. He initially went into teaching because he hoped to serve as a role model for male students and he sought out opportunities to interact with students on a personal level. During one observation of his class I noted Matthew joking about dropping by to visit one student's father at work, asking another about his recent ski trip, and complimenting a third on her sister's admittance to college. Matthew described one close relationship with a student on his tennis team which actually became uncomfortably close. He explained, "His mom actually was trying to get me to ... come over once a week ... after ... dinner, ... almost like a father figure ... I was flattered, and then I said no" (Interview 3-24-06). Moreover, Matthew's professional satisfaction was linked to his relationships with students. On one occasion, he became teary talking about how he could not get coverage to see several of his student government officers honored at a city-wide event. Matthew's workplace

experiences were characterized by active involvement in school-wide activities, mediation between teachers and administration, and close personal bonds to students.

Mitch, like the others who wanted to become teachers, actively sought opportunities to become involved in events across the school. In the spring Mitch organized monthly social happy hours for the staff, served as the assistant coach for the trivia quizbowl team, advised the sophomore class, and headed up the school-community partnership. When he started at his new school in the fall, Mitch gave up one of his planning periods to tutor a student in basic math skills, donated another to helping out in study hall, and conducted the school choir. He also took on the leadership of his local Teach for America science learning team, a bi-monthly meeting where the science teachers in his region gathered to share instructional strategies. Some of these meetings involved a two-hour drive to a neighboring town to meet with fellow teachers.

Although Mitch was one of only two newer teachers at his first school, with the majority of the staff seasoned veterans, Mitch set about building a strong community among the staff. He explained:

I know every faculty member, I talk to everybody, and there's people that have been here 20 years that don't know everybody. So I make that a point. I'm friends with ... almost everybody, I go and talk to every department at least once a week so I know what's going on in the building. And I can get people to do things ... People who don't want to do happy hour, most of them will say, you know Dr. McNeill, I'm only doing this for you, I wouldn't do this for anybody else ... I think I've supported a better community at this school. (Interview 5-24-06)

Mitch built social relationships with his colleagues, but he also turned to them for professional support. He worked closely with his science department colleagues to share resources and co-plan. After he received an unfavorable teaching evaluation in his first year, he went directly to his colleagues for emotional support and advice. And during one

happy hour event, I witnessed him initiate a productive conversation about the challenges of working with a particular student. His peers also recognized his success at building community amongst the staff. Mitch explained:

And I feel ... I really support the community in this school. Because someone made this statement ... let me tell you what they said. They said, me leaving after two years affects them more than some teachers leaving after having been here for 30 years! They said, me leaving the school is a huge deal because they said I've done so much for the school culture in 2 years and have been such a benefit to the school in 2 years that it's a big loss. Whereas people that have been here 30 years they wouldn't think twice. (Interview 5-24-06)

Mitch valued professional community and worked to construct it when necessary. One of his reasons for switching to a new school was to find more like-minded colleagues. When asked what he liked about his new school, Mitch commented, "Just the sense of community. I love everybody that works there" (Interview 4-19-06).

Mitch also sought out personal connections with students. One of the bulletin boards in his classroom was filled with photographs of each of his students, their faces inside of yellow stars. He took his top-scoring students to the movies on the weekends. And on the day of their final exam, Mitch gave each student a hand-written card with the quote "Believe in yourself, I believe in you" from the movie *Akeela and the Bee* (Interview 6-14-06). When asked about the most important parts of his job, Mitch explained that he wanted to get to know his students and help them believe in themselves. He explained:

I feel it is very important for me to get to know my students. So I try to spend a lot of time figuring out things about my students so that they feel like I care. Because like two students told me yesterday ... Dr. McNeil, you are the only teacher that really cares if we pass or not. ... We know that you actually care ... I want them to feel that ... I think that means more to me than whether they get a great grade or not. Whether they believe in themselves, or whether they know people believe in them. (Interview 4-19-06)

Mitch's experiences in school were characterized by active involvement in school-wide activities, community building, and an effort to help students believe in themselves.

Participation: Charlotte

Those teachers with an orientation toward *participation* had a variety of experiences and relationships in schools. However, there were certain themes that cut across their experiences. On the whole, these individuals saw classroom work as their primary professional role, saw themselves as separate from the larger community of teachers, and held more professional, rather than personal, relationships with students, as compared with those teachers on the *integration* career path. The next two sections highlight the school experiences of Charlotte and Raya, followed by a brief overview of Alexandra and Talisha, along the *participation* career trajectory.

As previously mentioned, Charlotte's primary commitment was always to subject matter, science and math in particular. When comparing herself to a friend who was traditionally certified, Charlotte explained:

And maybe that's the difference between someone who goes into teaching ... she got degree in teaching and ... she is a teacher ... That's what she wanted to do. I'm not a teacher. That's not what I wanted to be. I didn't go into teaching. I don't have any great love of teaching. I love physics. I'm trying to share that with other people who need it ... I think there is definitely a big difference ... in ... your focus. Is your focus the content? Is your focus the ... the students? (Interview 3-14-07)

Charlotte generally considered herself a scientist as opposed to a teacher. She relayed her experience attending the American Physical Society conference as professional development for her teaching job. At the conference, she attended "lunch with a physicist". When she arrived, one of the seats around the table was marked "Reserved for a Physicist" (Interview 3-14-06) and she joked that she should be the one sitting there.

Charlotte had strong ideas about the way science and math should be taught in the United States and one of her motivators for entering high school teaching was the opportunity to put those beliefs into action. For one, Charlotte disagreed with the inquiry-based approach and found traditional instructional methods to be far more effective.

Referring to physics education, Charlotte commented:

There's this whole push to go from ... the classic physics education where they ... memorize ... formulas, do ... problems, to inquiry-based learning, where you just throw these kids in a lab, and they're like trying to figure out these ... concepts and worry about all this other stuff later ... Well that's even a bigger nightmare for me ... I hate memorizing formulas and I think it's a crappy way to teach physics. But what's even worse, I feel, is throwing these kids in a lab and just saying ... figure this crap out ... [The traditional approach] might not best thing or the most fun or attract the most people in the field, but ... it's pretty freaking effective. (Interview 3-14-06)

Moreover, Charlotte believed her role as a physics teacher was to take complex concepts and make them easy for her students to understand. She explained her philosophy:

You're teaching material that is, by its nature, complex. The whole point of doing that is to make it, well the point of teaching it and not just handing them the book is to be like ... here is this hard thing. Let me make it seem really easy so you understand it ... You can grow on that once you have a good solid foundation. (Interview 2-7-06)

Charlotte entered the classroom intending to share her physics knowledge with high school students during two years in the classroom and then return to graduate school.

This orientation played out in a variety of ways in her school experiences.

Charlotte made career decisions based on this overarching commitment. When she was first accepted into William City's teacher residency program and looking for a school site, Charlotte interviewed at the top science and math magnet school and was offered a position. However, this position included both physics classes and engineering classes. Charlotte reasoned that she was a physicist, not an engineer, and although she

liked the school context and ultimately ended up teaching there the following year, she turned down the position and chose to seek out a physics position instead. At the alternative school, she was offered a physics and algebra combination, which she felt more comfortable with because she had been a calculus instructor during college. She accepted the position, but was furious when she they switched the algebra classes to earth science in the fall, claiming she had been “lied to” (Interview 11-1-05). She only returned to the magnet school in the fall because they could offer her a more complete physics load.

During her time in the classroom, Charlotte concerned herself primarily with instruction in physics. When asked to join a committee, she devoted herself to the testing committee because it had a good reputation. She took the university reading courses required for certification but did not pursue a Masters in teaching. On the survey, she reported only two out-of-classroom professional commitments each week. Otherwise, the majority of her time and energy went toward lesson planning and instruction. Charlotte described how she spent her planning periods:

Anyway, so I plan by reading the text. I make the notes for the day, which is really like a very simple outline of the information that they need ... Sometimes I do ... different things with the notes ... I'll make little concept maps, diagram-type stuff. Some days I put it in a chart. Some days it's just normal notes. Some days it's an outline ... It just ... depends on my mood and the material (Interview 1-4-06).

During her time at the alternative school, most of her time went toward creating an initial set of lesson plans. When Charlotte switched to the magnet school, she started spending hours after school every day offering extra help to struggling students. She explained that she stayed after school for one and half to two hours every day working through problems with students, explaining, “I've had really good coach class attendance”

(Interview 9-20-06), as many as eight or nine, but at least three to four on any given day. During one observation of this after-school tutoring, I witnessed Charlotte walking through troublesome problems with several eager students. Charlotte spent so much time helping students after school that she did not have the time to sponsor a student club as requested.

Moreover, Charlotte began devoting herself to test development, determined to assess students' ability to problem solve. She was frustrated with the accepted approach at her school of using multiple choice tests. She explained:

The thought of giving a multiple choice physics test pretty much makes me want to barf, but they're like ... you know you have all these students and you have to have grades the next day so ... Most physics people don't care what the answer is. I mean ... I had classes where they were like you don't even have to actually calculate out the final answer ... because who really cares? ... The whole point is it's process and if you can do the process, then that's what's important. And ... if everything is multiple choice, there's no such thing as partial credit ... That's ... sending the exact wrong messages because the whole idea is you know this process ... Plus the whole guessing thing ... There's no guessing in physics ... This is science. (Interview 8-24-06)

Instead, Charlotte developed a problem-solving strategy called the "four-step method" which involved identifying what you are looking for, what is given, the equation you are going to use, and finally calculating the answer (Interview 4-4-06). She found it to be effective with her students in the spring and was determined to get all of her students to use it in the fall. During one class observation, Charlotte explained to her class, "Every year people resist the four-step method. They take short cuts and get shortcuts in their grade" (Fieldnotes 9-20-06). Charlotte explained that most of her students were using the system but there remained some resistance:

I think it's easier to get ... the middle 90% ... It's really easy to get them on your program because they're the ones that kinda know what they're doing ... but they would really like to have some guidance. And then you have the bottom 5% that

are like this is horrible. I don't even want to look at it or think about it. And then you have the top 5% that's like I'm smarter than you, so I'm not even gonna do what you say ... But the middle 90% I feel are pretty with me. It's the other 10% on either side of the spectrum that I'm trying to get to buy into my system. (Interview 9-20-06)

Although Charlotte was supposed to be giving the same tests as the rest of her department, she modified the tests so that they included both multiple choice questions as well as a few changes to demonstrate their use of the four-step method. She also spent a considerable amount of time writing multiple versions of each test and determining answer choices "strategically" so that students would have to solve the problem correctly and would not be able to guess the answer (Interview 10-17-06).

Charlotte devoted her time and energy to physics instruction, but was less concerned with school-wide issues. In March, the staff at Charlotte's school learned, through the local newspaper, that the district would be closing her school. Charlotte reasoned that this was probably a good decision, explaining:

If I was in charge of making these decisions for the school system, I would definitely shut our school down ... What is our school doing for anyone? It's not effectively educating anybody ... I feel like I'm kind of removed from the emotional aspect of the situation ... The people that make these decisions don't just ... pick a name out of a hat. They look at all kinds of data and they don't make these decisions overnight. And they essentially say, ... what is gonna work out best for the most number of people? ... Guys, we don't have community support, we don't have parental or student support ... Our students, we can't even get them to come to school. We're not gonna get them to fight for us. (Interview 3-14-06)

However, Charlotte's colleagues responded quite differently. She described their reaction:

The reactions are very interesting. We, of course, had ... a very emotional staff meeting the next day ... There are these teachers who are crying. The librarian is ... bawling ... People [laughter] get a grip! ... I'm just sitting there like, oh my god, what a nightmare. (Interview 3-14-06)

Her colleagues were up in arms about this change and vowed to stop the school closure, picketing a school board meeting and signing a petition. Charlotte refused to participate in these protests, explaining her approach, “I basically was trying to stay out of it. And I basically am like I’m not gonna open up my mouth. I’m not gonna say anything to anyone. I’m just gonna try and go with the flow and do my own thing and try and come out ahead of the game somehow” (Interview 3-14-06). While her colleagues protested the district decision and awaited a decision about their fate, Charlotte used her personal connections to get an interview at the magnet school and secured a new job for the fall.

Charlotte’s relationships with others in her workplace reflected this orientation. She did not respect her principal at the alternative high school, commenting, “We do not have a good relationship, the principal and I” (Interview 1-4-06). She thought that his initiatives were not realistic and protested using them in her classroom. She explained:

He has all these dumb things that he’s obsessed with like his accountable talk thing ... We all have to have use accountable talk with our students. My students cannot read ... I don’t think any of my students will ever begin a sentence with, “I partially agree with your opinion, but I would like to add, like dot, dot, dot.” ... If my students could say a sentence without using the word fuck, I would be really happy ... Look at where we’re actually at and then try and get to where we need to be ... He lives in this dream world ... We are not there ... I can’t stand people that don’t have a grip on reality and I think it’s very dangerous to put someone in charge of a school when they cannot see the reality. (Interview 1-4-06)

Charlotte and her principal clashed on a number of occasions both publicly and privately. Charlotte at one point even suggested that her principal might be behind an unexplained break-in and theft of student records at the school.

Moreover, while Charlotte always had amicable friendships with colleagues, she had few close working relationships. She went to happy hour with new teachers in the spring and traveled to see a favorite band in concert with fellow science teachers in the

fall, but when it came to work Charlotte operated more independently. Charlotte did not make use of the official support mechanisms available to her because she felt “it’s for these ... general, unhelpful things” (Interview 5-2-06). She did turn to her department chair for a “reality check” (Interview 5-2-06) on school policies, but did not believe it would be useful to collaborate with colleagues on instruction. Charlotte explained, “I don’t feel like I need the support ... I don’t really know anyone who knows physics more than me. [laughter] ... I never feel like I’m at a loss for how to do something” (Interview 5-2-06). Although she had more qualified colleagues in the fall, she still refrained from working closely with them because their ideas about how to teach physics differed from hers. She referred to the senior physics instructor at her new school as a “crotchety old man” (Interview 6-28-06) and largely avoided him. Finally, Charlotte did not feel she could turn to her teaching residency colleagues to share resources or ideas because their situations were so different from hers. She explained what happened in one of her university courses:

[The instructor] would always go around and say ... “What was everyone’s biggest problem this week?” And it was a mixture of middle school and high school, so people would be like, “I teach 6th grade. My students wouldn’t line up in a straight line for lunch.” And I’m like, “Ok, I mopped up blood off my classroom floor this week ... after having to ... break up a fight ... Let’s hope I don’t have a disease now.” ... It was just like everyone else had these stories. ... Please. (Interview 5-2-06)

She did note, however, that the textbook in that class was very useful and she modified a number of her classroom management strategies based on it.

Charlotte’s relationships with students reflected her orientation toward subject matter and were largely professional rather than personal. When asked about the most important part of her job, Charlotte commented, “I would say I feel like the most

important thing is being ... prepared/organized with the stuff[Also] I think grading and returning grades” (Interview 4-4-06). Rather than bonding with students on a personal level, Charlotte showed her commitment to them through taking on extra work on their behalf. In the fall, the district exceeded two of the other teachers in her science department, leaving one physics class without a teacher. When the school suggested that these students be added to one of Charlotte’s classes for a total of forty students, she agreed to the situation, even though it represented tremendous additional work for her. She explained, “You know ... I understand. They don’t really have anything to do with these kids and ... I don’t want the kids to suffer because of this whole situation” (Interview 12-12-06).

In class, Charlotte had informal relationships with students and joked with them. For example, during one observation in her Earth Science class Charlotte introduced the concept of “relative dating” by explaining “It’s not something they do in Alabama” (Fieldnotes 10-17-06). She also enjoyed talking to her students about college. In the spring, she explained, “The other day ... I sat them down, and I’m like so, I’m gonna ask you guys where you’ve applied to college. They’re all graduating seniors. Where did you apply to college? ... I’m like, I want answers. I mean I want details. I want to make sure you’re on top of this.” (Interview 3-14-06). In the fall she also talked with her students about college, but this time the students initiated the conversation:

These kids ask me questions ... about their life ... They want my advice on things ... One of my seniors asked me ... “So do you think I should live on campus next year, or should I ... get an apartment with friends off campus?” He’s like, “What did you do? What do you think is better?” ... They actually ... want my advice ... in their life. (Interview 10-17-06)

Her conversations with students revolved around science and college, close but with professional distance. Charlotte's experiences in schools were characterized by an intense commitment to subject matter, a sense of separateness from her teacher colleagues, and professional interactions with students.

Participation: Raya

Raya initially became interested in teaching while completing a certificate in instructional technology and after entering the classroom her primary focus remained on instructional design. When Raya started teaching, her school was in its first year, a small learning community broken out of a larger comprehensive high school. In order to receive ongoing funding, her school needed to adopt a theme, and Raya pushed for an expeditionary learning (EL) approach. She explained:

They just broke up the school, and they didn't know what they wanted to do, but in order to qualify for the ... funding, they needed to choose an instructional model. And they had to figure out sort of how they wanted to approach this, and ... I had been reading about what worked for ... inner city students, and one of ... the models was the expeditionary learning model. And so I did quite a bit of homework ... because I was really interested in this because ... I come from a EL model in my life. So I was drawn to that. I thought, I want to teach this way ... I basically lobbied and advocated for EL. (Interview 1-9-06)

Raya dedicated tremendous time and energy to the development of expeditions for her classes, thematic units that organize instruction. She conducted approximately three expeditions over the course of the school year, each one involving an elaborate combination of short-term and long-term scientific investigations, writing assignments, scientific and mathematical skills, and real-world applications, all organized around an authentic question. Her first and largest expedition investigated the loss of local urban forests and included ongoing monitoring of schoolyard temperature, short-term

investigations into soil composition, and tree planting. Raya also partnered with a number of local universities and environmental non-profits to facilitate scientific experiences for her students and she was the recipient of several grants to bring more resources to her classroom.

Raya had been working on developing these expeditions for years, but continued to revise and improve them on an annual basis, incorporating math skills and more sophisticated research techniques each time. For example, over the summer Raya participated in two professional development workshops, one a scientific research study in a local urban park and the other a week at a biological field station in Costa Rica. Raya saw these experiences as opportunities for her to learn new scientific techniques and apply these strategies to her expeditions. She described these professional development experiences:

One ... funds me to work with a research team so that ... I can see how scientists do their work and to learn different fieldwork techniques ... And I'm also working on GPS [Global Positioning System] skills and ... species identification skills ... Then I will ... use those in ... the projects that my kids are working on next year ...

[For the other] we go to a ... very well know rainforest research station called La Salva and we spend several days there and we work with scientists so we can observe how they do work and then we design our own research ... project ... I want to learn how to design ... fieldwork techniques for testing biodiversity ... I'll be working with them to try and figure out how to do that, and then I'll ... collect data there so that my kids can compare the data that I collect there with their data, the work that they do in our park. (Interview 5-22-06)

When Raya returned from her summer projects, she redesigned her introduction to the school year based on her experiences. She explained:

I had a really good ... tropical biology instructor in Costa Rica ... she just made it really fun. And it's not like this textbook ... do this, do this. It was very creative ... it was sort of how do you come up with things and where do these ideas come from and how do you figure out how to investigate them? (Interview 9-18-06)

Influenced by this instructor, Raya modified her instruction:

RW: Yes. I've completely redesigned. I start teaching, I start the whole school year teaching how to do science, and I hit it several times.

I: And you haven't done that before?

RW: No. I usually hit it a little bit farther in. I did it the 3rd day ... They've been doing it for three weeks almost, two and a half weeks ... This time I used sunflower seeds. I had a really good time with sunflower seeds ... The kids love to eat sunflower seeds ... It was cheap but effective. (Interview 9-18-06)

Raya was constantly pursuing ways to improve her instruction through expeditions.

In addition to curriculum development, Raya was heavily involved in school-wide efforts. She sat on the Leadership Team, the School Improvement Team, and organized weekly meetings for ninth grade teachers and the science department. She facilitated team building experiences for the staff, school-wide field trips for students, and was heavily involved in ongoing EL professional development work. She was also active outside of the school context, sitting on the board of a local environmental organization and taking part in a university-based research project. On the survey, Raya reported participating in five professional activities each week. Despite her active involvement, Raya maintained that she was doing these things to support others, but her real interest lay in the classroom. When asked about her priorities, Raya explained that most of all she wanted to focus on the learning of her students:

The students. My priorities are my students ... the design of instruction and assessment. That's my priority ... I require all my students to keep a notebook of all of their work ... So and I usually hit the notebooks ... every other week. I have about 80 that I monitor right now ... So going through and looking at them, how they're doing, how their skills are improving, whether they understand the concepts, whether they're completing work, ... writing notes to each student at the bottom of their grade page. So I know where all my students are. I have a very clear idea. (Interview 2-27-06)

She explained that in the future she would like to do even more in-depth assessment with these notebooks. Despite numerous opportunities to become involved in leadership or administration, Raya resisted, determined to focus her energy on the classroom. She commented, “I’ve already been the leader in different organizations ... I’ve already done that in three different places ... I’m really interested in the trench work and working with the students.” (Interview 2-27-06). Raya even turned down an opportunity to take part in the same school administration program that Denise hoped to join.

In May, toward the end of the school year, Raya made a deliberate effort to extract herself from many of her school-wide responsibilities so that she would have more time to dedicate to her classroom. She explained:

I sent an email out for next year to the science team. I said these are all the things that I do. I’m not doing them all next year, and what would you like to do? ... And it was a long list. It was ... six or seven, eight things ... I sent it out ahead of time and raised it at a team meeting ... So the bottom line to this is ... I’ve already let everybody know, and then I let the principal know. I said, well here’s the deal. I’ve done this for three years. I’ve really felt like I’ve given a lot to the school community. Next year, I don’t want to be on the Leadership Team, I don’t want to be on the School Improvement Team ... So that’s where I am. I’m shedding. And I told the principal that. She’s not happy. She goes “I really don’t want to lose you on some of these things.” I said, “But I really need to go.” ... So I’ve given everybody a heads up ... I’m not feeling one bit of guilt. (Interview 5-22-06)

Raya did not receive an enthusiastic response to her email, with only one of the listed items spoken for. When Raya returned in the fall, her school had hired an official mentor teacher for science whose specific job was to support the department. Raya recognized that this new mentor would have a “steep learning curve” and would initially need some guidance, but Raya was pleased that she would ultimately be able to hand over a number of her leadership responsibilities to the official team leader (Fieldnotes 8-25-06).

Unfortunately, this new team leader proved to be somewhat ineffective and ultimately

left for an extended period due to health problems. In the fall, the district also increase class sizes to over 30 students, which meant that Raya had more students to attend to and could spend less time per student, rather than more. At the conclusion of the study, Raya was once again in the process of reducing her commitments, commenting, “Even though I’ve cut back from last year, I still get sucked in” (Interview 12-11-06). Throughout the course of the study, Raya’s most frequent complaint was of being “overbooked” (Interview 3-24-06).

Raya’s experiences in the school context represented a tension between serving as a leader but wanting to focus simply on her own classroom. Her professional relationships also reflected this conflict, in which Raya negotiated mentorship with independence, leadership with deference. Raya noted that her relationship with the school principal was initially tense because “She’s very threatened by me” (Interview 1-9-06). However, Raya explained that their relationship improved once the principal realized that Raya was not after her job. Observations indicated that Raya guided conversation while simultaneously deferring to authorities. For example, at one leadership meeting Raya asked the principal if they could discuss a proposed student walk-out and generate some strategies for dealing with it, setting a specific meeting agenda while still allowing the principal to maintain leadership. When concerns about scheduling came up at a science department meeting, Raya gently suggested that the new mentor teacher deal with the issue, saying to her, “We need you to take this back [to the administration]” (Fieldnotes 8-25-06). And at a professional development session, Raya asked the EL facilitator to clarify a particular point under the guise of her own confusion. Raya raised her hand and commented, “You have the guiding questions and the learning targets posted, but in my

blurry memory I don't recall us discussing them. How do you specifically discuss them in the classroom?" (Fieldnotes 8-25-06). Dissatisfied with the facilitator's response, Raya continued probing with follow-up questions and ultimately elaborated upon the answer, explaining that there was no right way to address learning targets, but she favored being explicit about them and assessing progress along the way.

Raya's relationships with colleagues again reflected this tension. On one hand, Raya served as a leader amongst the staff. At the beginning of the school year, she hosted a meeting for ninth-grade teachers at her home to discuss how to create a consistent culture. During cohort meetings Raya attempted to facilitate multi-disciplinary projects, tying her expeditions with work in other classrooms and even offering her colleagues extra resources she secured through grant funding. And Raya attempted co-teaching with an algebra teacher who joined her on the Costa Rica trip. In some cases, it almost appeared as if Raya were the teacher and her colleagues the students. At one cohort meeting, Raya provided guidance, commenting, "Matt, I'm going to have you and Melissa talk about your goals for the asthma fair. You have about six minutes to deal with this" (Fieldnotes 3-22-06). At a science department meeting, when a new teacher realized she had forgotten to bring her content area standards, she meekly asked Raya, "Can I go get mine?" (Fieldnotes 8-25-06). Raya also made efforts to support the staff through sending out regular "e-tips" and maintaining a blog with suggestions on a variety of topics, including the first day of school, respect, accountability, student choice, and grading (Fieldnotes 8-28-06; 7-14-06).

Despite her apparent leadership role, Raya was clear that she had no intention of serving as a mentor for other teachers, particular the “junior staff” (Fieldnotes 2-22-06).

She explained:

New teachers are very stressful ... They have lots and lots of questions you know, everything from classroom management to equipment, which we don't have very much of, to ... how things work ... The day to day operations of the school ... And then just wanting to talk. This is the most stressful, and I don't let it happen very much. I can't handle it on top of everything I do because we work in such a stressful environment with such demanding students. You know things happen all the time, and then the teachers have to process it. You know I'm normally supportive, but I don't allow that at school because I can't pick that up on top of some of my own work. It's just ... too much. I've got my own kids that I'm dealing with. (Interview 1-9-06)

About the rest of the staff, Raya reflected, “I just don't like very many of my colleagues. I don't ... I don't consider them very professional, and ... it's not very fun working with them” (Interview 5-22-06). Because she did not enjoy her relationships with colleagues in her school, Raya instead sought stimulation through participation in the university-based professional development project. She explained:

I just get reinforcement from ... [the university] group, which has been really fun because there were some smart people there who talk about teaching in an interesting way. So I think that that's been ... my bedrock for ... keeping creative energy in my teaching. I don't get it from the other teachers. There's no other teacher in school that I can have those kinds of conversations with. (Interview 5-22-06)

During a visit to this group, I observed Raya being challenged on her instruction and engaging in a heated debate about which methods were most appropriate for her students. Finally, Raya appeared to consider herself as separate from other teachers. On one occasion, just before spring break, Raya commented, “The teachers are wearing out” (Fieldnotes 3-22-06). At another point, Raya explained, “The teachers get overwhelmed and tired and just frustrated because they don't feel like they're very effective” (Interview

10-16-06). In both of these comments, Raya did not appear to consider herself one of the teachers.

