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Empowerment in Rural Secondary Novice Science Teachers

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Empowerment in Rural Secondary Novice Science Teachers

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DEDICATION

I would like to dedicate this dissertation to the most important people in my life, my family. From the first day when I came to UT to check into the program my husband William held my hand and encouraged me to pursue my lifelong dream. He supported me in every way imaginable and always said that failure was not an option, follow your dreams. He may not have always known what I was doing but he knew it was important to me. I could not have attempted this long journey without his love and subtle nudges. My children Stacey and Samantha have always been my cheerleaders throughout all of my educational endeavors. They never let me forget how proud they were of me and how finishing this degree was going to be a monumental accomplishment. There have been many times throughout this endeavor that I wanted to give up because life threw some terrifying gauntlets my way but my family had no doubt that I should pick myself up and continue. My mother and father would be so proud if they could be here today to see me complete this advanced degree as they are responsible for instilling in me the importance of hard work and higher education. I know they will be smiling and watching over me. To my grandson Evan and future grandchildren I hope you will learn the importance of an education and lifelong learning. To my son-in law and future son- in law, thank you for putting up with my schedule and supporting me with consideration for my work. To my brothers and sisters thank you for your encouraging words and all around love! I love each and every one of you with all my heart!

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Empowerment in Rural Secondary Novice Science Teachers

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The University of Texas at Austin, 2013

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ABSTRACT

The purpose of this research was to investigate what can be learned from the *professional voices* of secondary novice science teachers in rural schools during their first one to three years of their teaching assignment. The results of this research were viewed through the lens of empowerment as defined by Melenyzer (1990) and the six dimensions as defined by Short (1994): autonomy, self-efficacy, professional growth, status, impact, and decision making. This study examined what caused teachers' empowerment to change in the context of their work environment with a focus on key events or experiences that caused empowerment to change. Data were collected that provided insight into what can be done to strengthen empowerment and improve retention so that rural novice science teachers can reach their full potential. In addition, patterns were examined to determine what strengthened or weakened teacher empowerment so that schools, professors, or science specialists can provide appropriate professional development opportunities for their new teachers and help teachers move along the

professional continuum. This research can be utilized to determine what secondary novice science teachers bring to the classroom as well as what they need to become empowered effective teachers. The data revealed some important findings that fill in the gaps from Hobbs; (2004) and (Barufaldi, Hobbs, Moreland, & Schumacker, 2010) empowerment work with veteran (9+years) science teachers and Moreland's (2011) empowerment research with mid-career (4-8 years) science teachers. Autonomy and decision making were not viewed as distinct dimensions but had significant effects on empowerment, self-efficacy was influenced by student successes, classroom management, and inadequate pre-service training, professional growth closely resembled empowerment, impact was weak but it did exist for many of the teachers, status was higher than expected for all teachers, overall empowerment was higher than expected, attending conferences such as the Conference for the Advancement of Science Teaching (CAST) was a major positive force for empowerment, positive reinforcement played a large role in empowerment and leadership was found to either drive empowerment upward or break down empowerment depending on the situation. The results of this study can be used to inform decisions on how to differentiate professional development for science teachers as well as how they can be professionally sustained, empowered, and retained over time.

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Chapter 1. Introduction

"Empowerment is the process of enabling or authorizing an individual to think, behave, take action, and control work and decision making in autonomous ways. It is the state of feeling self-empowered to take control of one's own destiny." Susan M. Heathfield

INTRODUCTION

This chapter is an introduction to the background information regarding the problem under investigation as well as the theoretical underpinnings for empowerment.

FOCUS OF THE STUDY

The purpose of this research is to investigate what can be learned from the "professional voices" of novice science teachers in rural secondary schools during their first one to three years of teaching and to examine how their perceptions of empowerment (as defined by Melenyzer, 1990) changes as a result of key events or experiences in their work environment. In addition, patterns will be studied to determine what strengthens or reduces teacher empowerment so that schools, professors, or service center science specialists can provide appropriate professional development opportunities for new teachers and to help teachers move along the professional continuum. Teachers in the novice years of their career trajectory are in their first three years of classroom teaching.

Viewing the events in novice science teacher's careers through the lens of empowerment requires studying the dimensions of the construct as defined by Short (1994): autonomy, self-efficacy, professional growth, status, impact, and decision making. This researcher studied all six dimensions of the empowerment cycle in the participating novice science teachers in rural secondary schools. However, more focus will be given to the dimensions that are most likely to be experienced by teachers in the first phase of their career trajectory; self-efficacy, autonomy, and professional growth.