Finally, Raya built professional, rather than personal, relationships with students. She was clear that her intention was not to “save the world” (Interview 3-27-06) but rather help students build particular life-readiness skills. Raya felt very strongly that what her students needed was exposure to a professional school environment where they learned to put their personal problems aside. Raya explained:

They have so many people trying to get in their skin ... my focus is on creating a professional environment. And I try and be approachable if something's wrong. But the kids ... know how to use, “Oh there's a death in my family, oh ... there's a death on my street.” ... I'm not saying that those things aren't real and they don't happen, but for some students, they can happen every week because they've learned that that gets them some kind of empathy and they don't have to do this or that. So ... I'm like, “I'm really, really sorry to hear that. I need a note from home ... for my records.” ... I try and be empathetic but also demanding in terms of accountability. I don't let them coast on certain excuses. (Interview 5-22-06)

Raya explained that she wanted to help teach students how to respond to challenging situations:

Part of it is the kids have to learn not to live in drama culture ... You can't be in drama all the time ... You will not make it through school, you won't make it through college, and you certainly won't make it through work if you are not in control of understanding how to deal with these situations. You can't always control the situations, but you can control how you respond to them. And you've got to learn some coping skills that help sort of modulate your behavior. ... Drama's very big in the ghetto. And Ms. Whitman doesn't do drama. I don't. That's just it ... I said take drama out. I said no drama here. I said if you need help with your drama, I'll find you somebody, but I'm not doing drama here. (Interview 5-22-06)

Raya referred students to a counselor if she was concerned about them, but did not herself feel equipped to handle their emotional problems. She believed that this approach was crucial in helping her maintain stamina for her work in the classroom:

I don't take that on. I think that there's a lot of wear and tear on teachers because they do take it on, and they're not trained or equipped to do that ... I'm ... an endurance runner, and so I can't ... go on too many sprints because otherwise I won't last, and I won't do anybody any good. So I believe my job is to be very stable and consistent and supportive, and not to be pulled off track or used ... I have to ... draw a line. (Interview 5-22-06)

Observations in her classroom revealed that Raya did indeed maintain a professional stance in the classroom, guiding students during outdoor fieldwork to talk about "what people are working on" rather than what happened during lunch (Fieldnotes 9-18-06). Raya was constantly pulled between the classroom and the school, mentorship and teaching, personal and professional.

Participation: Alexandra and Talisha

Like Charlotte and Raya, the two other teachers in the *participation* direction, had particular experiences in schools, characterized by orientations away from the educational system, a sense of separateness professionally, and fewer personal bonds to students. Alexandra appeared disappointed by her experiences in the school context. Although she aimed to prepare students for the real world through problem-solving and basic computer skills, she felt she was compromising her standards by working within the educational system. Alexandra explained:

You compromise your morals to teach in a system like this. And that's maybe the hardest thing ... My morals say that I would never lower the standards. I would ... require my kids to all think really well and ... be involved in every activity. I'd never let a kid sleep. I'd never ... have a kid cut. I would never x, y, z. I'd never let them copy ... That's what my morals tell me to do, and in reality I can't do that ... I think that's the biggest struggle ... Maybe that's what makes it so hard is every single day you're fighting against the fact that everything in your being says you shouldn't be doing what you're doing. Yet you have to do it because you have no other choice because the system has set it up so that you have to. (Interview 4-3-06)

She felt that the educational system was not set up for her success, commenting, “I’m not sure if education is the best place for someone who really likes teaching [laughter]”

(Interview 12-11-06).

Moreover, Alexandra appeared frustrated with her interactions with colleagues. Although she turned to her department chair for instructional resources, she did not feel particularly close with the other staff at either of her schools. She explained:

I think if I had a really close... friend at my school, I think it might be different. I think I might be interested in staying a little longer ... But I’m not sure that will ever happen in education. Just the way the school system is set up ... You get to know your room very well ... I mean it’s not like I don’t get along with the other people here, it’s just not the same thing as like in college when you live with a person (Interview 12-11-06).

Nor did she feel close with her Teach for America colleagues, calling the program “a little bit of a popularity contest” (Interview 6-21-06). Although Alexandra had been dating a fellow history teacher for some time, their relationship ended in the fall. Rather than turning to colleagues for support during this time, Alexandra instead became more withdrawn, complaining that her friends had let her down.

Likewise, Alexandra did not appear bonded to students on either a professional or a personal level. Her students regularly cursed at her and threw objects behind her back. Alexandra did participate in school-wide events when she saw some direct benefit. In the spring she volunteered to advise the senior class after receiving an unfavorable evaluation indicating her lack of involvement outside her own classroom. Toward the end of the school year, she also chaperoned a freshman class trip to an amusement park about an hour away from the school. Alexandra explained, “There were four teachers and one kid that tagged along with us, we have no idea why. But we went... to every rollercoaster and then we went to the water park and we did what we wanted, screw the kids ... Where are

they gonna go?” (Interview 12-11-06) At the end of the day, one student was not back on the bus in time, so they chose to leave without him. Alexandra described the situation:

Everyone was back on the bus by 5:10 ... we got out of there at 5:20. We were missing one kid, but we think he got ... home... I assume he got home on his own, and if he didn't, then I'm sure he got a bus or something and he survived. Five twenty he wasn't there. We told him to be there at 5. (Interview 6-21-06)

Alexandra's school experiences appeared to be characterized by distance and disappointment.

Like Alexandra, Talisha was also frustrated with the educational work context. She felt that she had been let down several times by the administration, specifically with the lack of promised textbooks and laboratory space. She resolved, “And so I was like, yeah, you know I'm not going to push for anything else. I'll work with what I have” (Interview 6-1-06). As a result of what she perceived to be low standards in her working environment, Talisha began to focus less on her work and more on her personal life, with a new baby at home and an upcoming anniversary celebration. While she had periods of high motivation, when she was able to bring students into the laboratory, she also alternated with times of low motivation, when she held Sudoku tournaments in class. She explained, “None of my faults come up as much ... In terms of ... those times that I didn't feel like being bothered. I was just ... family first; I could care less about preparing ... [But] in some respect, I'm worse for it because I don't feel like I'm being developed” (Interview 6-14-06). Although Talisha had been highly successful in industry for 10 years, now that she was in education she began to let certain things slide. While she devoted herself to developing a chemistry curriculum, she took a back seat on other activities, such as the journalism elective or planning for school-wide events.

Talisha claimed that she liked to keep to herself, spending her lunch break entering grades into the computer. However, during one lunch-hour visit to her classroom I observed nine different people, teachers and students, visit her room. Talisha explained that she did not turn to colleagues for support, saying, “I think I use my own supports” (Interview 6-1-06), but others came to her for advice on topics ranging from dealing with the principal to classroom management, even though she was a first-year teacher. She attributed this to her positive outlook. Interestingly, Talisha also provided support to her husband, a math teacher with five years of experience. She reasoned that he was stressed so needed the support more than she did. Despite her best efforts to avoid school-wide responsibility, toward the end of the school year Talisha was pulled onto several committees, which involved interviewing new teachers, planning an awards ceremony, and designing consistent procedures for the upcoming school year. Somewhat unwillingly, Talisha reported participation in six out-of-classroom professional activities each week.

Finally, Talisha held respectful relationships with students but did not see herself as a personal support for them. She explained:

Students who drop in ... don't really ... get into personal stuff ... I don't think I'm the teacher for that. And I'm glad of it that ... they, they still respect that line ... Don't come in and chat with me about relationships and so forth ... There are other teachers here who they feel comfortable with, but I'm not ... I'm not the teacher to gossip with. I'm not one to really make small chit chat or put ... down other teachers (Interview 6-1-06)

Talisha explained that students liked her because she was always respectful and never raised her voice. As the science teacher, they also turned to her with medical questions. But she maintained a distance between student and teacher that reflected what she considered to be the professional, rather than personal, nature of their relationship. In

general, Talisha was frustrated by the standards in her work environment and negotiating a tension between independence and community in her workplace environment.

Analysis

Each of the case study teachers had unique experiences in school contexts, a complex web of actions and interactions in a range of workplace environments. It would be impossible to say that individuals who wanted to *integrate* had a concrete set of experiences and those who wanted to *participate* had another well-defined set. There was uniqueness to the teachers' perspectives, school contexts, and relationships. However, these two groups of teachers appeared to have distinct inclinations which filtered the school context and shaped their experiences and relationships.

Those case study teachers in the *integration* direction appeared to have inclinations toward the educational system. In a sense, they were *of* the system. They appeared to view the educational system in a positive way, perhaps a product of the conservative nature of teaching (Lortie, 1975). Alison, for example, remained committed to her school despite substantial upheaval, engaged with reform efforts, trusted that change would bring positive benefits, and worked toward achieving existing benchmarks. Next, they worked to become involved at the school level, with Alison, Denise, Matthew, and Mitch each eagerly taking on and constructing roles for themselves at the school level in an effort to serve the larger purpose. Moreover, these case study teachers saw themselves as central to the school community, building strong collaborative relationships with their efforts. Matthew described himself as playing a liaison role between staff and administration and Mitch made an effort to connect with teachers and foster community across his school building. They seemed to consider these activities

integral to their larger purpose. Finally, these teachers also appeared to view teachers and the educational system as central to the personal lives of students. Alison, Denise, Matthew, and Mitch all formed tight bonds with students, reaching out to them, and at times to their families, on a personal level.

Those teachers in the *participation* direction, on the other hand, seemed to have inclinations away from the educational system. They appeared to see themselves as *separate from* the system. These teachers seemed to view the educational system in a more negative manner, perhaps based on their experiences with images of urban schools as incompetent and in need of repair (Bulman, 2002). Alexandra and Talisha appeared disappointed by their experiences in schools, feeling they were compromising their standards in order to function within this setting. Although these case study teachers often became involved in school-wide activities, they saw these non-classroom commitments as taking away from, rather than central to, their role in schools. Raya was extremely involved outside of the classroom, but sought time and again to extract herself from such commitments in order to focus on the classroom, her central purpose. Although she was ultimately pulled in to serve as a support for other teachers, Talisha also sought to work independently. These case study teachers did not prioritize community-building, seeing themselves as separate from the community of teachers. Both Charlotte and Raya talked about teachers as if they did not themselves hold the job of a teacher. Finally, these individuals did not consider it part of their job to support students on a personal level, preferring professional interactions around subject matter or college preparations. In this way, these case study teachers saw themselves as playing more of a professional

mentorship role for students, as opposed to serving as a central emotional support in their lives.

These career paths did not determine teachers' workplace experiences and relationships. Rather they demonstrated the ways in which those case study teachers in the *integration* direction had different inclinations regarding the educational system than those in the *participation* direction, inclinations which lay a solid foundation for their experiences in schools. Previous work has linked such a "centre of gravity" (Goodson, 1991) to classroom practice; this study similarly suggests a connection between teachers' inclinations, school experiences, and ultimate career directions. These particular inclinations toward and away from the educational system are supported by related networking research, in which teachers' social networks, situated either within or outside of the educational system, influenced their career choices in these same directions (Thomas, 2005). These networks, oriented toward or away from the educational system, appear to be one element shaping teachers' professional inclinations and trajectories.

These inclinations operated as a type of personal filter upon which the workplace context was interpreted. Related work has identified life history as a powerful filter for teachers' experiences in learning to teach, professional development, and identity development (e.g., Carter & Doyle, 1996; Flores & Day, 2006; Kelchtermans, 1993; Raymond, Butt, & Townsend, 1992). This finding builds upon that work by suggesting that teachers' entry points can also be an important filter for professional experiences and career direction. This became clear in situations when two case study teachers reacted differently to similar work contexts. For example, Denise found her large school to be wonderfully supportive because she had an engaged department chair. Alexandra, who

also worked at a large school and had a supportive department chair, found her school to be anonymous and left at the end of the school year. Here different foundations interacted with similar workplace contexts to create variable responses. Alison was honored when her students came to her with personal problems, whereas Raya felt they should learn to control their emotions. Once again, workplace conditions interacted with teachers' underlying inclinations to shape their experiences in schools. This does not negate the role of workplace conditions in shaping school experiences. Rather, it shows the ways in which teachers negotiate their perspectives with their particular school contexts to shape unique experiences.

Moreover, these inclinations toward and away from the educational system appeared strikingly resilient to change, creating a constancy that pervaded case study teachers' experiences in the classroom. Perhaps these orientations toward teaching and the educational system operated in the same manner as other conceptions which similarly filter experiences and integrate them into existing understandings of scientific content, curriculum implementation, or even school reform (e.g., D. K. Cohen, 1990; Driver, Squires, Rushworth, & Wood-Robinson, 1994; Nias, 1987). For example, Alison started out wanting to be part of the educational system, no degree of bureaucratic upheaval could deter her from her goal, and at the conclusion of the study she continued with her intention of remaining as either a classroom or mentor teacher within the educational system. Charlotte, on the other hand, never intended to teach long term, had a positive experience at the city's top magnet school, but at the conclusion of the study remained determined to return to graduate school. Raya was never interested in teachers when she herself was a student. Once in the classroom she disliked working with her teacher

colleagues, far preferring her conversations with university faculty. The case study teachers appeared to come into the classroom with particular inclinations toward teaching and the educational system. Like Alison, they might view themselves as part of that system, or like Charlotte and Raya see themselves as separate from it. They had particular interactions and relationships in the school context. But their underlying notions about what it meant to be part of the educational system remained constant before, during, and after these experiences.

For example, in a comparison of the 2005 and 2006 survey data, case study teachers reported similar professional priorities across a period of one year (Figure 9). They did report slightly lower interest in the three types of professional priorities, for professional growth an average of 3.48 in 2005 and 3.25 in 2006, for student development an average of 4.38 in 2005 and 3.94 in 2006, and for service 4.19 in 2005 and 3.95 in 2006. Likewise, the case study teachers reported slightly higher confidence in two of the priority areas, professional growth and service. Both of these changes could be attributed to increased experience for all of the case study teachers, with slightly less interest and greater confidence in their ability to do their jobs. However, case study teachers' overall orientations toward their work, as reflected in their survey responses, appeared to remain quite stable over time, with student development as the top priority, followed by service and then professional growth.

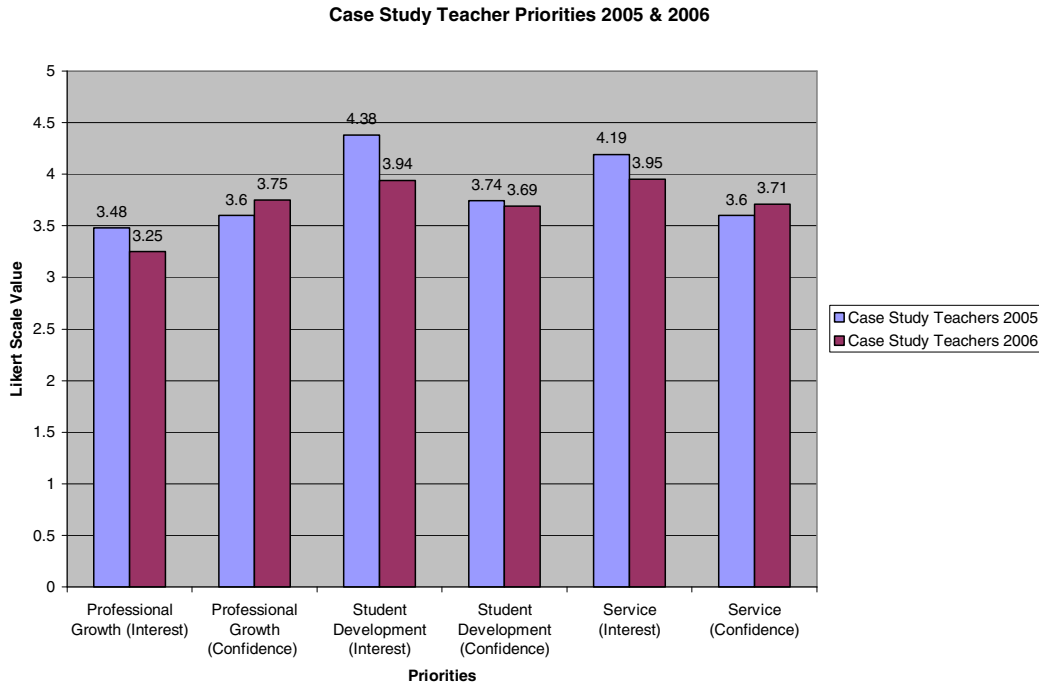


Figure 9: Case Study Teacher Priorities 2005 & 2006

Studies of teacher socialization and identity development indicate a feedback mechanism, in which teachers shape school experiences but school norms also shape teachers (e.g., Lacey, 1977; Smagorinsky, Cook, Moore, Jackson, & Fry, 2004; Zeichner & Tabachnick, 1981). However, these studies tend to focus on teachers' instructional approaches, which were not a focus of this study. Perhaps school-based influences had already impacted teachers' orientations before I started working with them. Or perhaps these beginning urban science teachers were operating in a unique workplace context, in which many entered teaching through accelerated alternate routes, had strong scientific backgrounds, numerous professional alternatives, and expectations of holding multiple jobs over the course of their careers. In this way, perhaps the case study teachers operated from a position of professional privilege and were able to maintain inclinations toward or away from the educational system which interacted with workplace context but were not

significantly altered by it. Instead, they were able to integrate their experiences into existing understandings through a personal filter.

These inclinations to be part of or separate from the educational system raise questions about the role of teachers in institutional change. On one hand, new teachers are asked to learn the norms and practices of particular workplace contexts (Zeichner & Gore, 1990). On the other hand, new teachers are sometimes simultaneously asked to serve as change agents for those very same settings as part of a larger process of school reform (Fullan, 1993; Goldenberg, 2004). It seems reasonable that those teachers who saw themselves as part of the educational system would lean toward the former, integrating seamlessly into school norms, while those who saw themselves as separate would lean toward the latter, maintaining a critical distance and working toward school reform. In some situations, this was certainly the case, as Denise aimed to learn the ropes of the system without apparent critical analysis and Raya re-worked traditional instruction using a reform model. However, the situation was more complex. First of all, many of those in the *integration* direction engaged in school reform almost by default. Alison, for example, never intended to work in a restructured school, but ended up in one because of changes in district organization. She expressed no explicit interest in school reform, but wanted to get involved in out-of-classroom activities and thus engaged in the larger change process underway school-wide. Conversely, many of the teachers in the *participation* direction entered the classroom with an interest in change, but made choices to remain classroom-focused and thus did not become involved in institutional change. For example, Charlotte chose to teach because she wanted to make a difference for science education nationwide, but as a teacher she dedicated the majority of her time and

energy to classroom instruction. She certainly made a difference for the students in her classroom, but she kept a distance from school-wide reform efforts. In some sense, those who saw themselves as part of the system were more willing to engage with the system to jointly construct change, whereas those who saw themselves as separate were more inclined to do things on their own. Case study teachers' roles as agents of change in urban schools appeared to be related to a complex interaction of opportunities to create change, ideas about their place in the educational system, and choices about what types of activities to engage in professionally.

Finally, these notions of *integration* and *participation* raise issues regarding teacher professionalism. Existing work around teacher professionalism focuses on three areas, policies which increase teacher test scores and training requirements (e.g., Imig & Imig, 2006a; U.S. Department of Education, 2002; Vance & Schlechty, 1982), attempts at constructing a professional knowledge base for teaching (e.g., Darling-Hammond, Wise, & Klein, 1995; Imig & Imig, 2006b; Shulman, 1987), and efforts to build a professional culture in schools with practices such as teacher autonomy, community, and inquiry (e.g., Cochran-Smith & Lytle, 1999; Lieberman, 1988; Talbert & McLaughlin, 1996). This study suggests that professionalism for some teachers, namely those in the *integration* direction, is indeed situated within the educational system and existing professionalizing efforts may prove meaningful for their lives and careers. For these teachers, enhanced instructional autonomy, professional community, and inquiry into practice may coincide with teachers' ideas about their own professional growth. However, it is unclear what such professionalizing efforts mean for teachers oriented outside of the educational system and whether these efforts are significant to their professional lives. All of these

teachers took alternative routes into the classroom, accelerating their teacher education experiences. They also tended to avoid lending their voices to school-wide decisions or participating in teacher communities, just the types of activities intended to increase professionalism in teaching. It is possible that these teachers had simply written off the possibility of professionalism in teaching. Or perhaps their view of themselves as separate from the educational system prevented them from investing in that system through increased professionalism. Their orientations problematize the issue of professionalism and raise important questions regarding the meaning of teacher professionalism for those individuals teachers inclined away from the educational system.

Chapter Six: Change

While the eight case study teachers' views on teaching remained relatively constant, steering them in particular career directions, this theme of constancy coexisted with an opposing trend of change. This chapter highlights the varied experiences of these urban science teachers with respect to career change. While their broad views on teaching and the teaching profession did not change, their local ideas about what their next steps would be professionally were in constant flux. Those headed toward a career within the educational system considered alternatives within that particular paradigm; those headed out of the educational system similarly looked for opportunities in that realm. But all eight teachers were in a constant state of searching, weighing, and deciding upon career moves throughout their time in the classroom. This notion of change suggests that these urban science teachers continually reevaluated their career opportunities, either within or outside of the educational system (Figure 10).

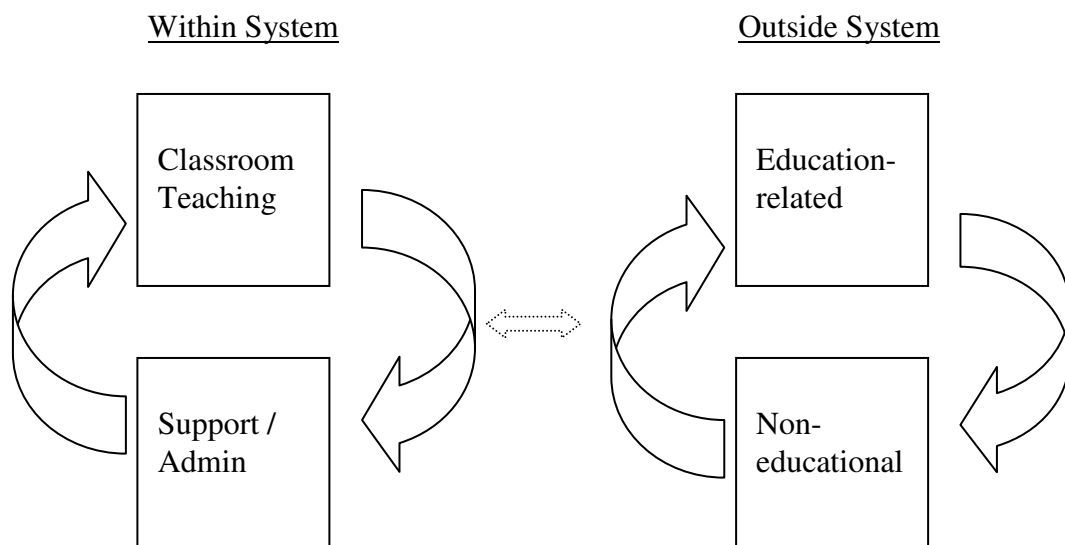


Figure 10: Change

This chapter highlights the experiences of two teachers, Denise and Alexandra, who exemplify this idea of professional change. Denise and Alexandra are featured in this chapter because although they were both alternatively certified and both continually reassessed their professional alternatives, they held very different plans for themselves long-term. Denise saw herself moving up within the educational system, perhaps becoming a principal or opening her own school. Alexandra, on the other hand, envisioned a variety of fields, from technology to public health, outside of the educational system. Although both Denise and Alexandra remained within the William City schools for the duration of the study, they nevertheless engaged in an ongoing consideration of their professional alternatives, either within or outside of the educational system. This chapter also briefly describes the ongoing career decisions of the other six case study teachers, organized by professional direction, illustrating the relevance of the change model to all eight of these urban science teachers.

Given that this study focuses on teachers' career moves, there is the possibility of a researcher effect, in which multiple interviews questioned teachers about their career plans, leading them to constantly consider their alternatives. This may indeed be an unintentional consequence of the additional reflection afforded to study participation. However, the original study design took this possibility into consideration, explicitly leaving questions about career direction to end of the project. Therefore, any ongoing conversation about teachers' career moves was initiated by the teachers themselves. As a researcher, I was willing to engage in the conversation once it was brought up, but I intentionally did not generate such conversation until our final interview together.

Therefore, ongoing change in the professional lives of teachers came from the teachers themselves.

Integration: Denise

Denise grew up in public housing in New York City, an older sister with four younger brothers. She explained that she always enjoyed teaching them, “[I was] always playing school. And I know, algebra, we use to do it with letters, like $a + b = c$, and we use to make up stuff ... I just felt like that’s what I wanted to do” (Interview 2-24-06). Although Denise knew that she wanted to be a teacher from an early age, she was told again and again that, “they don’t make no money” (Fieldnotes 2-24-06), so while pursuing a biology degree at a local college she explored related fields such as medicine, pharmacy, and laboratory research. She even spent a summer in Texas doing research on glaucoma and presented her work at a conference for minorities in science. However, at the conclusion of college she decided to apply for William City’s teacher residency program, returning to her original professional direction. She commented, “I ended up back where I wanted to be” (Interview 2-24-06).

When I began working with Denise, she was in the middle of her first year of biology teaching in a large, comprehensive high school in William City. She selected that school after meeting the department chair at a career fair and sensing that it would be a supportive working environment. Half-way into her first year, she did indeed find it to be supportive. The department chair organized weekly meetings among the science teachers to share ideas, resources, and prepare systematically for the state exam. Additionally, because of the large number of new teachers in her building, the school district provided a mentor specifically designated for beginning teachers. Although Denise was given few

materials resources, working essentially without science lab supplies or even a computer to record grades, she was grateful for the support she found within the department and the school as a whole.

When we began talking in January of 2006, Denise planned to teach in William City indefinitely. However, she was curious about the surrounding suburban school district. Knowing that I had taught in both urban and suburban schools, she asked me to compare the two for her. She talked about teaching summer school in a local suburban district in order to test it out as a potential career direction. Urban teaching, followed by suburban teaching, seemed to be a possible career trajectory for Denise.

By March, however, her plans had changed. She was extremely frustrated with the school-wide practice of giving “work packets” to students who had not attended all semester and passing them if they completed these packets (Interview 3-23-06). This practice was particularly prevalent among seniors who were expecting to graduate. The situation came to a head in her senior microbiology elective when one student who was out for a week and a half without an excuse demanded her makeup work and Denise asked her to come after school to get it. This drew the attention of the principal and the department chair, who encouraged Denise to be lenient with the student because she had a child at home. Denise expressed her frustration with the situation:

Well, my principal and my department head came to me too about the girl ... So I just asked them ... “What do ya’ll want me to do? Do you want me to just pass everybody?” Because I just feel like if you want me to give somebody a makeup packet to make up what we did for the whole entire year because, ok, two semesters came, you failed. The third semester you’d think, ok, I need to get at least a 90 to make up for those [semesters] ... And you come and you do the same thing and you don’t come for help. So the fourth semester, you’re waiting for me to give you packet to make up the whole year. I just feel like I should just come in, give them a packet, and they could work on it for the whole year, and I could do nothing and plan for people who want to learn something. (Interview 3-23-06)

Denise felt that the common practice of work packets undermined her diligent daily preparation and instruction.

After this conflict, Denise declared that she was “ready to quit” (Interview 3-23-06), explaining, “I’m just trying to make it through the year ... and then I’ll decide if I’m coming back” (Interview 3-23-06). She commented, “I just think that I like teaching, and I think it’s fun, and I mean all the other struggles with not having money and the kids not having books, the kids not being up to level, then I still have to pass everybody, and I just think that that defeats the purpose, and I think I work too hard for that” (Interview 3-23-06). At this point, Denise began to consider a number of professional alternatives, primarily within the educational system but outside of education as well. She talked about moving to a different educational environment, one with “some standards” (Interview 3-23-06). At the same time, Denise also considered applying for a principal’s training program and leaving teaching altogether. She posted her resume on three online job banks and began to review teaching and administrative positions as well as general management jobs outside of education. Denise also began to test the waters with her students, telling them she was planning to leave in order to see their reaction. From the fieldnotes:

She also told me that some of her students (about 6) came back from service learning early ... and she told them she was going to leave to go work at a charter school (she made up this charter school). They just laughed at her and told her she wasn’t going anywhere. They told her they did chase away some teacher who left earlier in the year, but they knew she wouldn’t leave. She told me she wasn’t serious about this, she just wanted to see how they would react. (Fieldnotes 3-31-06)

Frustrated with the norms at her school, Denise began actively pursuing career alternatives.

By May, things had changed once again in Denise's professional life. After a period of frustration and low motivation, Denise entered a time of great satisfaction with teaching. The statewide testing ended and Denise engaged her students in several fun activities, including a health competition in which they were challenged to drink eight ounces of milk every day for a week, an outdoor ecology scavenger hunt, and a frog dissection. She felt her hard work was paying off for her students, explaining, "And this girl was like, oh, I've been drinking milk at home. And now my parents like make me drink milk, so. Something little like that I didn't even think would have a big effect." (Interview 5-26-06). Denise also attended the senior prom and enjoyed seeing her students get dressed up for the event. As she shared her photographs of the event with me, she commented, laughing:

And they really felt good because they've never really dressed up like that before. So they were ... like, "Don't I look nice?" ... Now they like, "Oh, I can't wait till next year." ... They want to dress up and stuff. It was funny seeing them walk in heels 'because they don't wear heels, so they were all like, "Can we take these shoes off?" [laughter] (Interview 5-26-06)

Denise became heavily involved in end-of-the-year festivities, but felt her students had been cheated out of some of the opportunities she had during high school, such as going on a ski trip and having a senior week where they could wear pajamas to school. She decided to join the graduation committee next year to provide more opportunities for her students.

At the conclusion of the school year, Denise felt she had made a difference with students:

DS: I just wanted to be a driving factor ... give kids motivation and just be a role model as far as setting the example because I came from the projects and the inner city ... just letting them know that they can do it ... I try to be a positive role model ...

I: ... Based on what you can see now, do you feel like you have done that?

DS: Yeah. I mean with some of the kids ... I just see that they look up to me ...

I: Uh huh, like how can you see that?

DS: Because they always around me, they always asking me stuff ... Even kids I don't have in my class have asked me about choosing colleges and different stuff. They would just come and say, "Oh, Ms. Sargent, can you do such and such?" ... I had kids I don't even have, "Ms. Sargent, are you gonna come to prom to see us?" ... I'm like, "I don't even know you." (Interview 5-26-06)

At this point, Denise declared, "I'm surviving, and I'm still smiling" (Interview 5-26-06).

She planned to spend the summer working part-time at a tutoring center and attending biology professional development and then return to her same position in the fall.

When Denise returned to school in the fall, things once again changed. Her academy, a small school community within the larger comprehensive high school, had been considered one of the stronger ones in the building, but this year they received a new academy principal who served as an assistant to the school-wide principal. Denise did not like or respect this new principal, who she thought of as a "by the book" bureaucrat not looking out for the best interests of the students or teachers (Interview 9-15-06). Denise experienced conflict after conflict with this new academy principal. Denise explained how the principal marked her absent because she arrived at school before the sign-in book, mistook her for a student, and wrote a memo criticizing her for allowing students to leave class to go to the water fountain. Denise explained:

She ... cc'd the principal of my school ... and she told her ... I'm defying her authority and I'm trying to ... rebel against her control ... She told my department head that I'm being uncooperative. Everything that she's setting up... I'm going against her ... authority. That's what she said ... I'm going against her authority. (Interview 12-4-06)

Denise was exasperated with the situation and vowed not to work with her in the future, saying, “I don’t want to work with her. I don’t like the lady. I don’t want to work with her. I want to go somewhere else.” (Interview 11-8-06). However, she liked her school and was excited about the upcoming opportunity to teach Advanced Placement biology, so instead of leaving the school altogether she began looking into ways to switch to a different academy within the same building. If she was unable to switch, she planned to seek a voluntary transfer to another school within the district. This new plan was reflected in her survey data as well. Whereas in her initial survey Denise indicated that she was not likely to teach in another school in this district long-term, a two out of five on the Likert Scale, in the follow-up survey she indicated that she was very likely to pursue this same path, a five out of five.

When we conducted our final interview in December, Denise had once again refocused professionally. While her frustrations with the academy principal persisted, she had turned her attention to her ultimate career direction, becoming a school principal. She located an alternative certification program for principals, similar to the one she attended for teachers, and planned to enroll after she completed her masters in teaching. Denise envisioned a long career within the school system, which including serving as a principal, opening a charter school with an “intertwined” curriculum, writing a book to tell the “truth” about her experiences, and possibly teaching a few courses at the local community college (Interview 12-4-06). Additionally, any thoughts of moving the suburbs were gone. She and her boyfriend were in the process of buying a house in the local community, not too far from where her students lived. Her students were excited about this possibility, hoping to have Denise as a neighbor. When I asked if she planned

to stay in William City long-term, she explained, “Maybe not this city here. Maybe if we move to another city, but I would want ... inner city” (Interview 12-4-06). At the conclusion of the year, Denise was focused on her opportunities to grow within the urban educational system.

Over the course of the year, Denise shifted course several times, from suburban teaching to quitting to satisfaction to moving and finally to growing within the profession. This study captured her experiences over the course of a year, but we cannot conclude that she stopped changing at the completion of the study. In fact, there is reason to believe that she continued investigating opportunities in as lively and interactive a manner as she did throughout the study. Denise’s experiences illustrate the ongoing change characterizing all of the case study teachers’ professional lives.

Integration: Alison, Matthew, and Mitch

While Denise’s experiences clearly capture the experience of constant change, the other case study teachers also evaluated and re-evaluated their professional directions over the course of the year. This section will provide a brief overview of the ways in which Alison, Matthew, and Mitch, all individuals with an orientation toward *integration*, experienced change in their professional lives.

Alison completed an undergraduate degree in chemistry plus an additional fifth year to earn her teaching certificate. She took a job teaching in William City immediately following this fifth year. At the beginning of the study, Alison had been at this same school for three and a half years, although during this time the original comprehensive school was closed, divided into several smaller schools, and later transferred to various school buildings across the city, another form of change amidst the constancy. When

Alison accepted the position in William City, she planned to stay for five years and then decide upon her next steps. She explained, “When I decided I was moving to William City, I was like ... ‘I’m giving myself five years. After five years, that will be enough time to decide whether you like the city, hate the city, if you can do it longer’” (Interview 1-24-06). However, even at that initial point Alison debated whether she should leave the urban district for a neighboring suburban district or stick out the five years in order to earn the student loan repayment benefit. She resolved to make her decisions year by year.

By late spring Alison had decided to remain at her school an additional year and had also begun to consider her own professional growth. She applied for and received a promotion to support teacher, which offered her the chance to both teach students and mentor teachers. Alison also began exploring her options for graduate work, deciding that the time had come to complete her Masters’ degree. She talked about mentoring teachers and then moving into administration, but was unsure which degree would help her accomplish these goals. Because her principal did not have an educational administration degree, she felt a science education degree would be most useful, and selected a program which would accept her previous credits.

In the fall, Alison was immersed in her new responsibilities as a support teacher. As she gained more experience in the position, she began to think about whether this was indeed a positive career direction. While she liked certain aspects of her new role, she found it enormously stressful to balance both teaching and mentorship responsibilities and felt pressured to choose between the two in her future work. She explained:

It’s too hard to put on both hats ... I don’t feel like I’m doing any one of my jobs as well as I could be because I’m doing too many of them. And when you’re teaching ... even if you’re only teaching one class ... it’s not like you’re doing

1/5 of the work. You're still doing 2/3 of the work ... It's a disservice to the kids ... because I'm not doing as well as I could. (Interview 12-6-06)

Faced with a choice between teaching and mentorship, but rejecting the idea of both, Alison began to debate once again whether she wanted to move to a suburban district where "the pay is better ... everything's better" or whether she wanted to remain in an urban environment where "you ... have more receptive teachers" (Interview 12-6-06). At the conclusion of the study, Alison had decided to stay in the city one more year in order to earn the loan repayment benefit, but was seriously considering a move the following year. Over the year of the study, Alison was constantly debating both the best place for her work, urban or suburban, as well as the best type of work, teaching or mentorship.

Like Denise and Alison, Matthew also experienced constant change in his career direction over the course of the year. When the study began in January, Matthew was very pleased with his professional life. He liked being one of the more experienced teachers amongst a young staff. However, by April he had begun to consider the possibility of taking a teaching job out west, in Colorado. He explained:

We don't have any family here ... We could do without the friends that we've made ... They're good, but they're not ... lifetime friends ... So there's nothing holding us in William City. And our work, our jobs are challenging. We're losing hair, we're getting gray hairs ... getting wrinkles ... Is it worth it? ... You should be happy with what you're doing. You should be getting so much out of your job. And I'm getting a lot out of my job. It's just taking a lot out of me too ... I'm getting a lot out of my job, but I think I have more coming out of me than ... taking in ... I would love to live in Colorado ... It's just like my state, outdoorsy ... beautiful. (Interview 4-21-06)

Matthew and his girlfriend spent their spring break investigating places where they would like to move.

By May, Matthew was enjoying his work once again, particularly his role as the tennis coach. His team was achieving great success and several students had made the

regional tournament. With this success, he resolved to stay in William City indefinitely, commenting, “I thought I had found my niche for now, not permanently, but for now” (Interview 5-17-06). However, just as he was deciding to stay, things changed once again. Matthew explained, “I just had the wind knocked out of me yesterday” (Interview 5-17-06).” Two of his top tennis players were transferring to neighboring schools, decimating his team. Faced with this news, Matthew renewed his efforts to find a new teaching job. He and his girlfriend both sent out resumes to contacts in California and internationally, explaining, “Now there’s nothing keeping me in William City. The kids didn’t do it on purpose, but they took my job away, they uprooted me, that’s what’s going to end up happening” (Interview 5-17-06).

In June things changed once again. Matthew and his girlfriend decided once again to stay in William City and bought a house not too far from the high school. In explaining his decision, Matthew reasoned that he had a chance to become the department chair down the road, which would be a positive career move for him. He said, “I feel that I probably could be the ... department head next year, and I think that that would be a good step professionally for me, and I see myself in that position more than as a teacher, in the city anyway ... I like to support people” (Interview 6-16-06). They moved into their new home the first week of school, in early September. However, by October Matthew’s frustrations had grown and he was once again working on his resume and looking into alternatives for next year, including suburban teaching and outdoor education opportunities. In November, he expressed regret about buying the house, asking, “Why did we buy the house? Why did we do it? Now we’re stuck” (Interview 11-15-06). At the conclusion of the project, Matthew and his girlfriend were both planning to pursue

teaching jobs in a neighboring suburban district. However, he took anything but a straight line to get there, with change very much a constant pervading his professional experiences.

Mitch's professional plans also changed continuously over the course of the study. Although we were not working together at the time, Mitch explained, "I quit Teach for America five times" during the first year because of the demands of the training (Interview 5-24-06). He was also "gonna walk" after receiving an unfavorable evaluation part-way through his first year (Interview 5-24-06). However, while Mitch continually contemplated leaving the classroom, time and time again he made the decision to stay, bolstered by the support and encouragement of his colleagues and Teach for America mentors.

When I began talking to Mitch in this middle of his second year of teaching, he had begun to consider his next steps professionally. Mitch volunteered his free time to support the larger Teach for America organization, explaining, "I go and help out in the TFA office and help them with stuff like filing, to get a feel for the organization, and when they need extra help, I always volunteer to help" (Interview 1-20-06). Although he was extremely busy with his own classroom responsibilities as a new teacher, he volunteered his time as a way to test out a possible career direction. Mitch explained, "I just want to know exactly ... what is available ... if I wanted to step out of the classroom and go do something with Teach for America. I am in love with Teach for America's mission ... I just like to get a feel for things" (Interview 1-20-06). Mitch applied for several non-teaching positions within the Teach for America organization, but was not accepted to any.

Later in the spring, Mitch decided to make a different type of move. He applied and was accepted for a teaching position at a KIPP school in a rural area near his hometown. In discussing his move, he explained that he was excited about the freedom, the schedule, and the relationship with the principal at this new school. He said:

There's so much that excites me about the stuff that she said that's going on in her school. The lack of administration sending down directives, it's number one ... being able to design exactly what I'm going to do ... I would get to pick my own textbook ... I would get to buy all the initial equipment for the lab ... design all the experiments. And they get ... an hour ten-minute classes ... I like that ... The four core teachers, the math, science, social studies and math, they teach in the morning ... from 8:00 to 1:00. And they have four classes ... And in the afternoon, they have ... planning periods [and] one elective, but they have 80 students, instead of 135 ... And at that school, the principal teaches ... she knows every single child. (Interview 3-8-06)

Mitch described himself as “ecstatic” (Interview 4-19-06) about his new position and eager to begin.

By fall, Mitch was immersed in his new job and again considering his next professional steps. He explained, “I think about things a lot ... I just think about all my options all the time, and I'm like, ‘What do I really want to do?’” (Interview 10-30-06).

In October, Mitch was in the process of weighing a number of alternatives, including high school teaching, college instruction, educational administration, and science education policy. He said:

I go back and forth ... because I really love teaching here ... I think I could just teach forever and be happy ... [Although there are] days ... I'm so tired that I really want to just go teach in a college and not have to worry ... I think eventually I'd like to be in some type of an administrative role with education, but I think I definitely want to get into something of pressing science in our country (Interview 10-30-06).

A month later he narrowed down his choices somewhat and appeared more focused on administration, explaining, “I really think I want to get into some administration ... In the

back of my mind, I have the dream of being a superintendent one day. I think that would be something really cool ... and then I thought about ... maybe I could open up a KIPP school” (Interview 11-29-06). Over the year of the study, Mitch was engaged in a very active process of testing options and considering numerous alternatives in order to figure out his professional direction.

Participation: Alexandra

The four teachers on the teach career trajectory were also engaged in an ongoing process of career exploration. However, these teachers oriented their alternatives primarily outside of the educational system. This next section will highlight Alexandra’s process of career decision making, followed by a brief overview of Charlotte, Talisha, and Raya.

Alexandra grew up in suburban New Jersey, the daughter of a manager at Exxon and a stay-at-home mother, but she spent most weekends at her parents’ ski home in Vermont. She attended a selective science and technology magnet high school and was highly involved in both laboratory research on rats and stage management in the theatre. Because of her interest in both scientific and artistic pursuits, she envisioned herself as the person who could translate technical matters for the director in a theatre production. For college, Alexandra selected a small liberal arts college in Pennsylvania because of its emphasis on both science and the arts. She continued these interests with a double major in biology and theatre. During college, Alexandra contemplated a future in medicine, even going so far as to take the MCAT, as well as graduate work in psychology. Until she applied to Teach for America, teaching was not on her radar screen.

During her senior year of college, Alexandra applied for and was accepted to Teach for America because she did not know what else to do, explaining, “Senior year I was like, ‘You know what, I don’t have anything to do next year. Let me look at this’” (Interview 12-11-06). Plus, it afforded her more time to figure out her future, “This was ... my two-year excuse of what I’m gonna do for my life. When I joined Teach for America, I was like, ‘I don’t have to make a decision for two more years’” (Interview 3-27-06). Shortly after she accepted the Teach for America position, Alexandra received an offer to do stage management in an off-Broadway production. If the theatre offer had come in first, she would have accepted it instead. Moreover, Alexandra did not have any specific interest in teaching in William City, noting “it was on the East Coast, and it was within reasonable distance of where I lived ... it was sort of by default it ended up [on my list]” (Interview 3-27-06). However, Teach for America placed her there and she willingly moved.

At the beginning of the study, Alexandra was in the middle of her second year of teaching at a large comprehensive high school in William City. Although she was originally hired to teach biology, she had recently taught physics and was just beginning a new course on technology. Alexandra considered her department chair to be “amazing” (Interview 12-16-05) for her willingness to share ideas and resources. On the whole, however, Alexandra found her school to be quite anonymous. In January, her plan was to remain at this school for one more year, then transfer to some form of charter school, possibly within the same district. She explained:

I’m not necessarily committed to William City schools, or not necessarily to per say this school. ... as of your third year you can start applying to different schools. I may start looking for a school for the arts kind of thing ... I have considered possibly applying to a different area ... Next year I’ll be here. But in

the year after that, I may apply to a different school ... The green school also is something that's interesting to me. It's a new high school ... they're going to be opening next year. Next year I'll be here, and the year after I'll probably either be here or one of these other schools. (Interview 1-18-06)

During this time, Alexandra was also investigating the possibility of purchasing a Housing and Urban Development (HUD) home through a special program for teachers run by the school district. During these investigations, Alexandra made sure that she would not have to give up the home if she left teaching. She noted:

Technically in HUD homes, I'm not sure they would agree, but if you read the little fine print, it does not say you need to be a teacher during those ... years ... You need to be a teacher to buy the house. And so if for some reason I stop being a teacher, as long as I still live in the house and all of the standards, you can't take it away from me. (Interview 1-18-06)

Alexandra explained that while she was considering purchasing a home, she was not willing to invest considerably, "I won't buy a regular home. I'm not that invested in William City to spend \$200,000, \$300,000 to buy a real home, but I'm looking at the nice HUD homes" (Interview 1-18-06). At this point in the year, Alexandra planned to stay in teaching and in William City for the foreseeable future, but certainly not indefinitely.

As the year progressed, Alexandra became weighted down by the stress of her classroom responsibilities, combined with the pressure of completing her Masters degree. Although in February she had briefly considered the possibility of pursuing a doctorate in education, by March Alexandra was ready to drop education altogether. The stress of ongoing health problems, teaching a new course, making last-minute revisions to her teaching portfolio, and getting kicked out of her apartment was simply too much for her to handle. Alexandra explained:

It's completely stopped me from working. I couldn't do anything ... One day I came in, I was to the point where I was curled up on the floor, and my department head said, "Do you want to watch a movie with your kids today?" I'm like,

“Yeah. I can’t work. I can’t do anything. Why am I here? Why am I here?”
(Interview 3-27-06)

Alexandra described this experience as more than the typical stresses of everyday life:

It’s not just stress. Like yesterday ... I was really stressed out ... but it was different. It was not anxiety. It was ... overwhelmed stress ... I had ten minutes. I cried ... and I moved on. When I hit those moments of anxiety, it’s like I can’t control my worries. It’s like I have so many worries, and I can’t see the good things in life, almost like a mini depression that like kicks in like instantaneously. You can’t, you can’t see any reason to keep trying. (Interview 3-27-06)

Faced with this overwhelming anxiety, Alexandra attributed her problems directly to teaching:

I went into the doctor. She had diagnosed me with like a panic disorder, anxiety ... put me on drugs ... All of them are stress induced. And I’m sitting there, what in my life is stressful? Hmm. Couldn’t imagine. And so I’m sitting here and you know, if my life is this badly affected by being a teacher, being a teacher at all or being a teacher in William City... .(Interview 3-27-06)

In an effort to overcome this overwhelming anxiety, Alexandra decided to re-think her professional direction. In order to get through the most acute moments, Alexandra decided that she would leave teaching at the end of the year. She described, “I had to make the decision in my head to get through that I was not gonna teach. Because I had to just say to myself, I’m not gonna teach. It was the only way I could make it till the next day” (Interview 3-27-06). However, as she began to regain normalcy, she realized that perhaps she should begin to explore some alternatives. She said:

People tell me that other places are better, but I’ve never seen it so I don’t really know ... Do I apply for a different school system? Do I stay here one more year? ... I don’t know if I can handle the stress of staying here. Since I don’t hear every place is like, oh my god, it’s so much better here, then it’s like why? There are people who are happy with their life, you know. And I don’t know many teachers in William City are ... You should be able to be happy with your life. (Interview 3-27-06)

Shortly after this difficult period, Alexandra's parents came from Vermont for Spring Break. They helped her move into a new apartment and figure out what to do next. Alexandra began to consider a number of professional alternatives, which included teaching at a charter schools, moving to a suburban district, or leaving education altogether.

In late spring Alexandra applied to a variety of new positions and by June she had accepted a job as the technology instructor at a charter school in William City. This job carried a reduced teaching load along with some additional responsibilities facilitating computer maintenance and professional development school-wide. When I asked her how she made the decision to continue teaching, Alexandra replied curtly, "I was offered the job" (Interview 6-21-06). However, she remained unsure of her long-term plans, commenting, "I don't know what's happening after next year. I figure my goal is to stay at least two years ... unless it's crappy, unless it's really bad with the new principal, blah, blah, blah" (Interview 6-21-06). Alexandra spent her summer relaxing at her parents' home in Vermont and returned in the fall eager to begin.

At the beginning of the new school year, Alexandra was enthusiastic about her new position, describing herself as "energetic and new" (Fieldnotes 8-24-06). Because her school had moved to a new location, the facilities staff stayed late into the night preparing the building for the start of school. During a visit to the school, I witnessed Alexandra walk up to a custodian and ask "Were you one of the people here until midnight last night?" When she answered yes, Alexandra threw herself upon the surprised woman with a big hug (Fieldnotes 8-24-06). Alexandra mentioned that she was particularly excited about the year because she only taught two classes and had no

teaching responsibilities on Wednesdays. As the new school year progressed, Alexandra became involved in the process of setting up outside internships for students, developing a theatre club, and improving the technology in her building. Essentially, she turned her professional attention away from the classroom and toward other activities. Once again she began to consider her career alternatives, but this time her ideas were concentrated outside of the educational system. During one visit from a district-wide technology coordinator, an individual who worked for the central office but went school-to-school fixing computer problems, Alexandra commented that she would have applied for that job had she known it existed. She also began to mention other possibilities such as tutoring or working for the Girl Scouts.

By December, Alexandra had decided upon a new career direction. After reading a book about the flu outbreak, she envisioned a career in public health:

I have this vision in my head, not necessarily reality, but it's a vision, that I would be able to get into a job that someone would pay me to organize information from doctors, veterinarians, public health officials, CIA, all those different people, to start, to see where outbreaks are occurring ... I would... use the tablet PC ... A lot of doctors' offices have started taking their information on the computer. So it wouldn't be that abnormal to just put a little program in there, just notes, when these symptoms come up. Send a little note to the central office, and I would hopefully be in charge of that central office. They say that when Avian flu hit the U.S., it was in these stupid birds for about five months before any human got it. If a veterinarian had mentioned to a public health official who had mentioned to a doctor, it would have solved the issue. (Interview 12-11-06)

With this new direction, Alexandra decided to stay in teaching for two more years, enroll in public health courses paid for by the district, and earn a Masters degree at night. She described her plan:

I'm going to do at least next year, possibly the year after. I'd like to make it to five years ... use William City to my advantage ... because they still pay part of your degrees if you continue education ... I'm thinking of doing public health...

I'd like to start taking some classes ... maybe ... work with them and get a partial credit or something. (Interview 12-11-06)

Alexandra explained that her time working in the schools influenced this career direction, "Now that I've lived here and I've seen what my kids go through and I've seen what families go through ... I see a lot more ... I don't per se say it's an urban thing. I think it's a teaching thing, that you see what's going on in the real world" (Interview 12-11-06). However, even though Alexandra felt quite certain about this new professional direction, she recognized that finding her way would continue to be a dynamic process. She commented, "What do I want to do with my life? Well public health sounds good now, so let me go get a degree and do a couple years of that and see how that feels" (Interview 12-11-06).

Alexandra's professional direction shifted time and time again over the course of the year-long study. She started with an initial plan of remaining at her school, then decided to quit, moved to a charter school, and finally chose to leave education altogether. Her experiences illustrate the constant nature of change in the professional lives of these urban science teachers and underscore the extent to which they are engaged in an ongoing process of finding their career direction. Alexandra never intended to teach long-term, in fact she entered teaching because she could not decide on any of her other options. Based on this orientation, Alexandra's career choices moved her farther and farther away from the traditional urban high school, first switching to a hybrid charter school and then planning to leave educational altogether. These were the possibilities that were apparent to her. Like Denise, there is no reason to believe that this process of professional searching ended at the conclusion of the study; she herself recognized the ongoing nature of this process.

Participation: Charlotte, Talisha, and Raya

Charlotte, Talisha, and Raya were also engaged in ongoing evaluation of their career alternatives, primarily from the perspective of teaching for a short time and then moving out of the educational system. Charlotte never intended to teach long-term. After leaving a doctoral program in physics, she planned to teach for two years and then return to graduate school. She hoped that high school teaching would provide both a legitimate transition between academic programs for her resume while allowing her to “put my money where my mouth is” (Interview 11-1-05) with respect to high-quality science education in this country. However, despite the fact that Charlotte came in with a clear career plan, she, like the others, was involved in ongoing evaluation of her career alternatives.

At the beginning of the study, Charlotte was in the middle of her first year teaching physics and earth science at an alternative high school in William City. Charlotte enjoyed working with her physics students, but was frustrated with the low attendance, teaching only a handful of students on a regular basis. Moreover, she had an antagonistic relationship with the school principal, whom she described as a “used car salesman” (Interview 1-4-06). She described openly hostile exchanges with him, including one that took place in front of the school faculty during a staff meeting. When I first spoke with Charlotte in the fall, she explained that she planned to switch schools at the end of the year, but by winter she had decided to remain at the same school for her second year of teaching, simply because it would be too much of a “hassle” (Fieldnotes 2-3-06) to change, not even worth moving her belongings.