In this study, the Hobbs (2004) Empowerment Interview techniques and the Teacher Empowerment Survey (Hobbs & Moreland, 2009) were used as screening instruments and acted as springboards from which to examine the research question. The one-on-one case-study empowerment interviews with five novice science teachers from a rural secondary school included narrative inquiry techniques (Connelly & Clandinin, 1990) with systems dynamics behavior-over-time graphing and modified grounded theory for the transcription process.

PROBLEM

There is a tremendous amount of research on novice or induction phase teachers, but very little data exists on rural secondary-school novice science teachers and empowerment. Most of the scant research on novice science teacher's deals with elementary education, so very little is known about the issues facing new secondary-

school science teachers and the acquisition of empowerment. This researcher argues that the classroom teacher is the most important factor in a student's success; therefore, it seems prudent that we investigate how to empower and cultivate quality teachers for our schools. More attention must be given to nurturing novice teachers as they enter the classroom for the first time so they may perform with optimum professionalism as it is not fair to assume that all teachers have the same professional needs. For the most part, new teachers are isolated as they are inducted into their teaching assignments with little or no support from their peers and administrators. Some schools and educational entities have seen the need to develop induction or mentoring programs, while others have used intensive professional development to help alleviate some of the problems that induction-phase teachers face on a daily basis. The majority of these programs are designed to prevent migration and attrition in order to deal with the problem of new teachers leaving the profession (Patterson, Roehrig, & Luff, 2003). According to Hobbs (2004) and Short (1994), empowered teachers are more likely to stay in the teaching profession.

Watson (2006), and Patterson et.al (2003), believed that teacher attrition and migration, better known as “turnover,” is becoming a nationwide problem in our educational system today. The No Child Left Behind (NCLB) Act states that schools should hire “highly qualified” teachers to serve the nation’s children. However, with large numbers of teachers leaving the profession this may prove to be extremely difficult. Presently, school districts all over the country are experiencing cutbacks and experienced teachers are being encouraged to retire so that schools can hire novice teachers for less

money. Research indicates that beginning teachers are most at risk for attrition due to the difficulties associated with the first few years of teaching such as lack of support, poor working conditions, low salaries and challenges in their teaching assignment however migration is a more frequent occurrence among high-school teachers, specifically in high-demand subject areas such as science (Patterson, et al., 2003). Walsdorf and Lynn (2002) argued that "beginning teachers' transitions from pre-service to professional practice are often unsettling, because there is not a gradual induction into job responsibilities as is characteristic in other professions" (p. 190). New teachers are typically burdened with numerous subject preparations as well as students that lack discipline and enthusiasm (Walsdorf & Lynn, 2002). Kuzmic (1994) suggested that these early experiences are dominant influences on teachers' practices and attitudes throughout the remainder of their careers.

Alarming statistics show that some school districts are "losing 40% of their novice teachers within the first two years" in the classroom (Watson, 2006). Ingersoll's (2001) research indicated that more than one-third of beginning teachers are leaving the profession in the first three years, and half are leaving by the fifth year. Kelley (2004) pointed out that national and local efforts seem to be misplaced as most remedies for the teacher shortage focus on adding more teachers to the system through alternative teaching programs instead of retaining already qualified novice teachers. According to researchers (Sanford, 1988; Watson, 2006), science teachers early in their careers have more day-to-day challenges in planning and teaching compared to teachers of other disciplines. In

most schools, science teachers are responsible for preparing curriculum for several different subjects, one or more of which could encompass a field of science that they are not qualified to teach (Ingersoll, 2001; Sanford, 1988). As most secondary-school science instructors are content specialists, this puts an extra hardship on these teachers. In 2002, the National Science Teachers Association released a survey that cited the main reasons science teachers were leaving the classroom: “poor administrative support structures and salaries, student discipline problems, lack of faculty influence, poor student motivation, and poor opportunities for advancement” (Watson, 2006, p. 280). Other studies have shown that “instructional mastery, classroom control, and social relations with the students led teachers to become frustrated, confused, isolated, and depressed” (Watson 2006, p. 280). Studies have shown that most novice science teachers made the decision to leave teaching after the winter break (February) which points to a need for early intervention in order to prevent attrition (Bang, Kern, Luft, & Roehrig, 2007). Research among Australian teachers found that primary science and technology instructors complained of a “lack of collegial support for novice science teachers to teach the subject and the low level of understanding and implementation of a constructivist pedagogical approach to the teaching of primary science and technology” (Cahill & Skamp, 2003, p. 16). Research has also found that content-specific support during the year would help alleviate some of the problems experienced by first-year science teachers (Cahill & Skamp, 2003). Recent research spearheaded by Texas A&M’s Policy Research Initiative in Science Education (PRISE) project indicated that teachers that are satisfied with

present teaching assignments are more likely to stay in the teaching profession and remain at their present schools (Bozeman & Stuessy, 2009). Bozeman and Stuessy (2009) also stated that satisfied teachers are more likely to contribute to the "professional culture" of the school.