Later in the spring, Charlotte learned that the district was closing her school. She would have to transfer or lose her job. Forced to move, Charlotte hoped to switch to a different type of teaching environment. She investigated options in the local private schools and community colleges, but ultimately accepted at position at the city's top math and science magnet school. At the start of her second year, Charlotte was hopeful about her new position and even entertained the possibility that she might like it enough to stay on. She explained, "This year I thought, 'Well you know who knows ... It's the best school in the state.' I mean it might really kind of make an impression on me" (Interview 12-12-06). She even began to refer to herself as a "teacher" (Interview 10-17-06) rather than a "physicist" (Interview 3-14-06).

However, her plans continued to evolve. By October, Charlotte had decided definitively to return to graduate school and began the application process. High school teaching was simply not what she wanted to do and her mind craved intellectual stimulation. Charlotte applied to a few local doctoral programs and planned to apply nationally the following year. But even this return to graduate school represented a change because Charlotte decided to apply not in physics but instead in math. Teaching, she explained, had made her realize that her research and teaching interests were not in the applied and experimental field of physics, but rather in the theoretical field of math. Plus she found math teaching to be more "fun" (Interview 3-14-06). Although Charlotte did indeed follow through with her original plan of returning to graduate school, there were a number of changes along the way.

Talisha and Raya were both career changers to teaching, their time in the classroom the result of earlier career exploration. Over the course of the study, Talisha

engaged in continuous debate about her future career direction, but this was nothing new. She had already been involved in years of ongoing career decision making, culminating in her choice of teaching. As a college student, Talisha dreamed of becoming a doctor, but hoping for something more flexible she instead earned a Masters degree in biology and worked in pharmaceutical research for ten years. When she ultimately became unhappy with the direction of her job and began to look for something both family-friendly and science-oriented, she selected teaching.

At the beginning of the study Talisha was in her first year in the classroom. The previous summer she had moved her husband and two children to William City for this job and bought a house, suggesting that she intended to stay for a while. She worked very hard initially, developing her own chemistry curriculum in the fall and then piloting a trial curriculum in the spring. By March, Talisha started feeling less motivated and began procrastinating on her lesson planning and grading. With an exciting wedding anniversary celebration to plan for, Talisha put “school on the back burner” (Interview 5-3-06) for a while. However, after spending her Spring Break talking long walks in the park with her daughter, Talisha came back rejuvenated for the remainder of the school year. Despite her frustration with significant changes to her work context, including subject matter and lab facilities, Talisha planned to return in the fall. In fact, she could not quite understand some of her fellow beginning teachers who talked of leaving so quickly. She commented, “I think about the other teachers I know who are in their first year and ready to quit. Being through challenges makes you stronger” (Interview 4-5-06). She tried to keep workplace problems in perspectives, noting, “There are so many other things in life that are ... so much more important” (Interview 6-14-06).

By June, Talisha had decided that teaching would work for now, but could not be a permanent career for her. She commented, “I feel like ... I’m in a burn out career, and ... I’m in it for now, but where do I want to be or what do I hope to get from it before I burn out?” (Interview 6-14-06). Like many of the others, she talked of staying in teaching until she could receive the district’s financial benefits, such as the home-buying program and loan repayment. Talisha explained, “I told ... my husband, I said ‘You know, if for nothing else, I’m going to stick out teaching for at least three years to do ... the Teacher Next Door program. If I could stick it out for five, I will, to get my student loans paid off’” (Interview 6-14-06). She resolved to attend classes for her teaching certificate and spent the summer in educational workshops and school-wide committees.

However, over the summer Talisha was offered the opportunity to join a mobile educational biology lab which traveled around the state bringing cutting edge research to high school students. This job not only combined her interests in lab research and education, it also offered her higher pay. Just a week before the start of school, Talisha decided to leave teaching and accept this job. When we spoke in the fall, Talisha was pleased with her new position, which she described as “so cool” (Interview 9-8-06). She planned to stay on for the foreseeable future, at least three years. However, even at this point she was again thinking about her next professional move, commenting, “It’s funny. I told [my husband], ‘I would really like to have a doctor attached to my name’” (Interview 11-20-06). Even at this point, Talisha was weighing her professional alternatives, including a PhD, a medical degree, a nursing degree, and a return to industry, weighing the potential benefits with the sacrifice she would have in time with her family.

Raya, a career changer in her late 40s, was arguably the most stable of the eight case study teachers. She had already gone through a number of career changes, and her varied career included work in the Merchant Marine, journalism, television production, interactive media, and finally teaching. When we began working together, Raya was in her third year of teaching and extremely committed to working with high-need students in an urban environment. She explained, “I wouldn’t teach in just a regular suburban classroom because I didn’t go into teaching to do that. That doesn’t interest me ... I’m pretty much committed to the population that I teach” (Interview 2-27-06). Like the others, Raya had her high points and low points throughout the year. In the spring Raya felt that she had taken on too many outside commitments and was unable to spend the necessary time on her classroom. She commented:

I’m overbooked ... I’m just stretched too thinly right now ... Because I really want the focus to be on [my teaching] ... Everything benefits my teaching, but it just spreads me too thinly. It makes me a little bit tired ... So right now I’m just spread too thinly with commitments. (Interview 3-27-06)

At the end of the year, Raya passed off many of those commitments to her colleagues in the science department and resolved to take more time for classroom and for herself in the fall. She explained that next year she wanted, “...a personal life. A life at home. I still don’t have that balance yet because urban teaching is so stressful, you have to have the balance. You have to take care of yourself, otherwise, you can’t be what you need to be for the students” (Interview 5-22-06). Throughout her ups and downs, Raya never wavered in her plan to return to her school, create more personal balance and a greater instructional focus next year, and then earn her National Board Certification the following year.

However, even Raya who appeared to be extremely stable professionally throughout the spring became to consider her professional options in the fall. Faced with an unanticipated increase in class size that interfered with her intensive project-based instruction, Raya began to weigh possible alternatives. Although it was only December, Raya had already informed her principal that unless things changed she would not return the following year. She explained:

I already know that our teaching model is not ... supported by these numbers of students. So if the city's not committed to keeping our school as smaller learning community, then I have to move. And I've already told the principal this in so many words. I haven't been as blunt, but she knows that I'm not repeating it. (Interview 12-11-06)

Raya talked about joining a new charter school that supported her instructional approach, explaining, "I'd like to teach a few more years" (Interview 12-11-06). However, she was also willing to look into other opportunities, "You know right now, I have a combination of skills that's very strong. So I could do lots of things ... You know there's lots of education consulting ... I mean there's all kinds of stuff" (Interview 12-11-06). Although she was more stable, Raya, like the others, recognized and weighed her professional alternatives.

Analysis

Consistent across all of the cases is the notion of change. While these urban science teachers came into the classroom with certain orientations toward teaching that shaped their career direction, they also engaged in an ongoing process of professional exploration, creating a juxtaposition of constancy with change. These cases illustrated the ways in which the case study teachers continually reevaluated their career alternatives. What distinguishes this concept of change from the normal ups and downs of everyday

worklife is the way in which these teachers turned to their professional alternatives again and again. Prior research has explored the professional experiences of beginning teachers (e.g., Bullough, 1989; Kuzmic, 1994), which generally include periods of both satisfaction and dissatisfaction. However, this study identifies the ways in which these new urban science teachers recognized, accepted, and utilized their professional options as a way to get through the challenges of beginning teaching. Alexandra explicitly mentioned that in order to survive day to day she decided to leave teaching. When one of Denise's instructional decisions was questioned by her superiors, she began posting resumes online. These urban science teachers did not weather ups and downs as part of a normal professional life. Instead, and perhaps because of the greater opportunities available to them as science-educated workers, they recognized their various career alternatives and repeatedly weighed those options against their current work context.

While change or dissatisfaction with workplace conditions at times incited teachers to consider professional change, it did not appear to be the sole driving factor. Some of their professional exploration was independent of what took place day-to-day at school. For example, Denise considered a move into administration that seemed independent of her satisfaction with her workplace context. Similarly, Alexandra made a decision to enter public health which appeared quite unrelated to her satisfaction with her current position. Mitch's investigation of opportunities within the Teach for America organization was not directly connected to any particular frustration at school and Charlotte decided to return to graduate school only once she found a supportive work environment. Therefore, while workplace conditions certainly were one of the factors influencing this process of ongoing career exploration, they did not alone shape it.

Likewise, little of the ongoing career evaluation appeared to be connected to the needs of children or family. There were a few instances when family did come up. For example, Talisha's decision to enter teaching originally was influenced by its family-friendly characteristics. Similarly, Mitch mentioned that he hoped to start a family in the near future, which would impact his career direction. However, on the whole, the teachers' evaluation of their careers did not appear to be directly linked to the needs of their families. In fact, Matthew seems to have made the decision to stay on at his school despite his girlfriend's wishes. This conclusion was also supported by the district survey. When offered several possible professional directions, staying home with children either part-time or full-time was by far the least likely alternative for secondary science teachers district-wide, with an average of 1.65 out of five on the Likert scale, and even less likely among case study teachers, who averaged 1.44 out of five.

Finally, district incentives, such as the home buying program or student loan repayment, came up time and time again as one of many factors in teachers' career decisions. However, incentives alone did not appear to be decisive. For example, Talisha planned to take advantage of both the home buying and loan repayment programs, but then left the system without using either one. Similarly, Alexandra considered purchasing a home under the districts' program, but only if she could still leave teaching and still remain in the house. Moreover, a discussion of tenure was decidedly absent from our conversations. Even though tenure is earned after two years of teaching in William City, it simply did not come up as an important issue for these eight teachers. Perhaps the job security granted with tenure was simply not relevant for those teachers planning to stay in the school district only a short time. At the conclusion of the study, Alison was the only

one of the eight teachers on track to make use of any of the districts' incentive packages. These relationships suggest that the process of ongoing career exploration is complex. No single factor, such as workplace conditions, family needs, or district incentives, appeared decisive in influencing the consideration of professional change. Rather, teachers used career exploration to get through rough times at work, but they also evaluated career alternatives when things were going well. It seems that these urban science teachers knew they had professional alternatives and used those options in a variety of ways.

Moreover, the process of career exploration varied from teacher to teacher. Matthew described how in making career decisions he "...never set a lot of goals. I just ... put up my sails and go where one takes me" (Interview 11-15-06). Raya, on the other hand, systematically investigated her professional alternatives, reading about urban schooling and sitting in on classes before deciding to become a teacher. While both Alexandra and Charlotte transferred to new schools within William City, Alexandra accepted a position because it was a job while Charlotte put in her application in a variety of places and intentionally chose a magnet school. In addition to individual differences, age and experience also appeared to influence this process of decision making. Denise and Alexandra, highlighted in this chapter because they represented clear examples of ongoing career exploration, both entered teaching directly out of college. Their high levels of career exploration may have been connected to their youth and inexperience. Talisha, with ten years as a professional, alluded to the fact that her prior experience overcoming obstacles helped her to keep workplace challenges in perspective. And Raya, the most senior of the case study teachers, was the most stable in terms of her career exploration. Therefore, while all eight of the teachers experienced some degree of

ongoing evaluation of career alternatives, their career exploration appeared at least somewhat linked to their age and experience as a professional.

Finally, the case study teachers appeared to consider career alternatives either within or outside of the educational system. Consistent across the cases of Denise, Alison, Matthew, and Mitch is the orientation toward *integration*. All four of these individuals continually considered their professional alternatives, but did so primarily within the context of the educational system. For example, when Denise faced a conflict with her academy principal, she looked into the option of moving within the system rather than outside of it. Similarly, while Matthew hoped to leave William City for a more exotic location, he still looked into teaching positions in all of his various destinations. Denise did briefly look into management, Matthew outdoor education, and Mitch college teaching, but the vast majority of their future opportunities fell within their particular professional paradigm. Similarly, Alexandra, Charlotte, Talisha, and Raya, when faced with challenges, instinctively turned to opportunities outside of the educational system. Charlotte weighed the benefits of graduate school in physics versus math and Raya contemplated educational consulting. With the exception of Talisha who already left teaching, they all planned to remain in the classroom for a while longer. But consistent with their views on teaching, their process of career exploration centered more heavily on opportunities outside of the educational system, both education-related and non-educational. Their particular career orientations seemed to make certain professional opportunities more apparent, either those within or outside of the educational system.

This notion of ongoing career exploration can inform the research methodologies used to investigate teacher retention as well as teachers' professional lives. As previously

mentioned, traditional work on teacher retention examines teachers' careers at one point in time, typically based on the results of single survey administration. Studies that utilize SASS data are rooted in this exact methodology (e.g., Ingersoll, 2003; Shen, 1997; E. M. Weiss, 1999). Longitudinal work (e.g., Heyns, 1988; Quartz & TEP Research Group, 2003) begins to consider teachers' careers over time, but connects with teachers only once a year or so. The experiences of these urban science teachers indicate that beginning teachers' careers may be in great flux, with decisions made and then made again in a matter of weeks. For example, in May 2006 Matthew was planning to leave his school and move to California, but by June he had decided to remain at his school and purchase a home nearby. The experiences of these teachers suggests the importance of research methodologies that capture this ongoing change and career exploration, recognizing not only the final decision but also the multitude of decisions leading up to it. This study begins to capture teachers' experiences over time, but even it was limited by monthly contact over the course of one year. These case study teachers were most likely engaged in ongoing career exploration before the study, in between visits during the study, and continue to be involved in such exploration today. Multiple types of methodologies are needed in this type of research. In addition to research that works with a large number of participants, more in-depth work is needed as well in order to capture and understand this ongoing process of change.

Chapter Seven: Confirmation

Chapters Five and Six illustrated the importance of teachers' views on teaching to their career direction and their process of career decision making over time. This chapter highlights teachers' need to find a sense of confirmation within educational before moving on with their careers. For the eight case study teachers, moving on took a variety of forms along the continuum from moving up within the educational system to moving out of education altogether. However, all eight of the case study appeared to seek an acceptable level of confirmation before they were ready to pursuing future career directions. This chapter discusses the ways in which the case study teachers aimed to get past the challenges inherent in urban teaching and find professional confirmation before moving on to other goals (Figure 11).

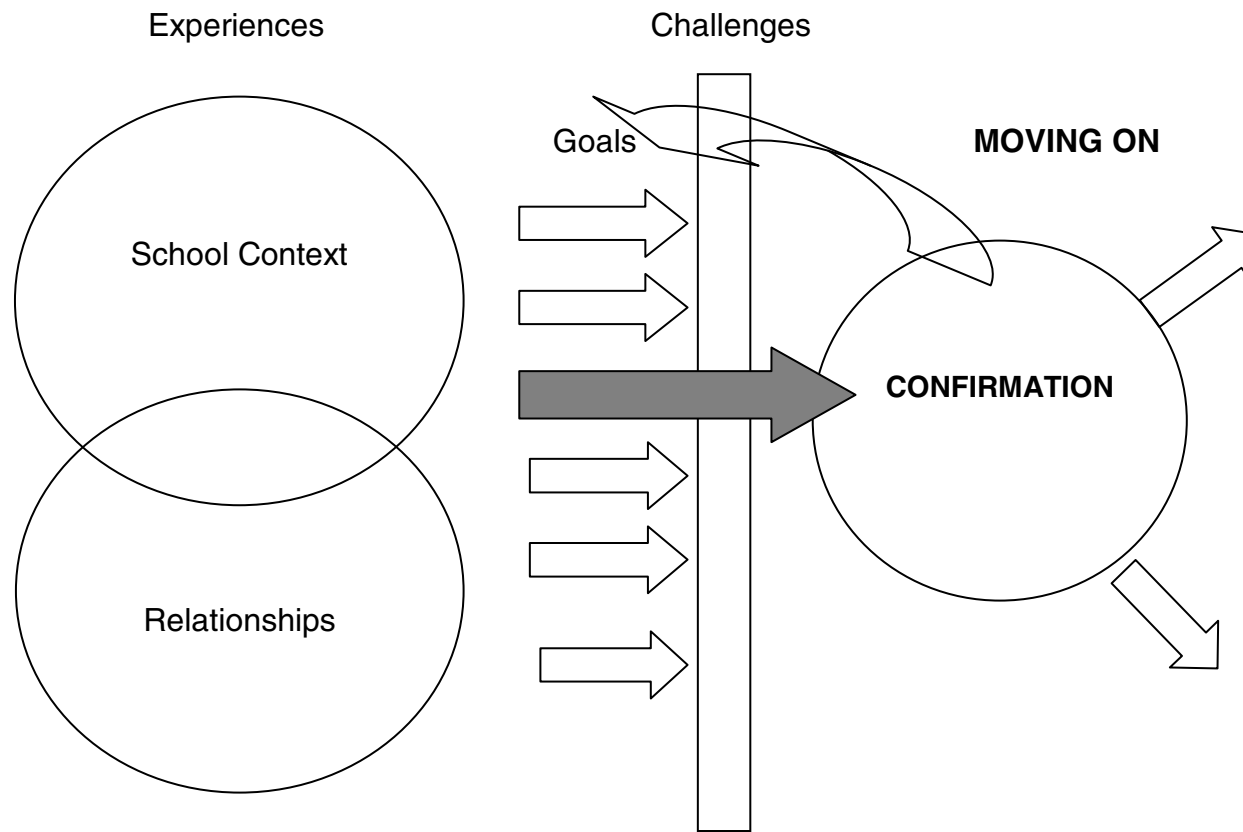


Figure 11: Overcoming Challenges, Seeking Confirmation, and Moving on Professionally

The term confirmation is meant to indicate both an internal and external sense of professional achievement, a confirmation that hard work made some kind of difference. In many ways this idea echoes the “sense of success” that Johnson and Birkeland (2003) discuss in their study of the career moves of 50 Massachusetts teachers. However, three important characteristics distinguish the concept of confirmation found in this model. First, confirmation captures the complexity inherent in urban teaching by acknowledging that teachers have multiple and complex goals, challenges will necessarily arise in their ability to achieve those goals. Weiner notes that urban school systems are inherently bureaucratic, unable to adapt to individuals, highly regulated and inflexible (1993). Thus urban teachers are asked to “retain [their] ideals while functioning in a setting that undercuts them” (Weiner, 1993, p. 135). This model accepts and incorporates the reality of urban schooling into career decision making. Faced with challenges, the case study teachers pared down their goals to achieve some confirmation, even modest, in at least one area. The act of paring down is depicted by the dark arrow emerging from several light arrows in the graphic. This quest for confirmation as a part of the decision-making process might be viewed as mere rationalization. However, the case study teachers appeared to seek this sense of confirmation as a critical decision-making step indicating that they were ready to move on professionally.

Second, this model uses a very specific definition of “moving on”. Johnson and Birkeland (2003) explain how teachers often moved to a different school where they were better able to achieve a “sense of success.” In this model, lateral moves between schools, such as a move from one high-needs school to another, constitute moving but not moving on. As illustrated in Chapter Six, there was great planned as well as actual movement

among the teachers in this study. Within this model, moving on can be defined as a career change that takes teachers to a new place in their careers. It is a move in which teachers' responsibilities are growing and changing, rather than simply carrying out the same responsibilities in a new setting. It is about what they are trying to achieve, rather than where they are achieving. Alison's promotion to mentor teacher constituted moving on although it took place within the same school setting because she took on new responsibilities; Charlotte's move to a magnet school did not because she continued to focus on instruction in physics. Moreover, teachers can move on simply by adopting new goals for themselves within the same teaching context. During her fourth year of teaching, Raya decided to focus on looking at student work because she had already reached confirmation in curriculum design.

Finally, confirmation differs from success in that it incorporates the educational communities in which teachers operate. Lave (1993) notes that learning can be conceived of not as internalization of knowledge but instead as becoming a member of a sustained community of practice. In this model, teachers find confirmation by investing in, becoming accepted by, and feeling successful within a certain educational community of practice. Thus "sense of success" is only one aspect of the concept of confirmation. In order for teachers to feel comfortable moving on to new goals and responsibilities, they must negotiate their membership in surrounding communities of practice and gain recognition by others as legitimate members. Even those teachers who considered teaching a short-term endeavor, such as Alexandra, sought confirmation within at least one professional community.

This chapter highlights the experiences of the remaining three case study teachers, Matthew, Mitch, and Talisha, and also provides an overview of the experiences of the other five cases. These three teachers were selected because they represent three very distinct strategies for seeking confirmation. Matthew and Mitch both intended to *integrate*, but Matthew changed his goals and Mitch moved to a new school as part of their quests for professional confirmation. Denise and Alison, also headed in the *integration* direction, sought confirmation and then new roles and responsibilities. Talisha, who intended to *participate*, also sought confirmation but never actually found it in her teaching context. This almost prevented her from moving on to a very promising position outside of the classroom. However, financial reasons prevailed and she ultimately did switch jobs, but only after great internal struggle. Finally, Alexandra, Charlotte, and Raya each ultimately planned to move on professionally but aimed to find confirmation in the classroom before doing so.

Integration: Matthew

Although Matthew was a third year teacher at the beginning of the study, it was his first year in this new school. He recently moved from a neighboring school just a quarter-mile down the road and immediately felt more accepted into the school community. Whereas he was considered the “young buck” (Fieldnotes 11-2-05) at his previous school, here he was one of the most senior teachers and reaping the benefits of that seniority. Matthew explained:

...over there ... I was at the bottom of the totem pole, I was the new environmental science teacher, I was the youngest in age ... and I tried to do field trips and they nipped it in the bud before it could get started ... Here, my principal is so supportive of everything ... the gardening ... he wants that whole field ... [for] planting trees. (Interview 1-6-06)

Starting over at a new school allowed Matthew to move up the “totem pole” and earn the respect of administrators and fellow teachers.

With his background in wildlife biology, Matthew wanted to bring nature to his urban students. He explained, “It’s my whole point of being in the city to expose these kids to new things, get them outside” (Interview 5-17-06). Over the course of the two school years, Matthew took his students canoeing, visited a water treatment plant, planted and maintained a garden on school grounds, built bird nest boxes, taught a unit on local tree dendrology, and much more. He had numerous relationships with local environmental organizations and wrote several grants to secure outside funding for his projects.

Initially, Matthew received tremendous support from the administration for these projects. He explained how his principal was highly supportive of his efforts:

Now I’m going to take the kids to the aquarium ... and then the [environmental education] conference, three nights in a hotel, do you know the costs for the whole thing? \$100 for Friday, \$50 I think for Saturday ... I asked if [the other environmental science teacher] and I could go, he said yeah. That’s like, I don’t know how much, it’s like \$450 I think for each of us or something. Just, yes, yes, yes. Take the kids out, get them out, show them like environmental science ... I’ve unofficially been offered the mentor teacher job next year ... I keep getting supported, I keep getting compliments for everything I’m doing. Matt you’re doing awesome ... Teachers come up here to ... watch my class, the administration is ... telling the teachers to come ... look at my classroom at the beginning of the year ... how I set it up. (Interview 1-6-06)

Not only did the principal support Matthew in his efforts to get the students outside in nature, he also held him up as a role model for the newer teachers on staff. As the year came to a close, Matthew was recommended for a promotion to mentor teacher, asked to design and teach an advanced-level environmental science course, and promised a reduced teaching load to allow him extra time to devote for his grants and

environmentally-oriented projects. He was also given the teacher-of-the-year award for the school. Although for months Matthew and his girlfriend had been considering leaving the city and moving out west, they now bought a house and decided to settle down for a while. He said he simply could not give up the tremendous support he received for his projects and the opportunities for his future.

Over the summer Matthew put aside his travel plans and instead helped pack and unpack boxes in the grueling heat as his school was transferred to a new building. When he returned to his school in the fall, he found that things had changed considerably. First, he was passed over for the mentor teacher position, while a close friend of equal experience was asked to lead the English department. Second, his advanced environmental studies class and reduced schedule were forgotten. He was instead assigned to teach seven periods of introductory environmental science, the entire freshman class. Finally, and perhaps most traumatically, he was not able to secure matching funds from his school for field trips. Although he received half of the funding from an environmental group over the summer, the school was unable to come up with the other half of the money come fall and Matthew was forced to cancel field trips he had already confirmed. He was frustrated by the experience of trying to secure funding promised to him months ago. He said:

There's always obstacles. There's resistance to everything. In the end if everything does work, then it's still, ... like when they say sometimes when you win you lose, or sometimes when you lose, and I think it's going to be kind of like that ... It's going to be so much work ... Why is everything such a struggle? And you have to put all this energy, all this time, and all this giving me the run around and everything and then finally you get to go on this field trip and you're like, was it worth it? All the energy worth it when it didn't have to be like that?
(Interview 9-13-06)

At the end of his third year, Matthew felt he had achieved a sense of confirmation within his school community. He earned recognition and support from his supervisors and peers and was planning to move on to more senior instructional and support roles within the school context. But instead, the urban system put up roadblocks to his success.

Faced with renewed challenges at the start of his fourth year, Matthew turned his attention away from his classroom and devoted himself almost entirely to after-school activities, which included coaching the tennis team and advising the student government association. He said:

I guess I'm just coming ...to the realization that I'm not so into the classroom really, I don't want to sit here and teach concepts that some kids are going to get into and other kids are just going to fall asleep to it. It's too much energy to keep up with how the kids ... spit out their gum. That's not what I want to do. I want to be, let's go on a sailboat. Ok, here we are, now this is fun. That's why I enjoy this. Do you enjoy this? I get through this so that, the field trips get me through the year. The tennis, student government get me through the year. If I didn't have those things I definitely would not be a teacher in William City. (Interview 9-13-06)

When things did not go well for Matthew in the classroom, he focused on his successes after school. For example, after a particularly frustrating quiz, in which a number of students answered only 10-20% of the questions correctly, he commented, "It's so upsetting, it's like, why am I here? So I'll just focus on student government" (Fieldnotes 10-3-06). Matthew pared down his goals to focus in on those where he could achieve some measure of success.

During the fall of his fourth year, Matthew's after-school commitments multiplied. He hit around informally with his tennis players, advised the ninth grade class, started a science club, and volunteered as the assistant coach for soccer. However, the student government took up the majority of his time and energy. In previous years he

had assisted with the student government, but this year he made it his own and was determined for it to be a success. He said:

I think it's going to be really good. Finally I get to do things my way. And the two student governments I've been on, in my opinion and I think in most people's opinions, they've failed ... but I strongly believe that it was because of things that went against what I thought ... So this year I'm really looking forward to it. Now I'm kind of like, "Uh oh, am I right?" ... We'll have to find out... Now I have no one to blame ... So, I feel confident we're gonna kick ass. I really do. (Interview 9-13-06)

Using a system in which student government officers met to discuss central issues on Tuesdays and then led the general assembly meetings on Thursdays, Matthew constructed a highly successful student government association at his school. As a group, they brought back the homecoming dance, initiated a spirit week, sponsored a video game tournament, and generally made the school a fun place for students to be. The student government presence was felt from the moment you stepped into the school building, from hall decorations to daily announcements to a fund-raising table in the entryway. Student government officers proudly wore special uniforms and Matthew received regular requests from students to join the organization. "Everybody wants to be part of the student government ... At least every week, someone's asking about student government ... 'How do you join student government, Mr. Jessup? Because we just keep hearing about it'" (Interview 11-15-06). Matthew was regularly forced to turn away students whose grade point averages were not at a passing level.

Throughout the day, students poured into his classroom to ask questions or just hang out. Matthew described the interaction with his tennis players:

Every day, I get at least three, sometimes more, sometimes five or six of my tennis kids coming down here ... to talk to me. "When are we going to play tennis Mr. Jessup?" Or they just come down to pop their head in and I don't know why they're doing it. Sometimes there's nothing that they specifically want to talk

about, so I just ask them, “Who are your teachers? How are your classes? How are your grades?” It’s cool, I like that, we connected ... And it’s not like on their way or anything, it’s at the end of the hall, there’s no classes ... it’s cool though. (Interview 9-13-06)

He devoted so much time to after school activities that his long hours were starting to affect his relationship with his girlfriend as well as the rest of his personal life. He commented:

But I feel like I need to find balance in my life because ... let’s say I got fired tomorrow, or ... the school got blown up tomorrow, whatever, somehow I don’t teach anymore .. what would I do with myself? ... Seriously ... I’ve lost hobbies. I don’t even like to hang out with friends as much ... Right now, if you took away school ... I would have no friends ... I would be like what have I done the last three years? (Interview 10-25-06)

Despite the impact on his home life, Matthew achieved great success in his efforts at school. His tennis players made the regional tournament, student government attracted widespread interest, and his efforts were generally turning his once-anonymous urban school into a more connected and inviting place for students to attend. His principal even wrote him a personal note thanking him for all of his hard work with the student government.

However, just when Matthew was once again reaching a measure of confirmation within the school environment, this time through after-school activities, he made a decision to leave his school and William City once and for all. “I’m done” he blurted out in our final interview, “I could leave tomorrow and be ok, make tomorrow my last day” (Interview 11-15-06). As a researcher, this decision surprised me. From my perspective, he was checking out just as everything was going so well. But later I realized that Matthew had gotten past the challenges, achieved confirmation through his after-school

activities, and was ready to move on professionally. As a way of moving on, he refocused his attention on success during the school day. He said:

If I was changing everybody's lives ... that's different. But to go through all that punishment just to have a couple kids ... want to talk about tennis or student government or enjoying an organization that I started ... It's not enough. The pain that you go through all year long, the abuse during the day and then the not having a 9 to 5 job, when you go home and just continually thinking about this place that's not a positive place. It's not worth it. I could die tomorrow. You know I could die next year. Nobody knows, you know ... This isn't living life.
(Interview 11-15-06)

Where student government was once an intense focus of his energies, now it was no longer enough.

Matthew and his girlfriend both decided that next year they would try teaching in a nearby suburban school district. In making this decision, Matthew was seeking a context that would support his current professional goals. Having reached confirmation within the school community in his environmental and then after-school projects, Matthew was now seeking confirmation as a classroom teacher and professional. He felt that he could best achieve those new goals in a suburban context. He wanted to teach:

...in a school that's under control, and where there's consequences for the kids' actions, and there's no tolerance for all this crap ... I don't want to have kids that have second grade reading levels in my class ... I want kids that are motivated academically. (Interview 11-15-06)

Where discipline and motivation were once minor concerns, now they consumed him. Matthew first reached confirmation as an environmental educator and planned to move on into a mentorship role. With those plans thwarted, Matthew re-focused his energy on after-school activities and achieved a sense of professional confirmation as an advisor and coach. Then he chose to move on to the next phase of his career as a suburban educator.

Integration: Mitch

Mitch held a deep respect for teachers. Always academically successful, he was the valedictorian of his high school class in Omaha, Nebraska. As an adult, he maintained relationships with many of his teachers from the early years of his life. In fact, the only days he took off during the entire school year he used to fly back to Nebraska for a surprise retirement party for his high school choir teacher. During this trip, he visited with a number of his old teachers and took photographs with them, like close friends or family members. He also attempted to write Christmas cards to his former teachers on an annual basis, what he estimated were 50 to 60 cards each year. Mitch noted:

With the exception of one or two, I always send them a Christmas card ... I sent all of them an announcement ... when I got my doctorate. And some of them are like, please do not stop your letters. Even though we don't respond, we look forward to hearing from you every year ... Teachers have been so important to me that I think ... my teachers have been the most influential on my life. (Interview 3-8-06)

Mitch valued high school teachers and felt that they made a difference for children.

While Mitch respected teachers and teaching, his family did not. He said that they could not understand, and certainly could not begin to explain to their friends, why their son with a PhD was working as a high school teacher, and with poor children besides. His father, a computer technician at a community college, wanted to see his son working at that level:

[My father] said, "Oh, it's a easy job." And I'm like, "I'm not looking for an easy job." He said there's teachers here making \$60,000. They come in at 9:00, and they leave at 1:00 every day. Some of them three days a week, and they still make \$60,000 ... But I don't want something easy. (Interview 3-8-06)

His mother wanted him in a more lucrative field. Mitch explained, "And my mom, she wants me to make lots of money ... It's always been that she wants me to make a lot of

money” (Interview 3-8-06). Therefore, while Mitch valued the work of high school teaching, his family did not. Well into his third year of teaching, his career choice continued to be a source of tension with his family. After a particularly stressful

Thanksgiving dinner he commented:

It’s always that little thing I’m always worried about ... when I’m talking to my parents. Do I have to defend myself every time? ... I always have that in the back of my mind, and I’m like, I wish you would just be happy for what I’m doing. (Interview 11-29-06)

While Mitch respected teachers, his parents thought they worked too hard and were paid too little.

Mitch had a rocky start in teaching. Despite a strong content background and great success at the Teach for America summer institute, Mitch struggled with classroom management. In January of his first year, he received an unfavorable evaluation from his principal. He felt the evaluation was unjustified and caused by her lack of knowledge about his teaching. He commented:

I’m kind of figuring one of the things they based it on was one time the principal was up in the hallway and I was screaming loud at my kids in the hallway. They were throwing lancets at each other in the lab! What was I supposed to do? There were 35 ... And it was me and the other chemistry teacher in the lab and they weren’t listening to either one of us. And so I just screamed at them and she was in the hallway and heard and said I have no control of my kids ... That’s what irritates me about administration. They don’t know what’s going on. (Interview 5-24-06)

The evaluation was supposed to signal the need for increased support, but Mitch says he never received any of the help he was promised:

My contract said that my principal was supposed to send me to some workshops in classroom management, she was supposed to observe me, she was supposed to give me a way to go observe other teachers ... None of that happened, none of it! So, I mean, nothing that they did supported me. The only thing is I needed a different classroom for my biology kids, because this classroom was way too small for 35 kids, and I was moved to the department chair’s classroom. My

principal came in for half a period one day. And she wrote me, “Oh your lesson was great, you left off an ‘e’ on ‘the’ on the board.” She said you need to be more conscious when you write things. (Interview 5-24-06)

Although his next evaluation was satisfactory, Mitch has lost trust in his administration.

He regularly commented on how school administrators had lost touch with what was going on in the classroom:

I think that’s what’s wrong with a lot of administrators in administration for 10, 20 years. They don’t know what’s going on in the classroom. Because they’ll say things, I’m like have you been there? Our administration was never in our classrooms. Once or twice a year. And you can’t judge... (Interview 6-14-06)

Mitch described his experience with administration in William City as “being hammered” (Interview 10-30-06).

In the classroom, Mitch took a different instructional approach than a number of his colleagues. As an instructor at an all girls’ school, he was proud to teach what he called “real science,” and work to shrink the gap between girls and boys (Fieldnotes 12-19-05). He was under a lot of pressure to prepare his biology students to pass the statewide exam, but explained that his approach was to teach them the concepts rather than simply teach to the test. He commented on how his instructional methods differed from the other biology teachers at his school:

MM: ...she pulled old questions from the exam and makes them do all the labs from the exam because she thinks that if they’re doing those labs they can answer those questions. Whereas I’ve read those questions. You don’t need to know what those things are or have done that experiment to answer that question. You just have to have a basic understanding of science ... They teach very much to the test and I can’t do that ... As much as people want you to teach to the test, I can’t, I have to draw the line there. And that’s my law, and I cannot teach to a test.

I: So if you don’t teach to the test, what do you teach to?

MM: I teach to the topic for the test, but I don’t ... take all the tests and teach them only the questions from there. I teach them the topics that they need, but I teach the topics in detail and give them the knowledge. (Interview 1-20-06)

Observations in his class illustrated this approach. During one visit to a chemistry class, Mitch had returned to the concept of ionic and covalent bonds because he did not yet feel comfortable that his students understood it. He stayed on the topic for weeks until he was sure they had reached mastery. Although Mitch believed in his approach, he felt uncomfortable taking a different road than his more senior colleagues.

Facing doubts about his choice of teaching from his family, his ability to teach from his principal, and his approach to teaching from his colleagues, Mitch sought, and found, confirmation in a variety of ways in his professional life. First, he was proud to learn that across the school his biology students had the second highest pass rate, and the highest of any non-honors class, on the statewide exam. He felt this success justified his instructional approach. Second, Mitch applied and was selected as a finalist for two national teaching awards, one through Disney and the other through Teach for America. But perhaps the most meaningful were the words of gratitude and praise that he received from students and colleagues when he told them that he was preparing to leave the school at the end of the year. He explained:

...some of my students threw a surprise party for me, a going away party. Like they decorated this whole room and said "We love Dr. McNeill. We're gonna miss you" ... They brought fried chicken and potato salad ... They gave me some cards, and they gave me this magnet set of [the television show] *Friends* ... One girl gave me a Mariah Carey DVD and a Mariah Carey CD ... And I was just like, that was so thoughtful. (Interview 6-14-06)

His science department colleagues also sent him off with a cartoon chemistry book and a gift certification to JC Penny's. Mitch commented, "... I was very, very touched by that" (Interview 6-14-06). Finally, a colleague brought him unsolicited words of praise:

A math teacher was telling me yesterday, he asked me, so are you sure you're leaving, and I'm like, yeah, it's pretty definite, and ... he said he's very said because he said he can see how much growth I've made in one year and he said

he's not going to see the finished product. He said I would be very close to being a finished product by next year. I was like, no! ... That makes me feel really good. (Interview 5-24-06)

Leaving his school provided an opportunity for Mitch to finally feel accepted professionally by his colleagues, and this meant a lot to him.

At the end of his second year of teaching, Mitch was already beginning to think about moving on professionally within the educational system. He was seriously considering going into administration and planned to push for the retiring department chair's position. However, he decided that he could not move on until he had reached confirmation in the classroom. He commented, "I don't want to ... leave before I'm good at it, so that's one reason I'm really wanting to teach at least one more year. Because I don't feel like I'm a good teacher yet" (Interview 3-8-06). Instead Mitch decided to make a lateral change, moving but not moving on, and accepted a position as a chemistry teacher at a high-needs rural school near his family. At this school, he found the confirmation as a professional that he never found in William City. His students were highly successful academically there, earning a 95% average on quizzes where his William City students averaged ten points lower with the same instruction.

But more than that, at his new school Mitch felt he was treated as a professional. The principal at his new school had high expectations for teachers and he put in tremendous hours, often working from seven in the morning until eight at night as well as on the weekends. However, he felt rewarded for his work. The school schedule allowed for a week's break at Thanksgiving and two weeks in the winter in addition to designating the Monday after each vacation as a professional day for teachers. Mitch felt these extended vacations gave him the time he needed to act as a professional:

I was thinking in William City I could never really think about things because our vacations were never long enough. By the time you started, it was time to go back to work ... That's the most, like I mean treating you like a professional, which is awesome. (Interview 10-30-06)

The principal also took the entire staff to a conference in New Orleans over the summer, paid for their lunch daily, and provided them with a cell phone for communication with students and parents. Finally, teachers were involved in ongoing decision making at this school. The staff met for six weeks over the summer to construct a "clear school culture" (Interview 9-20-06) and every Friday during the school year to discuss ongoing issues, at least once until eight o'clock at night. After a crisis in which the Spanish teacher was ready to quit, the staff jointly devised a plan to rearrange the schedule, ease her heavy teaching load, and keep her on board. Mitch also respected that the principal acted "like an equal" (Interview 9-20-06) to her teachers, often staying late into the night, visiting his class regularly, and even taking his quizzes alongside the students from time to time. In William City, he did not feel that he was respected, "...they don't treat us like professionals ... [or give] me my professional respect ... I think that's the biggest thing that's irritating me, more than anything." (Interview 2-15-06). But at his new school he felt like a professional.

At the conclusion of the study, Mitch was actively debating his next steps. A number of options continued to be on the table, including a return to college teaching, and he noted that he hoped to start a family which might impact his career direction. However, he was heavily focused on moving up within the educational system, particularly becoming a principal and then perhaps a superintendent. However, Mitch noted that when he goes into administration "I don't want to lose, I don't want to lose touch" (Interview 6-14-06). His plan was to stay in the classroom for three more years,

until his current students graduated, and begin to take administration classes to prepare him to move on professionally. Only once he reached confirmation among his students, colleagues, and administration was he ready to move on. He is, however, still searching for confirmation from his parents, something he may find by moving up within the educational system.

Integration: Denise and Alison

While Matthew and Mitch's experiences clearly illustrate this notion of seeking confirmation before moving on professionally, Denise and Alison also sought this sense of success and acceptance in their professional lives. This section briefly touches upon the ways in which their experiences reflect the confirmation model of teacher development.

In her first year of teaching, Denise devoted her time to developing lesson plans and finding resources for her classroom. She actively sought out ideas from veteran teachers within her school, new teacher residents, and even former colleagues from her science laboratory. During one science department meeting at her school, a colleague suggested a visual method for teaching the protein synthesis process using folded paper and constructed an informal model to demonstrate. Denise was eager to take home this model so that she could try it with her own students. Denise also attended two professional development workshops over the summer, collecting teaching ideas and resources at each, including a fish tank complete with local fish species. Throughout her first year, Denise focused on developing her lesson plans and resources so that she would be more prepared in the future. She commented, "I'm just trying to get it all down pat

where when I come in, it's just done, and I can really execute it well" (Interview 3-23-06).

Despite the inevitable difficulties of working in an under-resourced school system, Denise was frustrated with the lack of material resources, professionalism, and administrative support, she did find great success in the classroom. First, her academy's graduating class voted Denise their favorite teacher, which included a photograph in the school newspaper. Second, Denise was asked to attend a training to teach the Advanced Placement biology course. Finally, and perhaps most importantly for Denise, her students were successful on the statewide exam, with 36% of them passing, the school-wide average. Denise's department chair pulled me aside during one professional development session and told me of Denise's success, how her students scored more highly than "the pros". She commented, "It gives me goosebumps just thinking about it" (Fieldnotes 8-24-06). Thus at the start of Denise's second year, she felt successful in teaching biology and appreciated by both students and supervisors.

Because Denise developed a reputation among students and a sense of how to prepare them for the statewide exam, she felt that teaching was easier in her second year. She explained:

DS: I think it's easier because I have relationship with ... kids. In the beginning they used to always come to my class like Ms. [Sargent] ain't no joke ... I think that kinda helps ...

I: Yeah. You don't have to prove yourself.

DS: Mmm hmm. So I mean that makes it easier. And then I know what's on the [biology exam], and I have like my workshops and ... I have a lot of materials that I can use, so that helps. (Interview 11-8-06)

Once Denise reached this sense of confirmation, she began to consider moving on in a variety of ways within the educational system. Denise expressed interest in becoming a principal and had begun to look into an alternative principal leadership program. Long term, she talked about opening a school focused on authentic projects and writing a book about her experiences in the classroom. In her first year, Denise focused on finding resources and developing lessons. Once she achieved a sense of confirmation with these goals she began to prepare for her next steps.

Although she was in a different place in her career as a chemistry teacher, Alison also sought confirmation as one part of moving on professionally. Despite her extensive efforts on behalf of the school, Alison did not feel that her work was always recognized or appreciated. During her third year, Alison filled the role of lead teacher for science, but was not officially given the title or paid as such. Alison devoted more time than her colleagues to their daily professional development sessions, but her work was not always rewarded. She explained that she would like to see some financial compensation for this extra time and effort, not only for the money but also for what it represents:

... that would be really nice if there is ... a stipend for perfect attendance ... Here's \$500 because you came every day and ... I can rely on you. ... That would make it worthwhile to me not ... just because it's money...but because there are like 15 days when I wanted to take off. My team is in the Super Bowl. I wanted to go to Detroit. But I didn't because I have a stronger work ethic ... I'm not doing it because I'm going to get rewarded, but it would just be nice ... (Interview 4-18-06) .

Although Alison felt successful, she had not reached confirmation because her work was not fully recognized in her communities.

At the end of her third year of teaching, Alison applied for, and received, an official promotion to science support teacher. This increase in both pay and status gave

her what she had been seeking in terms of recognition for her efforts. Now that she had achieved some sense of professional confirmation, Alison turned to her attention toward a new goal: supporting science instruction department-wide. She initiated weekly planning meetings for science teachers, conducted classroom observations and provided feedback, and set student achievement goals for her department. Alison did struggle to find her way with her new responsibilities. For one, she was concerned about her new status and commented, "...it's a little bit weird because now I feel like [the other science teachers] think I'm their boss, and I don't want them to think that" (Interview 9-6-06). Moreover, she found that some teachers were more receptive to her support than others, noting "...everybody is supposed to come to a planning meeting, but they don't" (Interview 12-6-06). However, despite the challenges that came with her new responsibilities, Alison revamped her approach, working toward confirmation in this new realm.

Overall, the four teachers in the *integration* direction sought, and ultimately achieved, a sense of professional confirmation in their work using a variety of strategies, ranging from changing goals to changing schools, building relationships to receiving recognition for hard work. While each of the four teachers used a different approach, they all sought a common sense of both personal and communal acceptance for their work in the classroom. They also had in common a desire to move on professionally to new roles and responsibilities within the educational system, including administration, suburban teaching, and teacher mentorship. The *participation* cases also seek confirmation in a variety of ways, but once they reach that confirmation plan to move on outside of the educational system.

Participation: Talisha

Although Talisha came into the classroom with the intention to teach only briefly, she also sought a sense of confirmation. Talisha entered the classroom as a career changer from the pharmaceutical industry. When she became unhappy with her changing role in the lab and began to consider a career change, Talisha debated a number of options both in and out of education. From the fieldnotes:

She was 29 going on 30 and thought that if she was ever going to make a career change now was the time. They also decided to have another child. She considered a number of options. Her husband suggested teaching, she considered taking the MCAT and going to med school, and she thought about opening a store because she likes to design gowns, however that was not science-related and too much of a jump. Ultimately she decided upon teaching because it provided enough time for her family, to be part of her children's lives. (1-6-06)

Her husband, a math teacher, had a professional connection with a newly restructured school in William City and she accepted a job there. Although Talisha held a masters degree in biology, she was assigned to teach chemistry. She had no background in education. On her first day in the classroom, Talisha had no certification or summer training program, no formal education courses, no other chemistry teacher or department chair to turn to for ideas, no lab facilities, and no textbook. What she brought to the classroom was a wealth of knowledge and experience in the lab that she intended to share with her students.

The administration promised Talisha that they would build her a lab space in an adjacent classroom. She was very excited about this space and planned her instruction around use of the lab, but it was delayed again and again. In March she explained:

Back in September I was told, in two weeks be prepared to move your class over completely into the lab and I was psyched, they were psyched, and we were like, two weeks we're outta here. This is only temporary space, and then we can do real labs. But in the classroom, we did simple things ... with oil and water and

milk, any household thing that wouldn't stain ... Time passed and the lab was never worked on ... When the [second semester was] about to start, I was told ... the labs will be done by the week before you start ... That week came and went, and it still wasn't complete ... They finished about four, five days ago. (Interview 3-7-06)

As soon as the lab was completed, Talisha jumped to get her students working there:

That following Tuesday after it was done, we went in for the first time ... it's been fun ... The kids were looking forward to getting in there, and I didn't want to hold them back ... Our first lab was a density lab, which was outside of the ... curriculum. That was just ... my own little lesson to get them into the lab and get them comfortable using certain lab equipment because most of them haven't worked ... with lab equipment. They know test tubes from ... CSI ... shows like that ... I think the only thing that's been ... moved into there thus far are ... their triple beam balance and a few beakers and stuff. So basic supplies so that they can do activities ... I have to ... take all equipment home, and I dishwash everything, and then I bring it back. (Interview 3-7-06)

From the time that the lab was completed in late February until the end of the school year in June, Talisha spent the majority of her time in the lab with her students. She was first and foremost intent on teaching them safe lab technique. During one classroom observation, the students demonstrated their use of safe lab procedure without any prompting:

As they enter the room, they immediately find their goggles, get their gloves, and one girl goes to find paper towels. She can't find them in bathroom so goes elsewhere. When she returns with the paper towels, they all get to work cleaning the desks. (Fieldnotes 3-7-06)

She also agreed to be a pilot site for an inquiry-based chemistry curriculum, which led to even more time in the lab. Moreover, Talisha found the laboratory to be a place where her students thrived, commenting, "Getting them in the lab and doing hands-on work is so much more valuable for quite a number of the students than ... giving them reading, although they need more reading" (Interview 3-7-06). The students enjoyed it as well.

She noted, “They were like ... we like being in the lab ... they’re looking forward to being back in the lab” (Interview 3-7-06).

At the end of Talisha’s first year, she was beginning to get a handle on the teaching of chemistry. She felt more comfortable with what she faced in the classroom and where to turn for support, and she was ready to revise and improve things for the next time around:

I think that ... I know who I can ... reach out to and who I think is familiar enough with my style and the students who I’m working with to help me. And I think, honestly, that I’m ready for true constructive criticism, to really have someone sit down and say, alright, let me see your lessons, and I think you need to do this. (Interview 6-6-01)

However, toward the end of the year, Talisha faced some surprises. First, she found out that although she had requested a chemistry assignment to build upon her year of experience with that subject, she was reassigned to teach biology. She learned about this reassignment during an interview for a new teacher for the science department. Talisha explained:

When she arrived for the interview, this is when I learned that she won’t be teaching biology; she’ll actually be teaching chemistry, which puts me to teach biology. And so up until her interview, I wasn’t aware of that. All conversations up until the interview had said that it was up to me to decide whether I wanted to teach chemistry or biology. And [the principal was] well aware that I wanted to stick with chem., not so much because I love chemistry, but I didn’t want to start a whole new curriculum ... So that was kind of a shocker.

When we’re at the panel and the principal is introducing everyone, she said ... this is Ms. McEllicott, and she is interviewing to be the second science teacher...She would, how did she say it, she would help ... to develop the science department, Ms. Zurich on the biology and Ms. McEllicott coming in to teach chemistry. So it’s very clearly stated. (Interview 5-3-06)

Talisha was frustrated both by this change and the way in which it was communicated to her. Just when she was starting to get a handle on things, she was being asked to start over again:

... I had mentioned ... that I didn't want to start, yet again, with a whole new lesson plan ... only because I did it twice with chemistry ... It would really be nice to walk through the doors and have something in place and say, I know this works, this didn't work, we can extend ... in this lesson, but not with this one ... I don't mind teaching biology, but oh my gosh ... it's just a lot of work all over again. (Interview 5-3-06)

After Talisha got over the initial shock, she did embrace the idea of teaching biology. She devoted two weeks of her summer to attending a state-sponsored workshop on teaching this high-stakes subject and set herself a personal goal of getting 75% of her students to pass the end-of-the-year exam. She said, "I feel excited about the upcoming school year ... if I can you know, if we come back here again next year and I can say like over 75% passed, that would be great" (Interview 6-14-06).

Shortly after Talisha found out about her reassignment to biology, she also found out, in a roundabout way once again, that she was going to lose her lab space. Her lab was on the second floor of the building, and the principal announced at an informal social event that the school was being moved entirely onto the first floor of the building. Talisha explained:

There was a happy hour on Friday for the end of the school year, which I didn't go to, and it turned out we were told during this dinner and drink time that we're moving ... Instead of having the entire building, first and second floor, we're going to take the entire first floor ... It sucks because they put all that money into putting in the fume hood and the ventilation system ...

I don't know what's going to happen with that. And no one has approached me on it. And so I guess ... they haven't figured it out yet. I'm pretty ... go with the flow. I hear things ... when I hear them ... I guess it's partially from my frustration when I was really pushing for the lab, nothing came of it until everyone was ... good and ready to get it set and running. And ... now to hear

that ... we're moving. And it came up at such a random event ... I think that should have been something announced during school hours ... I found out about this just talking ... to [my friend] ... and first she said, oh, you need to pack up the lab, and I'm like what for? And she says because we're not going to be up there anymore. We have the entire first floor. So I said, wow, that's news to me because I was only planning on packing up my room and just organizing the lab ... I'm worried about that. (Interview 6-14-06)

Once again, Talisha was surprised by changes that impacted her work life in a big way.

However, despite these significant impediments, Talisha remained optimistic about teaching because she was such a positive person. Talisha commented that she thought people would describe her as positive over and above anything else. In fact, although it was only her first year, other teachers came to her for support because of her positive attitude. We discussed this:

I: But it seems like other people turn to you.

TZ: It's funny because ... they say, ah, you're so positive. If I come to you, I know you'll put like sunshine on things [laughter] ... I think not everything's ... gloom and doom ... My motto is ... don't complain if you're not gonna change. So I feel like if I complain about something, I have to have a plan in mind. (Interview 6-1-06)

Her optimism came through time and time again. During one informal lunch conversation, a number of teachers complained about their frustrations with a mutual student, calling him "functionally illiterate" (Fieldnotes 6-1-06). Ever positive, Talisha stood up for this student, explaining that she had to get him alone in order to see his potential. Because her approach was to "take it day by day" (Interview 6-14-06) when challenges arose, Talisha did not get frustrated or think about giving up on teaching, she simply resolved to do her best with what she was given.

However, during her summer workshop, Talisha met an instructor for a mobile educational lab which traveled around the state bringing cutting edge laboratory research

techniques to high school classrooms. It fit Talisha's background perfectly and the instructor encouraged her to apply for an open position. However, Talisha was not ready to leave the classroom. Although she never intended to stay long-term in the classroom, Talisha had not yet reached professional confirmation and was not ready to give up teaching. During a phone conversation she explained this to me:

She said it was a hard decision. She wanted to give teaching at least another year to get into the groove ... Plus she was "hyped" to try out the techniques and resources she learned about the workshop. She was excited about preparing kids for the exam and thought it would be a good end goal to keep them on track. So money aside she wanted to go back for those reasons. (Interview 9-8-06)

Her plan had been to stay about five years and then move on professionally. She commented, "I didn't think this was the year to move" (Interview 9-8-06). Although she faced great challenges ahead at her school, and this position was a perfect fit, Talisha struggled with the idea of leaving the classroom so soon. However, with her husband working three jobs and two small children at home, she simply could not turn down the greater salary and benefits offered to her by the mobile lab. One week before school was to start in the fall, Talisha decided to move on professionally out of the educational system. She did this with great reservation, but justified her decision by saying that she could bring these lab techniques to her students. Unfortunately, this has been harder to accomplish than Talisha realized, but she continues to try.