Since little research exists on novice science teachers in rural secondary schools, the present case-study research approach will bring forth new information about this group of teachers.

SIGNIFICANCE OF THE STUDY

This research can be used to study what novice science teachers in rural secondary schools bring to the classroom, as well as what they need to become empowered effective teachers. It is important to study the qualities and needs of novice teachers, as well as the events or experiences that cause empowerment to fluctuate, in order to empower teachers to their full potential and remedy the "leaking pipeline" of science teachers. This research will fill the gaps as noted in the research of Hobbs (2004) and (Barufaldi, et al., 2010) in their work on empowerment with veteran (9+ years of experience) science teachers, and (Moreland, 2011) empowerment research on mid-career (4-8 years of experience) science teachers. The results of this study can be used to determine how to differentiate professional development for science teachers as well as how they can be professionally sustained, empowered, and retained over time.

RESEARCH QUESTION

The purpose of this research is to investigate what can be learned from the "professional voices" of novice science teachers in rural secondary schools during their first one to three years of teaching, and to examine how their perceptions of empowerment as defined by Melenyzer (1990) changes as a result of key events or experiences that occur in their work environment. The following question will be of principal concern in this study:

1. What kinds of events or experiences cause professional empowerment to change or fluctuate in novice science teachers in rural secondary schools?

INQUIRY FRAMEWORK

To examine my research question I used a qualitative approach that entailed the use of the Hobbs (2004) Empowerment Interview and the Teacher Empowerment Survey (Hobbs & Moreland, 2009). My study used research methods that mirrored the work of Hobbs (2004) and Moreland (2011) using qualitative data including novice secondary-school science teachers' case-study interviews, along with behavior-over-time Graphing (BOTG). In this study, however, the Teacher Empowerment Survey was used only as a tool to determine suitable participants for the study, as well as serving as a "springboard" to explore teachers' responses more in depth. To investigate my research questions, I

used the Hobbs Empowerment Interview techniques and a paper-and-pencil version of the online Teacher Empowerment Survey (Hobbs & Moreland, 2009). The one-on-one empowerment interviews included Narrative Inquiry techniques (Clandinin & Connelly, 2000) with systems dynamics BOTG and modified grounded theory for the transcription process.

CONCEPTUAL FRAMEWORK

Experiential Knowledge

My passion for this research topic arises from my own experiences as an educator. I graduated from college with a degree in marine biology and a minor in biology and chemistry. I went back to school a year later to enroll in sufficient education hours to earn my teaching certificate. In 1986, I began teaching seventh- and eighth-grade science in a small, 2A rural middle school. I was not prepared for what I encountered as a first-year science teacher. I was oblivious to what needed to be done and how to manage a classroom, much less how to teach science to 150 adolescents. My empowerment was at an all-time low as I struggled to find my footing as a novice teacher. At the time, I was not aware of how to help myself, and the isolation of being the new teacher on the block prevented me from being an effective teacher necessary for student success. During this time I was not aware of professional-development opportunities or how to go about asking for help. After a few months of struggling, I befriended a more experienced teacher and began asking how she conducted her classroom. She first introduced me to

the notion of professional development, which led to some hit-and-miss training sessions that eventually helped me get my classroom under control.

It was not until 1990 that I found a professional-development program that spoke to me and really empowered me as a teacher. The Texas Regional Collaborative for Excellence in Science and Mathematics Teaching (TRC, 2013) Retrieved October 15, 2013, from http://thetrc.org/trc/ provided teachers with high-quality, sustained professional development in science that made a difference in student achievement and enhanced teacher pedagogical content knowledge. My autonomy and self-efficacy soared in response to being part of this group of teachers and the network that we built. Instead of leaving the profession as I once thought I might, I decided to stay. I spent 15 years teaching middle-school science, and 5 years teaching high-school chemistry and physics.

During my 20-year reign as a teacher, I took part in site-based committees that were meant to help empower teachers and schools to bring about student success. This might have been the case if administrators were on board with the purpose of these committees. In my school, site-based committees were presented to us as more red tape required by the state, and were met with little enthusiasm. Teachers spent countless hours on the committees and, much to their dismay, there was never any follow-through on the part of the administration. As long as we checked all the boxes on the paper we turned in to the state and thus looked good on paper, our administrators considered the documents we created to be the completed product and took no further action. I found this to be crippling to the empowerment of all the teachers involved.