Talisha does not fit the model precisely because she chose to move on professionally before she had reached confirmation as a teacher. In her second year, she was still very much learning and growing, even more so because of the changes forced upon her. However, Talisha's desire for confirmation before taking on the next challenge was so strong that she almost passed up what turned out to be an exceptional professional

opportunity in order to stay on and continue her classroom work. This model does not discount other important factors. In Talisha's case, financial reasons did prevail. But the fact that it took considerable debate and struggle for her to leave before she had reached confirmation speaks to the power of this condition.

Participation: Alexandra, Charlotte, and Raya

Like Talisha, Alexandra, Charlotte, and Raya also sought confirmation in a variety of ways before moving on professionally. Alexandra initially focused on teaching hands-on lessons. She invested considerable time and money in gathering resources for her classroom and many of her course assignments had a hands-on component. During one observation in her technology class, students crafted scale models of houses. In another class they built their own telegraphs from wood and wire. The latter project required that Alexandra spend her Sunday at The Home Depot buying and cutting wood boards for her students. However, Alexandra's classroom management struggles frequently interfered with her ability to implement these lessons as planned. In Alexandra's classroom, shouting was common, students wandered in and out as they pleased, and students even threw things at her when she was not looking. Alexandra explained:

... You can see where I started writing the notes in black, and a pencil came towards me in the front of the room, and I stopped ... I was like I'm not gonna sit there and write notes if you're gonna throw pencils at me. I'm just not gonna do it. And this has been an ongoing thing ... I'll start, something comes at me, I don't even give them a second chance anymore ... I'm like no. You've had your first and second and third and fifth chances last week. You are eleventh graders. You do not deserve to be treated like that's normal ... So we're working towards it ... (Interview 12-11-06)

Faced with these ongoing difficulties, Alexandra began to turn away from hands-on projects and toward the technology coordinator part of her position. She worked to get each classroom a functioning computer, create a school-wide network, and instruct her colleagues in using the online teacher support system. Even within the classroom Alexandra concentrated her energy on preparing students to use technology, assuring that each student had an email address and could submit an assignment using the digital drop box. For the most part, Alexandra was successful in achieving these more technologically-oriented goals. Like Matthew, Alexandra tried on goals until she found one that she could use to get through the challenges in the urban system and find confirmation. Once she achieved this technological confirmation, Alexandra decided to leave teaching in order to pursue public health.

Charlotte also faced challenges in the urban system. With her strong scientific background, Charlotte was initially focused on subject matter. She refused a job at the city's top school because it was for engineering rather than physics and accepted a position in the city's alternative school because it offered the opportunity to teach in her content area. At the alternative high school, Charlotte taught a rigorous course intended to prepare her students for college physics. She aimed to give them the mathematical tools, physics concepts, and problem-solving skills needed for success in the subject. She explained:

I think that ... I have some radical ideas about physics ... I am just not a believer in the "oh physics is so hard, don't worry you might learn some of it" method of teaching physics ... I believe every single person in this classroom can learn this and I don't want to hear anyone say that they can't ... because I really believe that with so many things, including physics, 99% of it is just believing that you can learn it. (Interview 8-25-06)

Unfortunately, because of the instability of the student population at this school, only two to three students regularly attended her physics class. Therefore, while Charlotte felt that her teaching techniques were successful, she did not yet feel like a legitimate physics teacher because her classes were so small. Moreover, she felt she could not reach any conclusions about teaching until she was in a more typical situation.

Faced with this challenge, Charlotte decided to change her teaching context and took a physics position at William City's top math and science magnet school. At her new school, Charlotte was able to get past the attendance challenges and find confirmation as a physics teacher. She ran running five large physics classes each day and took on an extra load so that students would not suffer when a fellow physics teacher left mid-year. Charlotte even began to refer to herself as a physics teacher rather than a physicist. Moreover, Charlotte was extremely well-regarded by her colleagues. Her department chair said "She's doing a great job" (Fieldnotes 10-17-06) and the principal explicitly told me "You're working with a genius!" (Fieldnotes 11-6-06). However, it was at the peak of this success that Charlotte committed to returning to graduate school and began preparing for the Graduate Record Examination (GRE), explaining that she was not finding intellectual stimulation in teaching. Although Charlotte always intended to return to graduate school, she appeared to seek professional confirmation as a teacher first before making a final decision to pursue her career in academia.

Like the others, Raya also worked toward a sense of confirmation in her teaching. In her first few years in the classroom, Raya's priorities lay in constructing authentic learning experiences for her students, crafting elaborate expeditions on a variety of topics. Raya found great success with this approach in her first three years in the

classroom, so much so that she commented, “I think I’m ... probably much better than the average teacher ... in the city” (Interview 3-27-06). Given this initial success and encouraged by her participation in a research project, Raya decided to tackle the next goal, focusing her attention on assessing student understanding in the classroom. She explained, “I want to focus more on student work next year ... give the attention to my students and their work, on top of everything else” (Interview 5-22-06).

However, at the start of her fourth year the district increased class sizes at her school to over 30 students. Raya was unable to effectively implement her time-intensive expeditions and felt she had less, rather than more, time to focus on student work. Observations of her class during this time confirmed that a number of students were slipping through the cracks, play-fighting and chatting rather than completing the day’s assignment. Raya felt she was unable to provide the individual attention her students needed, commenting, “I have all these ... high maintenance kids, and so you have to stay on top of all their work, and it’s really taking a lot just to do that” (Interview 9-18-06). Bureaucratic changes in William City undermined Raya’s existing success and prevented her from being about to reach her newest priority.

In response, Raya decided to seek a new teaching context where she could more effectively reach her goals. In early December Raya had already informed the principal that she would not return in the fall unless class sizes were reduced. Instead, Raya hoped to find a charter school which could provide greater support for her student-focused, project-driven teaching model. Raya explained, “I’d really like to teach a few more years” (Interview 12-11-06) in that type of environment, but did not expect to stay anywhere long-term. Raya, like the others, sought a sense of confirmation in the face of

an unstable teaching environment and was willing to move around in order to achieve it. However, after finding this more supportive environment, Raya too planned to move on professionally.

Here again, all four of the teachers in the *participation* direction sought a sense of professional confirmation, although Talisha was unable to achieve it before accepting a new position. Like the others, these case study teachers sought a sense of success along with acceptance in one of the educational communities they valued, from technology, science departments, and students. However, they differed from the previous group in that these teachers planned to move out of the educational system after reaching confirmation in the classroom.

Analysis

As depicted by the confirmation model (Figure 11), the narratives illustrate how these eight urban science teachers got past the challenges inherent in the system and reached professional confirmation before moving on to other goals. The case study teachers entered the classroom with a wide range of priorities they hoped to accomplish. Some, but not all, of these priorities were rooted in the particular subject matter of science. Without fail, each of the eight case study teachers faced difficulties achieving their goals and used a variety of strategies to get past the challenges. Matthew changed his priorities, Mitch changed his location, and Talisha maintained a positive attitude in the face of adversity. Each one sought a sense of confirmation, in which they felt both successful and accepted by one or more of the educational communities. And without fail, each moved on to new goals, either within the educational system, like Matthew and Mitch, or beyond, in the case of Talisha. Moreover, this drive for professional

confirmation was so powerful that each of the case study teachers' families sacrificed in order to support their efforts. Matthew's girlfriend was upset by the long hours he devoted to his after-school activities, Mitch's parents were disappointed by their son's career choice, and Talisha's husband worked three jobs in order for her to work as a teacher. Their families' sacrifices added all the more pressure to their search for confirmation in teaching.

This model is particularly relevant to teacher retention because it helps illuminate the decision-making process. These urban science teachers did not retreat away from the classroom because they failed. Rather, they sought confirmation of their ability to succeed in this environment before deciding to move on professionally. This finding does not contradict research showing that teachers leaving because of dissatisfaction with their working conditions (e.g., Ingersoll, 2003). Rather, it demonstrates that the case study teachers' dissatisfaction emerged more powerfully after finding professional confirmation. The model proposes that these urban science teachers sought confirmation of their success within given conditions as an intermediary step on the road to moving on. It was one piece of the decision-making process.

Much of the existing research on new teachers focuses on the need for support, and mentoring and induction have been shown to help retain teachers through their first year of teaching (Odell & Ferraro, 1992; T. M. Smith & Ingersoll, 2004). This support continues to be important in helping urban science teachers achieve a sense of confirmation. However, this study shows that an additional piece is also necessary. In order to keep urban science teachers in the classroom long term, schools and school districts also need to provide ongoing opportunities for growth and development

(Donaldson, 2005a; Ellis & Bernhardt, 1992). These urban science teachers planned to achieve confirmation and then move on. This certainly does not mean that they should be prevented from reaching confirmation. Rather, it means that they should be expected to find confirmation and then provided with challenging opportunities for continual growth and development to keep them engaged long-term. If these opportunities are structured into the standard teaching career ladder, then teachers would be better able to move on within their current jobs, rather than being forced to change to a new job.

These ongoing growth opportunities appear to differ from traditional notions of professional development, already a cornerstone of educational systems. Where high-quality professional development offers teachers the opportunity to reflect upon their teaching and participate in school-wide reform (Hawley & Valli, 1999), these teachers instead desired new roles and responsibilities. Rather than working to improve their practice, the case study teachers aim to ultimately move into non-teaching positions, with Mitch aiming for the superintendency, Talisha working in an education-related laboratory, and Matthew ultimately hoping for some form of support role. Their professional goals appear quite different from the reflection on practice and introduction of new instructional methods so common in traditional professional development. These teachers appeared to be focused moving into new roles either within or outside of the educational system, roles which often afforded greater status, pay, intellectual stimulation, and possibly even professional treatment.

This analysis raises several important points. First, this study focused specifically on those teachers who were rooted enough in the teaching profession to participate in a research study. Although three of the case study teachers were first-year teachers, the

study began mid-way through the year. Therefore, this study did not focus in on the struggles of becoming a first-year science teacher, which frequently end in attrition. In fact, William City lost the majority of its science teachers during their first year in the classroom. Instead, this study captured the experiences of those science teachers who were confident enough and engaged enough in teaching to complete a voluntary survey and join a time-intensive research project during their early years in the classroom. Thus, in some ways this project self-selected for those teachers who were already on the road to reaching confirmation. They were not so overwhelmed or disgruntled in January that they were unable to devote discretionary time to this project. Thus, this study specifically focused in on a more stable group of teachers.

Next, this study highlights the need for additional attention to those teachers who are increasingly being identified as “second stage teachers” (e.g., Charner-Laird, 2007; Fiarman, 2007; Kirkpatrick, 2007; Szczesiul, 2007), individuals in their fourth to tenth year in the classroom who begin moving into a variety of leadership roles in schools (Donaldson et al., forthcoming). While this study focused initially on beginning teachers in their first three years in the classroom, it followed several of those teachers into their fourth year of teaching and talked with teachers as they imagined their careers into the second stage and beyond. Although considerable attention has been devoted to beginning educators, second stage teachers are arguably more important because these individuals have the potential to stay in the classroom long-term. They have been successful thus far and presumably will continue to be in the future. What this study shows is that even among teachers who are capable of being successful in the classroom, long-term teaching is simply no longer a popular career path. Not a single one of the eight case study

teachers envisioned themselves as a classroom teacher, in any context, for the remainder of their careers. Moreover, the district-wide survey revealed that urban science teachers ranked “Change to a non-education-related field” as the most likely of the possible career directions. Long-term teaching appears to be an unpopular career choice. Johnson notes that in today’s world, education can no longer rely on the “hidden subsidy” of women and minorities with limited options in the workforce (2004, p. 19). Similarly, it seems that education can no longer expect professionals to remain in the same role for the entirety of their careers.

This study indicates that second stage teachers have distinct professional needs. While research has demonstrated that mentoring and induction help retain teachers in the first year, often teacher support is not conceptualized beyond that point. This analysis shows the importance of taking a broader look at teacher attrition, focusing not only on that critical first year in the classroom but also on the years after teachers gain professional confirmation. This study shows that what teachers need as they continue to develop as professionals is the opportunity to move on, to continue to learn and grow. In the middle of her second year, Charlotte underscored this point by describing how much she enjoyed studying for the math GRE, a task few people would describe as fun. She explained, “I feel so stagnated at this point ... my brain is hungry to learn new things. Even studying for the GRE ... the time I did spend studying for the math GRE was so much fun ... I actually thoroughly enjoyed reading the stuff and then working out problems” (Interview 12-12-06). Charlotte, like the others, was eager to continue learning and growing professionally. Related research had documented a trend of shifting away from classroom work in urban systems (Donaldson, 2005b; Olsen & Anderson, 2007) and

noted the potential impact of ongoing growth and development on teachers' decisions to stay within the system (Donaldson et al., forthcoming; Fiarman, 2007). This study identifies a mechanism behind that trend: the desire to achieve professional confirmation and then continue to grow and develop professionally, moving on in one form or another to new roles and responsibilities.

Again and again the case study teachers described their plans for career changes during this second stage of teaching. Alison, Alexandra, and Mitch currently plan to make career moves after their fifth year of teaching, once they reap the benefits of the district's loan repayment program. Also important to case study teachers was the pace of change in education. Alexandra commented that education moved too slowly for this current generation, explaining, "...That's everything in our culture, people are expected to do many, many things at the same time. And education needs to, sort of, match that speed, and right now, we've sort of kept the same pace" (Interview 6-21-06). Raya reiterated this point, noting, "I've had lots of different jobs ... Most careers don't expect that you're in there for your life ... and most jobs don't expect you to be there longer than three to five years ... [To] teach at only one place for your entire lifetime is, it's a questionable model anymore" (Interview 12-11-06). Their attitudes appear to reflect larger workforce trends toward high worker mobility (Families and Work Institute, 2007). This study points to the importance of not only supporting teachers in their quest for confirmation, but also providing opportunities for development as they progress through the first and second stages of teaching.

Although many of the case study teachers grew into new roles and responsibilities, that professional growth did not appear linked to teaching and learning.

In fact, there was little attention to teaching and learning across the experiences of the eight case study teachers. This study was not explicitly focused on pedagogy, so the absence may have been rooted in the purpose of this research. Alternatively, it may be possible that there was simply little opportunity to attend to student learning in these urban schools. All three of the teachers who started the study in their third year of teaching took on some form of mentorship role, whether formal or informal, for newer teachers. Perhaps the minimal levels of expertise in these urban schools forced third-year teachers, typically considered to be just beginning their careers, into veteran positions. In this type of workplace environment, there may have been little opportunity to attend to teaching and learning and thus little basis for linking professional growth to student learning. In fact, the one teacher who made student learning an explicit focus, Raya, did so not because of her school-based interactions but instead as part of a university-based professional development program. Perhaps greater attention to teaching and learning during the preparation and induction periods might serve as a source of intellectual growth to meet the needs of teachers seeking to move on professionally.

One final point emerging from this analysis concerns the relationship between science and retention. This project specifically works with secondary science teachers in an urban context, so the available data does not indicate the extent to which the claims can be generalized to the larger teaching force. However, a few things are clear about the role of science in this model. First, case study teachers held a wide range of priorities, and those priorities changed with time, but science was not central to all of the teachers. Charlotte selected her schools based on subject matter and Talisha hoped to share her laboratory skills with students, but others were explicit that their goals did not

specifically relate to science. Alison wanted to support school-wide efforts and Matthew wanted to use science to break the cycles of poverty in his community. He explained:

I'm not so much interested in getting them interested in environmental science ... Give them something after school to not get in trouble back in the neighborhood ... a reason to come to school, you know. Those cycles started with people not coming to school. If they have a reason to come to school, and we can pull them into learning ... (Interview 3-24-06)

For the case study teachers, science proved to be a minor factor in their professional experience. Similarly, Figure 2 in Chapter Three illustrates that science teachers district-wide held multiple and complex priorities, highly valuing their own student academic and affective development, service to society, and their own professional growth. Student development in subject matter was hardly alone among their professional priorities. However, in other ways case study teachers' experiences were quite unique to the field of science. All the case study teachers were aware that they had a number of viable and perhaps more lucrative career options available outside of education, and as Chapter Six illustrates they considered those options on a regular basis. Case study teachers expected to be engaged in a profession which offered opportunities for continual growth and development and demanded that of teaching as well. Finally, the case study teachers had been successful in a demanding and high-status subject during college. They expected once again to be successful and sought confirmation with teaching communities. Thus while the discipline of science itself perhaps did not shape teachers' career paths, some of the social dynamics around science did indeed appear to play an influential role.

Chapter Eight: Discussion

The perspectives and experiences of these eight beginning science teachers can shed light upon current constructions of what it means to work as a science teacher in today's urban schools. These teachers demonstrate that *integration* is not necessarily the same thing as *participation*, that inclinations toward the educational system can shape experiences in schools, that career decision making is an ongoing process, and that teachers seek confirmation but ultimately plan to move on to new roles and responsibilities. These findings speak to the issue of urban science teacher retention and its consequent impact on student achievement. This chapter takes a broad perspective, tying study findings to the larger field of study and pointing to possible implications of this work. First, I revisit the original study questions, commenting on the ways in which the study was able to address those questions and identifying issues that remain. Next I highlight the contributions of this work to both research and practice as well as the limitations of the study. Finally, I identify future directions for research and practice and their potential impact for furthering our understanding of teachers' careers and career moves.

Revisiting Research Questions

In this study, I used a process of progressive focusing to interpret the data (Stake, 1995). That is to say, this study was guided by the original research questions and conceptual framework as well as the experiences of teachers in the field. As a researcher, I aimed to remain responsive to what teachers considered important, focusing in particular on concepts that were relevant to the teachers' lives as well as the purpose of

this study. Initial data analysis throughout the spring consisted of attention to the research questions as well as emerging patterns, which I tracked with an ever-expanding list. By summer, I was faced with a dilemma. I knew that data analysis should focus on a few key concepts. Miles and Huberman (1994) recommend attention to only five or six variables at a time, but my list of themes numbered over 30. Therefore, following the coding of the data and the completion of within-case analysis, I made a choice to focus in on those concepts which were both relevant to the overarching research question or sub-questions and also appeared salient to the experiences of at least one of the case study teachers. I trimmed my list considerably. For example, teachers' understandings of science, which I had originally considered to be part of their priorities, were eliminated because of the apparent lack of relevance to teachers. Conversely, teachers' time commitment, a theme which emerged through repeated conversations, appeared relevant to their enactment of priorities and was included in the analysis. Therefore, rather than a direct line from research questions to findings, this study took a more iterative and inductive approach. As a result, the link between the findings and the research questions is a complex one. However, the research questions strongly guided the ultimate results of the study and the analysis does inform the questions in a variety of ways. This section describes the ways in which this study responds to the original research questions.

The overarching question guiding this study asks how today's urban science teachers think about their careers and career moves. In broad ways, teachers' career directions, either to *integrate* or to *participate*, respond to this overarching research question. Although I as an outside researcher identified these trajectories, the notions associated with them emerged from both the life history and school-based experiences of

teachers. However, these paths were not simply constructed based on teachers' experiences, rather how they understood and filtered those experiences through their professional perspectives. For example, while both Mitch and Alexandra were part of the Teach for America alternative certification route, Mitch joined because he had always dreamed of becoming a teacher whereas Alexandra decided to use Teach for America as a temporary position until she could figure out what to do with her life. Although they took the same actions, they thought about those actions quite differently.

The first research sub-question asks how teachers define and enact their professional priorities. This question was addressed in two key ways. First, teachers defined and enacted their priorities through their experiences in schools, including their decisions about where to invest time and energy, their relationships with administration and colleagues, and their interactions with students. Their general inclinations to be part of or separate from the educational system were a result of these priorities, the ways they were understood and acted out. For example, Alison's eagerness to become involved in school-wide reform was one way in which she enacted her professional priorities. Second, teachers' priorities were again relevant to the ways in which they selected key goals and pursued those goals until they reached a sense of confirmation. For example, Matthew's evolving goals, from environmental education to after-school mentoring to classroom practice were shaped by the ways in which he defined and enacted his professional priorities.

The next question asked how teachers participate in professional communities. Here again, there were two notions which shed light upon the role of communities. First, teachers' experiences in schools and their understanding of those experiences highlighted

variation in community participation. While many of the teachers devoted considerable time to both classroom and out-of-classroom activities, some teachers saw this community participation as a central part of their jobs while others saw it as taking away from their primary role. For example, Raya held a number of institutional commitments but continually sought to unload these responsibilities, seeking to distance herself from the larger community. Moreover, the case study teachers, regardless of their ultimate career direction, sought a sense of confirmation which included not only an internal sense of success but also acceptance by the larger educational community. Even Talisha, who left before reaching that sense of confirmation, felt she was not yet ready to leave and struggled with her decision. There was variation in teacher participation in communities and also their understanding of the meaning underlying that participation.

The third sub-question asked how teachers make career decisions. Several aspects of the decision-making process were illuminated through this research. This study characterized career for these beginning urban science teachers as an ongoing process, in which teachers continually re-evaluated their career alternatives within the context of a particular professional trajectory. For example, Denise intended to stay within the system but considered switching academies, schools, or even urban locations when frustrations arose with her current workplace context. Moreover, all eight of the teachers in this study planned to ultimately move out of the classroom and into new roles and responsibilities. Some teachers were more concrete about their plans, such as Charlotte's intention to return to graduate school, but all in one form or another saw classroom work as a short-term endeavor. Thus, their process of career decision making was not only ongoing, it was also inevitable.

The final research question asks how these three factors, teachers' priorities, communities, and decision making, are consequential for their career moves. Once again, the overall model of career trajectories with two distinct professional paths becomes relevant to this question, as it incorporates teachers' entry points, experiences in schools, and process in describing teachers' paths through the profession. All three factors appear consequential for teachers' careers and career moves, as their entry points shape their priorities, participation in professional communities, process of career decision making, and ultimate career path. There is not necessarily a direct connection between a single factor and a correlating career move. Moreover, this study was a qualitative exploration rather than a test of theory, thus could not claim such a connection. Rather, this study is able to identify and begin to unpack the complex and intertwined relationships between life history, professional experiences, career decision making, and future professional directions.

Remaining Issues

Although this study shed light on the research questions in a variety of ways, a number of lingering issues remain. These are not explicit research questions, but rather issues that arose out of the investigation and remain unanswered. Perhaps most obvious is the glaring question around whether the case study teachers' experiences are linked in any way to the subject of science. Were their perspectives shaped by their connection to the subject matter? Was their process of decision making related to their content area? Although we have some clues, these questions around science remain unanswered. This study remained focused on the experiences of eight urban science teachers and cannot speak to a broader population outside of science, outside of the urban context, or even

outside of these unique individuals. However, relevant literature offers some clues. On one hand, science is a high-status subject area, owing to its elevated position in higher education (Ball & Lacey, 1984; Little, 1993). Moreover, many well-paying job opportunities are available for individuals with science training, creating a high opportunity cost for teaching (Murnane et al., 1991). Therefore, it is possible that urban science teachers are aware they have more attractive job alternatives and for this reason many enter the classroom with the intention to *participate* for a short time, continually weighing their non-teaching options and seeking to move on professionally. However, there is also evidence that all teachers in this current generation, regardless of subject matter, face a changed labor context. These individuals have greater professional opportunities and more complex routes into the profession (Johnson, 2004). Therefore, there remains an unclear relationship between these teachers' career paths and the subject matter of science. A follow-up study comparing teachers in a variety of subject areas might be the best way to shed light upon this lingering issue.

Next, the definition of teacher retention, and the ideal shape of teachers' careers, continue to remain unclear. Influenced by retirement systems and incentive structures, teachers have been traditionally expected to remain in the classroom over the course of their careers. This was considered the ideal teaching trajectory. However, today it is unclear what type of retention is best for teachers and students. With high numbers of beginning urban science teachers choosing to leave education and shift into non-classroom roles, how can the professional needs of these teachers and the educational needs of students be reconciled? Moreover, in what ways should the issue of teacher effectiveness be addressed with respect to retention? We know that teachers gain

effectiveness over their first several years in the classroom (e.g., Ferguson, 1991; Murnane, 1975; Murnane & Phillips, 1981) and that teacher attrition resulting in an inexperienced teaching force reduces student academic achievement (Grissmer et al., 2000). We also know that teacher commitment is linked to effectiveness (Day et al., 2007). However, teacher effectiveness plateaus at a certain point (Day et al., 2007; Sanders, 1998). Therefore, it remains unclear if and how educational careers might be shaped to maximize outcomes for both students and teachers. Historically, teachers in the United States have always had a brief tenure in the classroom (Herbst, 1989), and it is only the most recent generation that was expected to stay for the duration of their careers. Questions remain around the current definition of retention as well as what it should be. While this study sheds light on teacher retention in a number of ways, it also raises questions regarding what is meant by retention and what type of retention should be pursued.

Finally, the results of this study raise questions about exactly what is meant by work within or outside of the educational system. Generally, the professional directions of the case study teachers were clearly delineated. Classroom teaching, mentoring, and administration constituted roles within the educational system. Educational consulting and laboratory work were defined as education-related, but outside of the system, and public health was clearly non-education-related and outside of the educational system. However, there were some grey areas. Charlotte's intention to return to graduate school in mathematics was clearly outside of the K-12 educational system, but as a professor she will engage in the education of college students. Reflecting on my own shift into teacher education suggests an even more ambiguous professional direction. Teacher educators

work outside of the educational system, but collaborate with teachers and administrators in an effort to prepare preservice teacher for work within that very system. The place of an urban educator who moves into teacher education with the intention of impacting urban students through teacher education is even harder to define because it represents a shift within urban education but outside of the K-12 education system. As this notion of shifting (Olsen & Anderson, 2007) is unpacked and the various future roles better defined, the complexity of this professional terrain becomes more apparent. This study made strides in answering a number of questions about teachers' careers and career moves, but in turn raised several complex issues that deserve future investigation.

Contributions

This study modifies the original conceptual framework into a revised model of urban science teachers' careers through an analysis of the experiences of eight case study teachers. In this work, I identify two paths through the profession, one to *integrate* and the other to *participate* and make three major claims: a) these urban science teachers views of teaching, based on their entry points, interacted with their experiences in the school context to shape their relationships and career directions b) these urban science teachers were constantly reevaluating their career opportunities, either within or outside of the educational system c) these urban science teachers aimed to get past the challenges inherent in urban teaching and reach professional confirmation before moving on to other goals. Through these three claims, this study contributes to the foundational research and enhances the current understanding of urban science teachers' careers.