My present endeavor is to delve into research that might help other novice science teachers become empowered and contribute to their efforts at improving education and student success.

Experiential Research

In the fall of 2011, I conducted a small pilot study to investigate what could be learned from the professional voices of novice science teachers during their first one to three years of teaching. The research was focused on how their perceptions of empowerment changed as a result of key events or experiences that occurred during their work. Using techniques borrowed from Hobbs's (2004) interview-based case-study research, the pilot study used semi-structured interviews and BOTG as a way to chronicle the professional voices and stories of the teachers. Even though the sample size was small (two teachers), this researcher felt that the stories told by these teachers had a great impact on their empowerment, and indicated that further inquiries in this area could fill in gaps in the existing research. The results from this pilot study pointed to the dimension of professional growth as being the most empowering.

EXISTING THEORY AND RESEARCH

The overarching theoretical framework for this research into novice secondary-school science teachers and professional empowerment relies heavily on the works of

Melenyzer (1990) and Short (1994). Melenyzer defined professional empowerment as "the opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession" (Melenyzer, 1990, p. 18). Short presented "six empirically derived sets of dimensions of teacher empowerment that help define the construct and broaden the dialogue beyond the rhetoric of empowerment (p. 488)." These dimensions are involvement in decision making, teacher impact, teacher status, autonomy, opportunities for professional development or professional growth, and teacher self-efficacy (p. 489). These dimensions were developed as a result of research from the "Empowered School District Project" conducted in nine school districts across the country from 1989 to 1992 (Short, 2004, p. 488). Descriptions of the six dimensions are as follows:

1. Involvement in *decision making* denotes the teacher's ability to be involved with key decisions that might affect the workplace environment and how a teacher instructs.
2. *Status* is a dimension of empowerment that is most often seen in teachers that have some experience as it pertains to how they are perceived and respected by their peers for being knowledgeable and for functioning at a high level.
3. Teacher *impact* refers to teachers' perceptions that they make a difference and have a profound effect on school life.

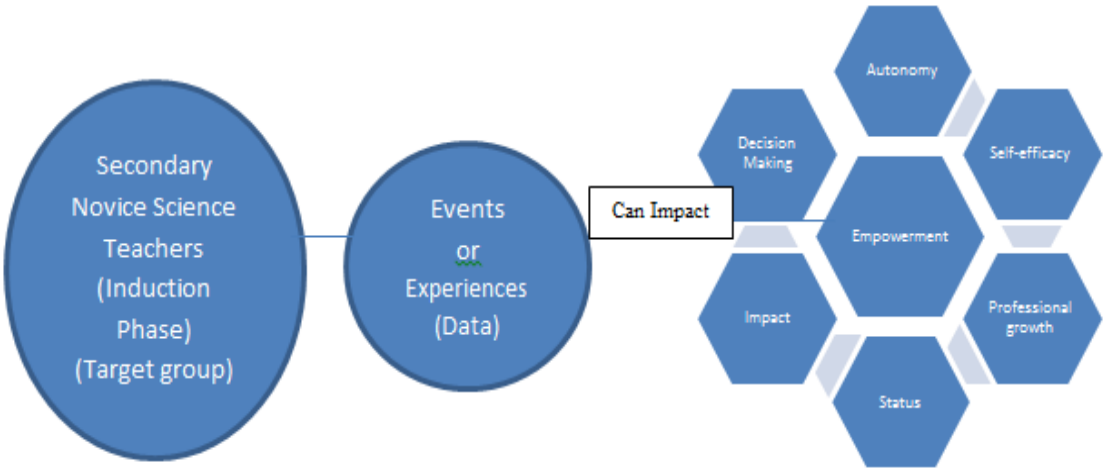
4. *Self-efficacy* refers to teachers' perceptions that they have the skills and abilities to help students learn, are competent in building effective programs for students, and can affect student learning (p. 490).
5. *Autonomy* refers to teachers' beliefs that they can control certain aspects of their working life such as the curriculum they teach, scheduling of events, and pedagogy (p. 490).
6. *Professional growth* refers to the idea that teachers believe that the school in which they work provides them with opportunities to grow and develop professionally, to learn continuously, and to expand their skills through their work in the school (p. 490).