First, this study makes a general contribution to the literature by modeling the career directions of these urban science teachers. In doing so, it expands upon existing

models of teachers careers (e.g., Fessler, 1995; Huberman, 1989) with a focus on a unique population, beginning urban science teachers, during a particularly high-risk period for attrition. In this way, this study builds a bridge between research on teachers' professional lives and traditional work on teacher retention. Rather than focusing exclusively on one area or the other, the model links teachers' understandings of their professional lives, conceived broadly to incorporate entry points as well as experiences in schools, to their ultimate planned career direction. In doing so, this research highlights strong connections between the two fields and stresses the importance of addressing both in any effort to understand or address the current teacher retention crisis.

More specifically, this study emphasizes the importance of teachers' orientations, either to *integrate* or *participate*, in their career directions. Traditional research on teacher retention, from an individual level of analysis, identifies a number of demographic, personal, and academic characteristics relevant to teacher retention (e.g., Chapman, 1984; Heyns, 1988; Vance & Schlechty, 1982). This study adds to that list by including teachers' orientations toward teaching and the educational system as also relevant to teacher retention. Moreover, this study takes existing notions of teachers' perspectives, orientations, and expectations (Crow, Levine, & Nager, 1990; Lacey, 1977; Zeichner & Tabachnick, 1985) in the literature on teachers' professional lives, expands them to include views on teaching and the educational system, and links these notions to research and practice in teacher retention. This gives the literature on teachers' professional lives wider voice and applies it to a critically important need in today's schools, that of teacher retention.

Next, this study unpacks certain aspects of the process by which urban science teachers make their career decisions, highlighting the ongoing nature of career decision making and the strong desire to ultimately move on professionally, either within or outside of the educational system. This understanding of the ongoing nature of career decision making again informs traditional research on teacher retention. The majority of the work in this field captures teachers' decisions at a single point in time, typically after they have already made their career moves. Influential work with large databases (e.g., Ingersoll, 2003; Schlechty & Vance, 1981; Theobald, 1990) has strong statistical generalizability but often fails to capture teachers at multiple points in time. Even longitudinal research on teacher retention looks at most once per year (e.g., Quartz & TEP Research Group, 2003). This research demonstrates that frequent contact with teachers and long-term field exposure is absolutely vital in developing a complete understanding of how urban science teachers make career decisions. It also enhances current understandings about this current generation of teachers. We already know that today's teachers have greater career alternatives, take a variety of routes into the profession, and are less committed than earlier generations of teachers (Johnson, 2004). This study adds to that understanding by showing that these teachers also make career decisions in an ongoing manner, perhaps as a result of the related workforce factors.

Moreover, case study teachers' plans to ultimately move on professionally add another voice to an emerging consensus that today's new educators do not intend to serve as classroom teachers in urban schools indefinitely. Recent work shows new urban teachers shifting into a variety of education-related roles (Donaldson et al., forthcoming; Olsen & Anderson, 2007) as they progress in their careers. While recent research

identifies the notion of shifting (Olsen & Anderson, 2007) and contributes to an understanding of what those new roles look like in practice (Donaldson et al., forthcoming), this study offers an additional window into the process career movement both within and outside of education. This research finds that this group of urban science teachers did not enter teaching with the intention of staying in the classroom long-term, with some inclined to remain within the educational system and others oriented outside of the educational system. This work expands emerging notions by contributing a prospective understanding of teachers' perspectives as they make career decisions in the early years of teaching.

Finally, this study contributes by identifying the central condition of confirmation, sought by each of the eight case study teachers in a variety of unique ways. While this notion of confirmation is new, it builds upon a number of related concepts, including "perceived efficacy" (Yee, 1990), "vision" (Hammerness, 2006), and "sense of success" (Johnson & Birkeland, 2003). This study adds theoretical clarity to this cluttered field, pulling together previous notions which measure teachers' ideas, expectations, and visions against what they are able to accomplish in their workplace context. Next, it adds a community-based component (Lave & Wenger, 1991; Wenger, 1998) such that these notions are combined with acceptance into the community. Therefore, this notion of confirmation contributes to an understanding of teachers' professional lives by pulling together previously disconnected research on teachers' internal sense of confirmation, combines it with theoretical work on confirmation within professional communities, and proposes an overarching concept which can provide clarity and consistency to the existing literature.

Limitations

Although this study contributes to a more in-depth understanding of the career paths of these beginning urban science teachers, there are a number of limitations to what this research, by its very design, is able to accomplish. Perhaps the most significant limitation of this work, and any qualitative research involving a small number of participants, is its limited generalizability beyond the experiences of eight individuals. First, the small sample size allowed me to capture in-depth the experiences of the participants but prevented generalization beyond these individuals, even to urban science teachers on a national scale. Second, the unique characteristics of the participants, teachers in their first, second, or third years in urban high school classrooms, members of this current generation of teachers and volunteers in an optional research study created a particular context for research. Through in-depth analysis of the experiences of this very distinct group of teachers I was able to identify patterns, draw conclusions, and suggest ways to enhance existing theory around teachers' careers and career moves. However, the well-defined nature of the participants and the small sample size limit generalizability to a larger population. This study cannot speak to the relevance of this career model for more experienced teachers, suburban teachers, teachers in subject areas other than science, or even those teachers who were unwilling to participate in the study. Further research is needed on a larger scale and in related contexts to assess the relevance of the constructs emerging from this work to a larger group of teachers. Ideally the analytical constructs (Yin, 2003) which emerged from this work will prove relevant more broadly and the experiences of these individuals will be transferable (Schofield, 1990) to related

contexts, but further research is necessary to determine the ways in which the findings from this study apply more broadly.

Next, this research relies on a combination of data collection methods, but the primary source was one-on-one interviews with participants. Although their ideas were triangulated against my observations of their experiences in schools and documentation about the school context, teacher self-reports played a significant role in the development of the models of teachers careers and career moves. Interviewing is a cooperative experience (R. Weiss, 1994), and both I as the researcher and the case study teachers as participants had particular agendas for our conversations. My goal was to remain responsive to what the teachers deemed important while simultaneously answering my research questions. I cannot know exactly what the teachers' goals were for participation but I can assume that they wanted to reflect on their experiences, help me answer my research questions, and portray themselves in a positive light. Based on these unique agendas, I cannot claim that the findings from this study are truth but products of negotiated conversations which took place in particular contexts (Fontana & Frey, 2005) as a result of these parallel agendas. For example, teacher pay rarely came up in our conversations. One possible explanation is that salary did not figure as a central factor in their career decisions. A second explanation is that salary was important to these teachers, but because of a social norm that emphasizes intrinsic rewards in teaching (Lortie, 1975), they chose not to initiate conversation around pay during our interviews. Moreover, although I explicitly avoided asking questions about career moves until the final interview, case study teachers initiated related conversations with me on a number of occasions. It is possible that because the teachers knew I was interested in teachers'

careers, they brought up their personal career explorations in an effort to help me answer my research questions. Finally, the semi-structured nature of the interviews meant that each conversation was responsive but also unique, and the non-standardized nature of these interviews created a situation in which topics were addressed in various ways with different teachers (Hitchcock & Hughes, 1995). Here again, it is possible that their responses were a function of my relationship with them or the way in which a question was asked, rather than true differences in their perspectives. Therefore, interviewing is a powerful technique for providing a window into the minds and thinking of teachers, but it is not a flawless technique, situated as it is within a larger social context.

Finally, this research is limited by its duration, timing, and participation. I entered teachers' lives at a particular point in time and could only learn about their past from their own reflections. Similarly, while I continue to maintain email contact with the eight case study teachers, I can only base my understanding of their career direction on what they planned at the conclusion of the study. Career moves take place over a period of years, and this study is thus limited in its capacity to capture those career moves. While some of the case study teachers did change schools or positions during the period of study, all eight planned future career moves. I was able to capture their plans, but not their ultimate moves, which are not always one and the same. This study is also limited in its ability to capture teachers' experiences in their first four months of teaching, arguably a critically important period. Data collection for this study began in January of 2006 because of a desire to capture potential moves between school years. However, this design meant that the participants in their first year of teaching were four months into their new jobs and had already adjusted in many ways to their new surroundings. Time and time again I

heard anecdotal stories about colleagues down the hall who had quit after only a few weeks in the classroom. The design of this study did not allow me to capture the experiences of those teachers - by the time I entered the schools they were already gone. Lastly, the eight case study teachers voluntarily agreed to participate in this study, devoting considerable time and energy talking to me, a stranger, and bringing me with them to various professional activities. We already know from participant selection that the case study teachers were more committed to urban schools and more active in professional activities than their counterparts district-wide. Those teachers who were overwhelmed, distrustful of research, or simply not invested in their professional lives most likely did not take the time to complete my survey. Therefore, I ended up working with a particular group of teachers, those who had the time, interest, and willingness to participate in research. The perspectives of those teachers who self-selected this study could be very different from the 45.2% of teachers who chose not to return the survey.

Future Directions for Research and Practice

This research, which developed a more complete understanding of how eight urban science teachers think about their careers and career moves, suggests several directions for future investigation as well as potential implications of the work. The future research directions and implications presented in this section are directed specifically for urban high schools. Future directions for research and practice fall into three categories: methodology, recruitment, and retention.

Methodology

Future studies should begin by testing and extending the theoretical propositions that emerge from this study. Because this study followed only eight individuals, a larger sample size is necessary to confirm findings and build theory. In addition, future research is necessary in a variety of contexts. Because of the continued lack of clarity as to whether these career paths are unique to science teachers, future research should investigate how teachers in other subject areas and other grade levels think about their careers and career moves. Continuing research is also needed in order to compare this urban context to related contexts. For example, are these career directions relevant to a suburban context? This study finds constant challenges in urban districts; this piece should be investigated across several related contexts. Do they hold true in a school known for its strong professional learning community? In this study I looked at whatever professional community might exist for the case study teachers rather than selecting for particular types of communities. Research in contexts noted for exemplary professional learning communities might yield different results. A larger, study, broader in scope and placed across several contexts is a necessary to follow up on these case studies. Finally, this study included two traditionally-prepared teachers, one with a fifth-year certificate and one with a masters degree. Further research should investigate the career paths of those urban science teachers with traditional four-year undergraduate education backgrounds.

In addition to testing and extending existing findings, this dissertation also proposes a number of important methodological directions. While this research takes vital steps toward addressing calls for a more qualitative look at teachers' careers (Bloland & Selby, 1980), it identifies a need for even more in-depth consideration of teachers'

careers over time. The notion of ongoing change in teachers' careers means that research considering career moves at a single point in time may capture only a fleeting moment on continually shifting ground. As a result, research on urban science teachers' careers would be strengthened by recognizing the changing nature of career decisions and working to understand that process of change. Research on career moves could be informed by an even more in-depth look at the process of decision making. In this study, I spoke with teachers on a monthly basis and observed tremendous variation in their process of career decision making month-to-month. Matthew, for example, was on the verge of moving to Colorado during our May interview and by June had purchased a house in the neighborhood. If this much variability was detected on a monthly basis, it stands to reason there might be change on a weekly or even daily basis as well. Fine-grain research should be designed to capture ongoing career variation as one way to understand and in turn address teachers' changing needs across the beginning of their careers.

Further, this study followed teachers for a period of one year. A longer look at the careers of urban science teachers, starting before they enter the classroom and continuing past the beginning teacher phase, would make strides toward understanding the stability of teachers' orientations as well as the duration of career variability over time. Future research addressing these methodological dimensions should start with prospective teachers, those considering teaching, continue with preservice teachers, those in training, follow beginning teachers in their early years in the classroom, and continue with second stage teachers and beyond. This approach would be able to capture career moves on a larger scale, from year to year over the course of a career while conceiving on teachers'

careers as a continuum over time. However, this approach should be coupled with in-depth research, perhaps during concentrated periods of time, in which teachers' professional perspectives are captured on a weekly or even daily basis. This combination of fine- and large-grain analysis may prove effective in understanding the process by which teachers make career decisions over time.

Recruitment

This dissertation suggests that the perspectives and paths of the case study teachers were a product of their entry points, including their background, path into the classroom, and motivations for teaching. To build upon these initial findings, more information is needed about teachers' perspectives before they enter the classroom. Therefore, future research should investigate how both prospective and preservice teachers think about teachers and thinking. I term this research on recruitment because it can inform the ways in which teachers are selected, or self-select, for work in the classroom. Research should first attempt to confirm existing directions, *integration* and *participation*, and determine if these categories, or others, are relevant to teachers' professional lives before they enter teaching. Research should also attempt to further unpack the relevance of these notions in a variety of contexts, investigating exactly how they play out in teacher education and classroom as well as community settings. Moreover, this research shows that certain teachers are inclined toward and others away from the educational system. More in-depth research during the recruitment phase should investigate exactly how prospective and preservice teachers conceptualize the educational system, its boundaries, competence, and relationship to their professional lives.

Implications of research on the recruitment phase might include increased recognition of the role of teachers' professional perspectives in shaping their career directions. In fact, this study shows certain orientations to be relatively stable and resistant to change in the face of a variety of workplace conditions, filtering professional experiences for teachers through a particular lens. The recruitment body of research could potentially add the notion of professional perspective to the conversation about urban science teacher retention. Professional perspective is hardly a new concept, previously addressed in various ways in the literature on teachers' professional lives (e.g., Lacey, 1977; Smulyan, 2004; Zeichner & Tabachnick, 1985). However, this study explicitly addresses the relationship between professional perspective and career direction, stressing the importance of this notion for understanding not only urban science teachers' professional experiences but also their professional paths.

The recruitment line of research might also provide practical direction for urban high schools. Urban science teachers' career directions and perspectives might be used to shape recruitment into the field. For example, recruitment programs might want to target individuals with particular ideas about teaching or on certain career paths, those intending to *integrate* and those who want to *participate*. Although it might be tempting to try and eliminate alternatively certified teachers based on this rationale, this study did not find that those who took accelerated routes into the classroom were necessarily oriented toward a shorter teaching tenure. For example, both Denise and Mitch were alternatively certified but intended to remain within the educational system long-term. Therefore, a more subtle selection instrument might be developed to assess teachers' perspectives on teaching, their ideas about their own role as a teacher, and their long-term professional

plans in order to determine which individuals might make a good match for the needs of particular schools or districts. This could potentially be used by university-based teacher education departments, alternative certification programs, local educational agencies or schools in the selection, preparation, and development of teachers.

This tool would not be used to select for or against one group of teachers in a general way, as questions about the optimal form of teacher retention still remain. Rather, it could be used to create a more personalized professional experience for teachers across the educational continuum. For example, preparation might focus on particular challenges for different groups, such as classroom instruction, involvement in school reform, or relationships with students. The format of both traditional and alternative certification routes could be modified to accommodate individuals from both teaching trajectories. Schools and school districts might select teachers with particular teaching orientations, either toward or away from the educational system, based on their specific needs. And mentorship and professional development opportunities might address teachers' particular professional needs over time. The current conversation around dispositions in teaching includes particular attitudes toward diversity, experiences with diversity, and perspectives toward students (e.g., Hollins & Guzman, 2005; Talbert-Johnson, 2006). This line of research might suggest a potential broadening of the working definition of dispositions to also include professional dispositions, particularly for the use of recruitment into urban teaching.

Finally, research on the recruitment phase might ultimately highlight the need to influence individuals' perspectives on teaching by improving the status of teaching in our society. Currently, teaching is seen as women's work (Biklen, 1995) in a culture that

views success as the adoption of traditionally male roles in the workplace (Smulyan, 2004). This current generation of workers has numerous job opportunities available to them; today's teachers must make a conscious decision to select the low pay and low status role of a teacher as a tradeoff for an intrinsically rewarding job (Johnson, 2004). This research might underscore the need to raise the status of teaching in our society, possibly through an increase in professionalism and salaries, as a way to make teaching comparable to other professional roles (e.g., Center for Teaching Quality, 2007; Devaney & Sykes, 1988; Hoff, 2005; Lieberman, 1988; Shulman, 1998). Improved status for teachers and teaching may attract more individuals into the classroom who aim to stay long term. In addition, the media currently portrays educational bureaucracies as broken and teachers and administrators as incompetent (Bulman, 2002). An improved view of education in the media, ideally reflective of true improvement in the system, might also be beneficial in improving the reputation of teaching and attracting individuals into the classroom who respect the system, want to be part of the system, and plan to stay in the system long-term.

Retention

This study finds that case study teachers sought confirmation before moving on to new roles and responsibilities. This finding highlights the need for a body of research on the retention phase in teaching, labeled as such because of its potential for keeping teachers in urban classrooms. Further research is needed on induction programs that provide not only support but also opportunities for ongoing professional growth and development. School, district or university-supported induction programs that provide such opportunities should be studied in an effort to understand connections between such

differentiated roles and retention. Moreover, district career ladders that acknowledge and support teachers' need for confirmation and ongoing growth would also be interesting sites for further investigation. If such induction programs and career ladders do not exist, future university-school collaborations might work to construct them in a manner that is responsive to the professional needs of teachers and then investigate the workforce outcomes.

Research on the retention phase might lead to greater recognition of urban science teachers' professional growth needs over time. Strengthening calls for greater attention to teaching and learning in preservice and inservice teaching (e.g., Feiman-Nemser, 2001; Grossman, 1990), this line of research might stress the importance of intellectually stimulating and professionally satisfying opportunities for teachers. While the impact of mentoring and induction has been recognized in the initial years of teaching (e.g., Odell & Ferraro, 1992; T. M. Smith & Ingersoll, 2004), this study identifies the need for ongoing growth and development both in the first three years of teaching and beyond. In this way, this research builds upon work that identifies a shifting of professional roles within urban education (Olsen & Anderson, 2007). These eight case study teachers sought confirmation and then move on to new roles and responsibilities, either adopting new goals as a classroom teacher, moving up within the educational system, or moving out of education altogether. This finding strengthens evidence for a link between opportunities for ongoing growth and development and retention in the field (Fiarman, 2007), particular during what is now being termed the second stage of teaching (e.g., Charner-Laird, 2007; Kirkpatrick, 2007; Szczesiul, 2007). This study finds that for the eight case study teachers, urban classroom teaching is seen as short-term, new roles and

responsibilities were desired, and a sense of confirmation was vital. Research on the retention phase might underscore the need for attention to teaching and learning, professional growth and development, and an examination of the relationship between those opportunities and teachers' career paths.

Strategies for urban science teacher retention might also be informed by this line of research. Retention practices might need modification as a way of addressing teachers' need for ongoing professional growth and development. Teacher induction programs are typically designed to provide support for first and second year teachers as they improve their classroom practice. Features of exemplary induction programs include a multi-day orientation, ongoing training, study groups, administrative support, modeling, and opportunities to visit demonstration classrooms (Wong, 2004). However, once teachers gain confidence in their classroom practice, this induction support often disappears. Research on the retention phase might lead to an expansion of induction programs through the second stage of teaching in order to help teachers refine classroom practice, learn to mentor others, and feel an ongoing sense of challenge and growth. Alternatively, if induction programs cannot expand to encompass these new roles, a new type of program might be developed to address the needs of both new and more veteran teachers. Several types of programs already exist for more experienced teachers, in which the veterans offer support to newer teachers (Donaldson, 2005a; Fiarman, 2007) and both benefit in the process, the former with growth and development and the latter with pedagogical support. William City itself introduced such a program during the course of the study and Alison moved into such a mentor teacher role. These programs have shown initial promise for retaining teachers within the educational system.

Research on the retention phase might also investigate the possibility of legitimating the existing dual track path to the classroom, in which some urban science teachers enter through traditional and others alternative routes, but all teachers are given the same responsibilities and privileges. Acknowledging the existing paths and recognizing the legitimacy of both routes might be a positive use of human resources for school systems, schools, teachers, and students. Moreover, university-based teacher education programs that recognize and begin to educate those individuals on their campuses who intend to enter alternative certification routes might improve the preparation of those teachers and thus the education of their students. In the current system, all beginning teachers entering the classroom receive the same pay, benefits, and classroom support. Moreover, all new teachers are required to engage in the same professional development activities, some of which, such as earning a Masters degree, can be quite substantial. However, the benefits and requirements are designed with the idea that teachers will stay at least within the system and potentially within the classroom for the majority of their careers. Given the limited resources and high turnover rates in many urban districts, it might be worthwhile to consider a dual-track teaching structure in which those teachers who intend to stay in the classroom long-term are required to participate in more substantial professional development activities and receive higher pay and benefits for the additional work, whereas those who intend to stay only a short time would have fewer requirements but a lower salary as a result.

Proposals for tiered pay scales and career ladders have been around for some time (e.g., Devaney & Sykes, 1988; Firestone & Pennell, 1993; Smylie & Smart, 1990; The Holmes Group, 1986) and are currently enjoying a resurgence in popularity, particularly

ones that offer increased pay for teacher performance or skill (e.g., Center for Teaching Quality, 2007; Hoff, 2005; Teach New Mexico, 2007). Merit and differential pay have been criticized for a number of reasons, including their negative impact on teacher professional relationships (Firestone & Pennell, 1993). This proposal differs from previous and current tiered-pay propositions in three ways. One, it establishes teachers' professional goals and trajectories from the start, allowing teachers to shape their professional paths in ways that meet their needs. Second, it gives control to the teachers, rather than school or district-level administrators, to determine professional goals and paths, thus reducing or preventing competition between colleagues. Third, it adopts current notions of differentiated roles in schools to allow teachers the opportunity to take on new responsibilities (Donaldson, 2005a; Olsen & Anderson, 2007). And fourth, it suggests two equal tracks rather than a hierarchical structure. In its focus on long-term intention, it is in many ways a return to the original Holmes Group (1986) proposition consisting of three levels of teacher licensure: instructor, professional teacher, and career professional. This proposal comes with numerous logistical challenges, including the difficulty of determining who belongs on the two tracks and allowing for movement if teachers' perspectives change, but if the practical issues are resolved this structure might allow for the creation of more individualized career paths while conserving financial resources.

Concluding Reflections

The process of conducting a dissertation research study has been an influential one for me and I believe that participation was influential for the case study teachers as well. We began as strangers but ended as friends. From some perspectives, this type of

involvement with research participants, or subjects they might be called, could be seen as problematic; from other perspectives it might be seen as actually enhancing validity (Lather, 2001; Schweizer, 1998). It is possible that my entanglement in the lives of the teachers altered their views on teaching or even the courses of their careers. I have already described the emotional support I provided to Alexandra during a difficult time in her professional life. While the others were not as explicit, their invitations to dinner, gifts, and warmth conveyed a positive place that I held in their lives during the course of the study. Perhaps my presence provided a degree of emotional support and opportunity for reflection that helped the case study teachers work through challenges in their workplace context, keeping them in the classroom longer. In this way, my very presence could have impacted the results of the study and this may indeed be an additional limitation of the work.

I cannot know for certain my impact on the lives of the case study teachers, but I can reflect on the ways they impacted me. Until I started talking to these teachers on a regular basis, my closest experience with the professional lives of teachers was my own time in the classroom and I held a number of assumptions about what it meant to work as a teacher which shaped my initial interest in this topic. After I started learning more about the experiences of these individuals, my mind was opened to the variety of orientations urban science teachers might bring to their careers in the classroom as well as the futures they imagined for themselves. Upon reflection, I place myself in the *participation* career direction, with inclinations toward work outside of the educational system. My interaction with these teachers opened my eyes to the different ways this career path can evolve as well as a separate trajectory toward *integration*. However, my work with the

case study teachers also impacted me on a personal level. Their openness, willingness to share their experiences, and honesty showed me that despite the often-chaotic nature of urban schooling, individuals still seek human relationships, with colleagues, students, and even researchers, as a way of making sense of their worklives. This connection makes a teaching career not only professional and organizational but also human.

While I used traditional interpretive methods, I see a certain degree of mutual learning, collaboration, and connectedness between researcher and participants as not only inevitable but essential, and social action as a potentially positive outcome of research (Fontana & Frey, 2005; Lather, 2001). Therefore, if my presence had a positive impact on the lives of these eight case study teachers then that has value in and of itself and enhanced, rather than compromised, the value of the study. My goal is for this study to continue impacting the lives of teachers through recognizing their professional needs, understanding their process of career decision making, and potentially influencing research, policy, and practice on teacher recruitment and retention in urban, science contexts.

Appendix A: 2005 Survey

SCIENCE TEACHER SURVEY FALL 2005

Introduction

This survey is being conducted as part of a dissertation research study on teachers' careers. The study examines what urban, high school science teachers want to accomplish professionally and how they go about reaching their goals. The information provided will be used to better understand science teachers' career paths.

Who should complete the survey

Please complete this survey if you teach high school science and have been teaching for up to three years.

Where to return your survey

Please return your completed survey in the self-addressed, stamped envelope provided.

Confidentiality

Your participation in this survey is completely voluntary. Your answers will be kept strictly confidential. No one other than the study investigator will see individual survey results. Results of this survey will be reported only in summary or statistical form so that individuals cannot be identified. If you have questions about your rights as a research subject or wish to report a research-related injury, please contact, anonymously if you wish, the University of Maryland's Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) irb@deans.umd.edu; (telephone) 301-405-4212.

Thank you for your time and contribution to this study.

Completing the survey should take about 15 minutes. Your participation in this research will provide invaluable insight into science teachers' careers in urban settings. We know that there are many demands upon your time and we appreciate your participation and support. Following completion of the survey, the researcher may contact you for further participation in this study.

For more information

Please feel free to contact Carol Rinke, doctoral student, University of Maryland, with any questions or concerns: 410-209-0689 or carolr@umd.edu.

You may also contact the Principal Investigator, Linda Valli, Associate Professor, University of Maryland, at 410-405-7924 or lrv@umd.edu.

I. Professional Priorities

For each statement below, please indicate how important the area is in your professional life and how confident you feel that you can get it done:

	<i>Not Important</i>					<i>Very High Confidence</i>				
	1	2	3	4	5	1	2	3	4	5
a. Develop curriculum for others to use	1	2	3	4	5	1	2	3	4	5
b. Teach students good work habits and self-discipline	1	2	3	4	5	1	2	3	4	5
c. Make a difference in society	1	2	3	4	5	1	2	3	4	5
d. Incorporate new ways of teaching into my classroom	1	2	3	4	5	1	2	3	4	5
e. Teach subject-specific knowledge and skills	1	2	3	4	5	1	2	3	4	5
f. Improve the lives of underserved students	1	2	3	4	5	1	2	3	4	5
g. Collaborate with fellow teachers	1	2	3	4	5	1	2	3	4	5
h. Prepare students to pass a subject-area exam (e.g., H.S.A.)	1	2	3	4	5	1	2	3	4	5
i. Give back to society what I have been given	1	2	3	4	5	1	2	3	4	5
j. Become an administrator or other school/district leader	1	2	3	4	5	1	2	3	4	5
k. Teach students basic skills (reading, math, writing, speaking)	1	2	3	4	5	1	2	3	4	5
l. Be a positive role model for teens	1	2	3	4	5	1	2	3	4	5
m. Manage my classroom effectively	1	2	3	4	5	1	2	3	4	5
n. Encourage students' personal growth (e.g., self-esteem)	1	2	3	4	5	1	2	3	4	5
o. Impact urban school policy	1	2	3	4	5	1	2	3	4	5
p. Bring grants or other outside resources into my classroom	1	2	3	4	5	1	2	3	4	5
q. Encourage students to be responsible citizens	1	2	3	4	5	1	2	3	4	5
r. Develop meaningful relationships with students	1	2	3	4	5	1	2	3	4	5
s. Earn tenure in this district	1	2	3	4	5	1	2	3	4	5
t. Excite students about learning and/or my subject matter	1	2	3	4	5	1	2	3	4	5

II. Professional Practices

Please describe how often you participate in the following activities:

	Never	A few times per...		
		Year	Month	Week
a. Learn from other teachers informally	0	1	2	3
b. Attend in-school professional development	0	1	2	3
c. Attend district-wide professional development	0	1	2	3
d. Attend non-district professional development	0	1	2	3
e. Participate in a professional organization (e.g. NSTA)	0	1	2	3
f. Participate in union activities	0	1	2	3
g. Participate in department or school-wide decision making	0	1	2	3
h. Attend university-based classes	0	1	2	3
i. Lesson plan independently	0	1	2	3
j. Collaborate with other science teachers	0	1	2	3
k. Collaborate with non-science teachers	0	1	2	3
l. Serve as a lead teacher or department chair	0	1	2	3
m. Co-teach with other teachers	0	1	2	3
n. Plan or lead professional development sessions	0	1	2	3
o. Lead an extra-curricular activity or club	0	1	2	3
p. Coach a sport	0	1	2	3
q. Lead a field trip for students	0	1	2	3

r. I feel that I participate in (check one) ...
 _____ more
 _____ less
 _____ about the same number of
 professional activities as other teachers in my school

III. School Climate

Please indicate how strongly you agree or disagree with the following statements regarding the school in which you teach:

	<i>Strongly Disagree</i>			<i>Strongly Agree</i>	
a. I feel supported by my colleagues to try out new ideas	1	2	3	4	5
b. You can count on most staff members to help out anytime, anywhere	1	2	3	4	5
c. I have very different ideas from other science teachers about what curriculum to emphasize	1	2	3	4	5
d. I am willing to put in a great deal of effort beyond that usually expected of others	1	2	3	4	5
e. I have rules to follow at this school that conflict with my best professional judgment	1	2	3	4	5
f. This school offers support for professional learning	1	2	3	4	5
g. Teachers are continually learning and seeking new ideas	1	2	3	4	5
h. Teachers in this school take an active role in school-wide decision making	1	2	3	4	5
i. This school seems like a big family, everyone is so close and cordial	1	2	3	4	5
j. I have very little idea of others' teaching goals and classroom practices	1	2	3	4	5
k. I have to buck rules in order to do what I think needs to be done for my students	1	2	3	4	5
l. I usually look forward to each working day at this school	1	2	3	4	5
m. I value the philosophy of the school's leadership	1	2	3	4	5
n. Teachers at this school trust each other	1	2	3	4	5
o. Teachers at this school use time together to discuss teaching and learning	1	2	3	4	5
p. There is little disagreement about what science content should be taught	1	2	3	4	5
q. Too often my decisions are ignored or reversed	1	2	3	4	5
r. Teachers at this school feel responsible to do their best	1	2	3	4	5
s. I can take little action until a supervisor approves it	1	2	3	4	5
t. Teachers at this school discuss particular lessons that were successful or unsuccessful	1	2	3	4	5

IV. Professional Motivations

For each statement below, please indicate how important you considered each factor when accepting your current teaching position:

	Not Important					Very				
	1	2	3	4	5	1	2	3	4	5
a. I was placed in this position	1	2	3	4	5	1	2	3	4	5
b. I wanted to teach close to my home	1	2	3	4	5	1	2	3	4	5
c. I wanted to teach in the district I attended	1	2	3	4	5	1	2	3	4	5
d. This job offered good pay	1	2	3	4	5	1	2	3	4	5
e. This job offered good benefits	1	2	3	4	5	1	2	3	4	5
f. This job was compatible with my family life	1	2	3	4	5	1	2	3	4	5
g. This was the first job I was offered	1	2	3	4	5	1	2	3	4	5
h. I wanted to help students from this community	1	2	3	4	5	1	2	3	4	5
i. This is a good place to get trained	1	2	3	4	5	1	2	3	4	5
j. I knew someone who worked here	1	2	3	4	5	1	2	3	4	5
k. This school had a good reputation	1	2	3	4	5	1	2	3	4	5
l. I liked the other teachers at this school	1	2	3	4	5	1	2	3	4	5
m. This seemed like a well-run school	1	2	3	4	5	1	2	3	4	5
n. This seemed like a good place to teach science	1	2	3	4	5	1	2	3	4	5
o. I was interested in an academic program here	1	2	3	4	5	1	2	3	4	5
p. I was interested in an extra-curricular program	1	2	3	4	5	1	2	3	4	5
q. I would have taken any teaching position	1	2	3	4	5	1	2	3	4	5
r. I would have taken any position in this district	1	2	3	4	5	1	2	3	4	5

V. Long-Term Career Plans

Please indicate how likely you consider each of the following career directions:

	Not Likely					Very Likely				
	1	2	3	4	5	1	2	3	4	5
a. Teach in this school long-term	1	2	3	4	5	1	2	3	4	5
b. Teach in another school in this district long-term	1	2	3	4	5	1	2	3	4	5
c. Teach in another district or private school long-term	1	2	3	4	5	1	2	3	4	5
d. Stay in this district, but in a non-teaching role	1	2	3	4	5	1	2	3	4	5
e. Become a principal or other school administrator	1	2	3	4	5	1	2	3	4	5
f. Work at the district or state level	1	2	3	4	5	1	2	3	4	5
g. Plan and/or lead professional development	1	2	3	4	5	1	2	3	4	5
h. Mentor other teachers	1	2	3	4	5	1	2	3	4	5
i. Open a school (e.g., charter school)	1	2	3	4	5	1	2	3	4	5
j. Work in urban public policy or advocacy	1	2	3	4	5	1	2	3	4	5
k. Develop curriculum for others to use	1	2	3	4	5	1	2	3	4	5
l. Pursue further schooling within education	1	2	3	4	5	1	2	3	4	5
m. Change to a non-education-related field	1	2	3	4	5	1	2	3	4	5
n. Stay home to raise children full-time	1	2	3	4	5	1	2	3	4	5
o. Stay home with children, then return to classroom	1	2	3	4	5	1	2	3	4	5

VI. Background Information

Please answer the following questions. This information is strictly confidential. Your name and contact information will be viewed only by the researcher and will be used solely for follow-up purposes.

a. Name: _____

b. Contact Information:

email: _____

phone number: _____

c. School: _____

d. Gender: _____ Male _____ Female

e. Number of years in the classroom:

_____ first year _____ second year _____ third year

f. Number of years at this school:

_____ first year _____ second year _____ third year

g. Subjects taught (please check all that apply):

_____ integrated science _____ biology

_____ chemistry _____ physics

_____ environmental science _____ other

h. Please describe your teacher preparation:

_____ Undergraduate education degree

_____ Masters certification degree

_____ Alternative certification (e.g. TFA, BCTR). Specify: _____

i. Please describe your previous full-time work experience:

_____ No previous full-time work experience _____ Corporate/Business

_____ Social Services _____ Health Care

_____ Child Care/Teaching (non-school setting) _____ Other

j. Please check your age as of September 1, 2005:

_____ Under 25 _____ 35-40

_____ 25-30 _____ 40-45

_____ 30-35 _____ Over 45

k. (Optional) Please indicate your race/ethnicity and check all the responses that apply:

_____ African American _____ Latino/a or Hispanic

_____ Asian/Pacific Islander _____ Native American/Alaska Native

_____ Caucasian (non-Hispanic) _____ Other (specify) _____

Thank you for your time and participation

*****PLEASE SIGN THE CONSENT FORM ON THE LAST PAGE****

Appendix B: 2006 Survey Revisions

VI. Background Information

Please answer the following questions. This information is strictly confidential. Your name and contact information will be viewed only by the researcher and will be used solely for follow-up purposes.

a. Name: _____

b. Contact Information:

email: _____

phone number: _____

If you are still teaching, please complete items c, d, and e:

c. Please indicate your current position:

same school different school

d. Please indicate your current subject area

same subject area different subject area

e. If you have moved to a different school, please indicate:

- within the same district
- different urban school district
- different suburban school district
- different rural school district
- private school

If you are no longer teaching, please complete items f, g and h:

f. Please indicate your current professional field:

- | | |
|--|--|
| <input type="checkbox"/> Non-classroom work within education | <input type="checkbox"/> Graduate School |
| <input type="checkbox"/> Corporate/Business | <input type="checkbox"/> Science |
| <input type="checkbox"/> Social Services / Urban Advocacy | <input type="checkbox"/> Health Care |
| <input type="checkbox"/> No current professional position | <input type="checkbox"/> Other |

g. Please indicate the primary factor that influenced your career move:

- | | |
|--|---|
| <input type="checkbox"/> Salary | <input type="checkbox"/> Teaching was temporary |
| position <input type="checkbox"/> Personal or family | <input type="checkbox"/> Time commitment |
| <input type="checkbox"/> Dissatisfaction | <input type="checkbox"/> School staffing action |

h. Please indicate your satisfaction with your career move:

More satisfied Equally satisfied Less satisfied

Thank you for your time and participation
PLEASE SIGN THE CONSENT FORM ON THE LAST PAGE

Appendix C: Survey Question Codes

Survey Question	Code
I. Professional Priorities	
a. Develop curriculum for others to use <i>importance</i>	Professional Growth
a. Develop curriculum for others to use <i>confidence</i>	Professional Growth
b. Teach students good work habits and self-discipline <i>import</i>	Student Development
b. Teach students good work habits and self-discipline <i>conf.</i>	Student Development
c. Make a difference in society <i>importance</i>	Service
c. Make a difference in society <i>confidence</i>	Service
d. Incorporate new ways of teaching into my classroom <i>import</i>	Professional Growth
d. Incorporate new ways of teaching into my classroom <i>confide</i>	Professional Growth
e. Teach subject-specific knowledge and skills <i>importance</i>	Student Development
e. Teach subject-specific knowledge and skills <i>confidence</i>	Student Development
f. Improve the lives of underserved students <i>importance</i>	Service
f. Improve the lives of underserved students <i>confidence</i>	Service
g. Collaborate with fellow teachers <i>importance</i>	Professional Growth
g. Collaborate with fellow teachers <i>confidence</i>	Professional Growth
h. Prepare students to pass a subject-area exam (e.g., H.S.A.) <i>importance</i>	Student Development
h. Prepare students to pass a subject-area exam (e.g., H.S.A.) <i>confidence</i>	Student Development
i. Give back to society what I have been given <i>importance</i>	Service
i. Give back to society what I have been given <i>confidence</i>	Service
j. Become an administrator or other school/district leader <i>importance</i>	Professional Growth
j. Become an administrator or other school/district leader <i>confidence</i>	Professional Growth
k. Teach students basic skills (reading, math, writing, speaking) <i>importance</i>	Student Development
k. Teach students basic skills (reading, math, writing, speaking) <i>confidence</i>	Student Development

Survey Question	Code
l. Be a positive role model for teens <i>importance</i>	Service
l. Be a positive role model for teens <i>confidence</i>	Service
m. Manage my classroom effectively <i>importance</i>	Professional Growth
m. Manage my classroom effectively <i>confidence</i>	Professional Growth
n. Encourage students' personal growth (e.g., self-esteem) <i>importance</i>	Student Development
n. Encourage students' personal growth (e.g., self-esteem) <i>confidence</i>	Student Development
o. Impact urban school policy <i>importance</i>	Service
o. Impact urban school policy <i>confidence</i>	Service
p. Bring grants or other outside resources into my classroom <i>importance</i>	Professional Growth
p. Bring grants or other outside resources into my classroom <i>confidence</i>	Professional Growth
q. Encourage students to be responsible citizens <i>importance</i>	Student Development
q. Encourage students to be responsible citizens <i>confidence</i>	Student Development
r. Develop meaningful relationships with students <i>importance</i>	Service
r. Develop meaningful relationships with students <i>confidence</i>	Service
s. Earn tenure in this district <i>importance</i>	Professional Growth
s. Earn tenure in this district <i>confidence</i>	Professional Growth
t. Excite students about learning and/or my subject matter <i>importance</i>	Student Development
t. Excite students about learning and/or my subject matter <i>confidence</i>	Student Development
II. Professional Practices	
a. Learn from other teachers informally	Social
b. Attend in-school professional development	School
c. Attend district-wide professional development	District
d. Attend non-district professional development	Outside
e. Participate in a professional organization (e.g. NSTA)	Outside
f. Participate in union activities	District
g. Participate in department or school-wide decision making	School
h. Attend university-based classes	Outside
i. Lesson plan independently	Isolation
j. Collaborate with other science teachers	Science

Survey Question	Code
k. Collaborate with non-science teachers	School
l. Serve as a lead teacher or department chair	Science
m. Co-teach with other teachers	Teaching and Learning
n. Plan or lead professional development sessions	Teaching and Learning
o. Lead an extra-curricular activity or club	Extra-Curricular
p. Coach a sport	Extra-Curricular
q. Lead a field trip for students	Extra-Curricular
r. I feel that I participate in (check one) ...	Alignment – time
III. School Climate	
a. I feel supported by my colleagues to try out new ideas	Learning Community
b. You can count on most staff members to help out anytime, anywhere	Collegiality
c. I have very different ideas from other science teachers about what curriculum to emphasize	Technical culture
d. I am willing to put in a great deal of effort beyond that usually expected of others	Engagement
e. I have rules to follow at this school that conflict with my best professional judgment	Bureaucracy
f. This school offers support for professional learning	Learning Community
g. Teachers are continually learning and seeking new ideas	Learning Community
h. Teachers in this school take an active role in school-wide decision making	Autonomy
i. This school seems like a big family, everyone is so close and cordial	Collegiality
j. I have very little idea of others' teaching goals and classroom practices	Technical Culture
k. I have to buck rules in order to do what I think needs to be done for my students	Bureaucracy
l. I usually look forward to each working day at this school	Satisfaction
m. I value the philosophy of the school's leadership	Bureaucracy
n. Teachers at this school trust each other	Learning Community
o. Teachers at this school use time together to discuss teaching and learning	Collegiality
p. There is little disagreement about what science content should be taught	Technical Culture
q. Too often my decisions are ignored or reversed	Bureaucracy
r. Teachers at this school feel responsible to do their best	Learning Community

Survey Question	Code
s. I can take little action until a supervisor approves it	Bureaucracy
t. Teachers at this school discuss particular lessons that were successful or unsuccessful	Collegiality
IV. Professional Motivations	
a. I was placed in this position	No control
b. I wanted to teach close to my home	Material Benefits
c. I wanted to teach in the district I attended	Continuity
d. This job offered good pay	Material Benefits
e. This job offered good benefits	Material Benefits
f. This job was compatible with my family life	Material Benefits
g. This was the first job I was offered	No Control
h. I wanted to help students from this community	Service to society
i. This is a good place to get trained	Climate
j. I knew someone who worked here	Collegiality
k. This school had a good reputation	Interest
l. I liked the other teachers at this school	Collegiality
m. This seemed like a well-run school	Climate
n. This seemed like a good place to teach science	Interest
o. I was interested in an academic program here	Interest
p. I was interested in an extra-curricular program	Interest
q. I would have taken any teaching position	No Control
r. I would have taken any position in this district	No Control
V. Long-Term Career Plans	
a. Teach in this school long-term	Long term urban
b. Teach in another school in this district long-term	Long term urban
c. Teach in another district or private school long-term	Long term non-urban teaching
d. Stay in this district, but in a non-teaching role	Shift within urban education
e. Become a principal or other school administrator	Leadership within education
f. Work at the district or state level	Leadership within education
g. Plan and/or lead professional development	Leadership within education
h. Mentor other teachers	Leadership within education
i. Open a school (e.g., charter school)	Leadership outside education
j. Work in urban public policy or advocacy	Leadership outside education
k. Develop curriculum for others to use	Leadership within education
l. Pursue further schooling within education	Leadership outside

Survey Question	Code
	education
m. Change to a non-education-related field	Short term teaching
n. Stay home to raise children full-time	Family
o. Stay home with children, then return to classroom	Family
VI. Background Information	
c. School:	Size
d. Gender:	Demographics
e. Number of years in the classroom:	Experience
f. Number of years at this school:	Experience
g. Subjects taught (please check all that apply):	Subject area
h. Please describe your teacher preparation:	Preparation/Certification
i. Please describe your previous full-time work experience:	Experience
j. Please check your age as of September 1, 2005:	Demographics
k. (Optional) Please indicate your race/ethnicity	Demographics

Appendix D: Sample Interview Guide

Interview Guide #2: February

Follow-up items:

- 1) Tell me about your experience in school as a student (K-12 and college)
 - where
 - type of schools
 - relationships (teachers, students)
 - describe teaching and learning
 - feelings/emotions toward school
 - experiences with subject matter, science in particular
 - professional goals/expectations at the time
 - involvement in extracurriculars or other significant influences

- 2) Tell me about your family
 - who grew up with
 - where
 - occupations of parents/caregivers
 - goals or expectations of you
 - response to your decision to teach
 - current interaction with family

- 3) Tell me about your images of a teacher
 - how does your family see teachers?
 - as a student, how did you see teachers?
 - now, as an urban science teacher, how do you see teachers?
 - has there been any change in these images over time? If so, how?
 - how do your images compare with those of your family? Other teachers in your school? Other new teachers? Students?

Appendix E: Sample Within-Case Matrix

CASE OVERVIEW: TALISHA	
Demographics	<ul style="list-style-type: none"> -African American woman, early 30s, married with two children (8 yrs, 6 mo at the start of the project) -B.S. and M.S. in developmental biology, then 10 years in pharmaceutical research
Background	<ul style="list-style-type: none"> -Grew up in “<i>good part</i>” of the Bronx, New York. Lived with mother and sister, but father involved and highly influential. -Attended ethnically and racially mixed public schools. Ongoing relationship with one elementary teacher. -Father encouraged her to be a doctor, college-educated aunt a role model. -Attend Biomedical Research program in neighboring high school and summer SAT prep program. -Teacher walked her through college application process, attended Wesleyan.
Path into the Classroom	<ul style="list-style-type: none"> -Dreamed of becoming a doctor but concerned it was not compatible with family life and sought a more family-friendly career. -Held three research jobs in pharmaceutical industry. Most recent job became administrative and she felt ready for a change and a second child. -Considered medical school, dressmaking, and teaching as options -Selected her school because it felt like a “<i>haven</i>” within a larger system and reminded her of her own high school experience. -Moved to William City, took a large pay cut, and entered the classroom without formal educational training.
SPRING 06	
-1 st year teacher, 10 th and 11 th grade chemistry	
Professional Goals	<ul style="list-style-type: none"> - Often pulled into school-wide responsibilities. Thinks she is selected for committees because she will not voice strong objections. -Plans to earn certification but not pursuing formal teacher education. -Runs lab-based classroom with many experiments. Tries to use her background in the laboratory research to teach students. -Wants students to learn real-world applications and love of science -Tries to build students’ self-confidence and perseverance -Next year has high standards for preparing her students for the high school exam.
Professional Practices	<ul style="list-style-type: none"> -Tries to maintain distance from school-wide events. However, as one of a few returning teachers she has been pulled in to participate on several committees. -Also responsible for teaching advisory and journalism. Likes

	<p>advisory but has little time to invest in either course.</p> <ul style="list-style-type: none"> -Runs small crocheting and knitting club during lunch. 3-4 girls attend regularly. -Increasingly involved with outside science-oriented organizations which provide resources and support for her classroom. -Time commitment fluctuates based on motivation level. Tries very hard to protect home time for husband and children. -Maintains extremely positive attitude, very optimistic personality. -Over the summer took some time for herself, then attended workshop on biology instruction and participated in a school-wide committee on developing climate and expectations.
School Context	<ul style="list-style-type: none"> -New, small learning community high school focused on law and social policy. -High teacher turnover. No teacher has stayed for 3 years of school's existence. This year, several teachers left mid-year, and most of the staff plan to leave at the end of the year. -Administration has somewhat antagonistic relationship with a number of teachers.
Support	<ul style="list-style-type: none"> -Few sources of support within her school building. No colleagues or department chair in her subject area. Infrequent contact with an outside consultant/mentor. Very much on her own. -Very few material resources. Independently located a curriculum, text, and lab equipment. -Several times, the administration made changes to her assignment and/or resources without notifying her or informing her at inappropriate times. -Provided emotional and instructional support to many others, including her husband, a veteran teacher. -Works things through frustrations internally -As the year progressed, learned who she could turn to for support
Community Relationships	<ul style="list-style-type: none"> -Many teachers come to her for emotional support and friendship. She attributes this to her positive attitude. Carpools to work with a colleague. -Friendly with colleagues, but generally tries to stay in the background during whole-group interactions.
Student Relationships	<ul style="list-style-type: none"> -Has respectful and professional, but not personal, relationship with students. -Some students come to her with questions or for support, but not for "gossip"
Views on Educational System	<ul style="list-style-type: none"> -Surprised at the low skill level of students and lack of perseverance. Going in, thought job would be more college-preparatory, curriculum would be prepared ahead of time. -Feels disorganization of work environment hides her faults, but doesn't help her learn or grow. -Currently does not feel frustrated with working conditions. However, senses she might become frustrated down the road once

	<p>she knows what can be accomplished.</p> <p>-Unclear which biology curriculum will be used next year. To cope with these interferences, she tries to remain positive and go with the flow.</p>
Feelings of Success	<p>-Receives positive feedback on all evaluations</p> <p>-At time, frustrated that students do not appear to understand content or fail tests. Not sure how to go about improving their understanding and application of material.</p>
Career Movement	<p>-Like time investment, her motivation fluctuates over the course of the year.</p> <p>-Plans to return in the fall to the same position.</p> <p>-Realizes she is in burn-out profession. Plans to return for financial reasons until she qualifies for home buying and loan repayment benefits.</p> <p>-Feels this year encouraged her to reflect about what she wants for herself professionally.</p>
	<p>FALL 06</p> <p>-Instructor, mobile educational laboratory</p>
Professional Goals	<p>-Build connections with the political, academic research, and biotechnology communities</p> <p>-Teach and engage in improvement of instruction, mobile lab education</p> <p>-Develop interest in biotechnology careers among students. Also teach them about the process of science and the application of basic content knowledge to “real life”</p>
Professional Practices	<p>-Teaches Tuesday-Friday. Monday designated for truck set-up and teacher training.</p> <p>-Trades off lead teaching with co-teacher, resulting in a teaching load of 2-3 45-minute classes per day.</p> <p>-Feels this allows her disposable time to read about science, develop the program, and develop herself professionally.</p> <p>-Involved in a number of national initiatives for biotechnology, including a congressional subcommittee on biotechnology education and a national organization of mobile labs. Attends in-state and out-of-state conferences.</p> <p>-She is able to leave work behind and have considerable time with her family. Feels less overwhelmed and stressed as compared with last year. Also highly enthusiastic about what she is doing.</p>
School Context	<p>-Pleasant work environment. Friendly co-workers.</p> <p>-Well-resourced, including lab equipment, vests, and trees (palm/cell phone) for employees.</p> <p>-Good working relationship with friendly and helpful co-teacher.</p>
Support	<p>-Organization offers time and support for professional growth.</p>
Community Relationships	<p>-Likes that director is off-site and remains involved without micromanaging.</p> <p>-Excited about her involvement with national initiatives and</p>

	connections she is building across several sectors.
Student Relationships	<ul style="list-style-type: none"> -Because of short time period and interesting approach, students are more highly motivated during their time in the lab. -Attempting to maintain relationships with last year's students and get her school involved in the mobile laboratory.
Views on Educational System	-Feels respected within this small work environment. Has the ability to voice concerns which do arise.
Feelings of Success	<ul style="list-style-type: none"> -Situation is set up to teach students about the process and applications of science, as opposed to traditional classroom lecturing -She is better able to focus in on a few key concepts and refine instruction in those areas
Career Movement	<ul style="list-style-type: none"> -During summer workshop, she was recruited to teach at mobile educational lab because of her strong background in pharmaceutical research. -At first, she did not want to consider the option because it would mean she was admitting she wanted to leave. Also didn't believe this was the time because she was not yet in her groove for teaching. -However, she realized she did not want to be a teacher long-term, and if she stayed she might lose marketability and be "stuck". -After lengthy discussion with her husband, financial considerations and the prospect of a challenging work context pushed her to apply for and accept the position. -After some attempt by the principal to bring her more money and thus keep her, she left teaching shortly before the new school year started. -Currently very happy with the position, which she feels offers a nice combination of academic, educational, and industry benefits. Plans to stay at least 3 years. -Unsure of her plans long term, but feels she will have many options available to her. Still considers a clinical career, such as nursing, and dreams of having a "Dr attached to her name", but thinks a return to graduate school is unlikely due to her family and financial commitments.

Appendix F: Cross-Case Matrix, Home-Work Factors

Case Study Teacher	Personal	Professional	School Context	Career Direction
Alexandra	Needed a job <i>Financial</i>	Saw herself pursuing more graduate education <i>Status</i>	Wanted more student interest, committed staff <i>Students, Climate</i>	Outside education <i>Participation</i>
Alison	Wanted a feeling of recognition for hard work <i>Recognition</i>	Opportunity to test out support role <i>Growth</i>	Respect for principal <i>Administration</i>	Mentor/support <i>Integration</i>
Charlotte	Intellectually bored <i>Stimulation</i>	Saw herself as a scientist <i>Status</i>	Wanted greater school organization, student involvement <i>Students, Climate</i>	Outside education* <i>Participation</i>
Denise	Buy a house <i>Financial</i>	Wanted to become an administrator <i>Growth</i>	Respected by administrators <i>Administration</i>	Administration <i>Integration</i>
Matthew	Parents respect teaching. Girlfriend wanting to leave (reverse) <i>Family, Image</i>	Opportunity to become support teacher <i>Growth</i>	Wanting more orderly school climate <i>Climate</i>	Mentor/support <i>Integration</i>
Mitch	Wanted to be closer to family. Parents did not respect teaching (reverse) <i>Family, Image</i>	Wanted more autonomy as a professional <i>Professionalism</i>	Wanted more engaged students, collegial faculty <i>Students, Climate</i>	Administration <i>Integration</i>
Raya	Wanted to give back <i>Service</i>	Wanted to be “in the trenches” <i>Status (reverse)</i>	Wanted small classes <i>Climate</i>	Education related <i>Participation</i>
Talisha	Money and time for family <i>Financial, Family</i>	Wanted professional position <i>Status</i>	Concerned about school principal <i>Administration</i>	Education related <i>Participation</i>

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