CONCEPTUAL MODEL

Some researchers define a conceptual framework as a visual or written product, one that "explains, either graphically or in narrative form, the main things to be studied—the key factors, concepts, or variables—and the presumed relationships among them" (Miles & Huberman, 1994, p. 18). Figure 1 represents a conceptual framework for this study that includes experiential knowledge, experimental research, and existing theory and research. It represents the key variables concerning empowerment and novice science teachers in rural secondary schools. The model depicts a general theory about what I

believe to be the heart of this study: events or experiences in the context of the teachers work environment can impact the six dimensions as defined by Short (1994) which can cause empowerment in novice science teachers to fluctuate positively or adversely.

Figure 1. Conceptual view of dissertation study.



LIMITATIONS OF THE STUDY

Due to the small geographic area and the limited number of individuals that participated in this research, limitations do exist. This study was qualitative in nature and

consisted of five case studies. It mirrored some of the work of Hobbs (2004) and Moreland (2011) by using qualitative data including case-study interviews of novice science teachers in rural secondary schools and Behavior-Over-Time Graphing (BOTG) results. This study included five detailed case studies from participating novice science teachers selected according to purposeful selection criteria set forth for this research. The criteria included teachers in grades 6-12 who teach science in a rural school district and who completed the Teacher Empowerment Survey. Participants were chosen to complete the survey from a sample of novice science teachers in secondary schools.

The initial sample population was obtained using personal contacts of the researcher who knew of novice teachers that might want to participate in the study (chaining) (Patton, 1990). Emails were then sent to schools asking for teacher participation in the research. The availability and location of teachers only included novice science teachers in rural south Texas, which in itself could be considered a limiting factor.

Qualitative case studies were chosen as a research method because they can be characterized as being particularistic, descriptive, and heuristic. “Particularistic means that the case study will focus on a particular situation, event, or phenomenon, which in this case is empowerment. Descriptive means that the end product of a case study is a rich description of the phenomenon under study. The heuristic qualities of a case study can explain the reasons for a problem, what happened, and why” (Merriam, 1998, p. 30). The teachers’ stories and conclusions drawn from this study can’t be generalized to other

locations or teachers; however, those stories can provide a more in-depth and robust look at professional empowerment in novice science teachers rural secondary schools.

As a researcher and past classroom teacher, I brought my own biases and experiences about education to bear on both this research and how I chose participants for the study.

ORGANIZATION OF DISSERTATION

This dissertation is composed of five chapters beginning with this first chapter the introduction. Chapter 1 introduced the context of the research including the research question, its significance, inquiry framework, conceptual framework, existing theory and the limitations of the study. Chapter 2 is the literature review, where relevant prior studies are reviewed. Chapter 3 is the methodology section which discusses the design and methodology of this qualitative study. Chapter 4 represents the results from the study including demographics and emergent themes. Chapter 5 includes the discussion and conclusions from this study and includes the important findings as well as recommendations, limitations and further research questions.

Chapter 2. Literature Review

The most important factor affecting the quality of education is the quality of the individual teacher in the classroom. There is clear evidence that a teacher's ability and effectiveness are the most influential determinants of student achievement. Regardless of the resources that are provided, rules that are adopted, and curriculum that is revised, the primary source of learning for students remains the classroom teacher.

(CEPRI, 2003, p. 1)

INTRODUCTION

This chapter explores the historical roots of empowerment in education as well as the existing dominant research in the field. It will also discuss rural schools and how they may be different from larger urban schools. It points to the gaps in the literature where little or no research exists about empowerment and novice science teachers in rural secondary schools, thus justifying the present study.

OVERVIEW

The purpose of this research was to investigate what could be learned from the professional voices of novice science teachers in rural secondary schools during their first one to three years of teaching, and to examine how their perceptions of empowerment changes as a result of key events or experiences that occur in their work. Additionally, this researcher looked for similarities or patterns to determine what strengthens or

reduces teacher empowerment so that professional developers and schools can provide appropriate professional development opportunities for their new teachers and help those teachers move along the professional continuum. Teachers in the novice years of their career trajectory are in their first three years of classroom teaching. In order to explore this further, I reviewed existing empowerment research and career trajectory research, and pinpointed investigations for this specific group of novice secondary-school science teachers. This research will show that professional empowerment plays a vital role in understanding how empowerment can change when dimensions of the construct as defined by Short (1994)—autonomy, self-efficacy, professional growth, status, impact, and decision making—are impacted.

LITERATURE SEARCH METHODS

In order to investigate empowerment and my subject group, I used a detailed search through a wide variety of resources: books, peer-reviewed journals, the internet, electronic journals and abstracts, citations in papers and dissertations, and conference papers and reports. I used broad searches on empowerment and teachers, novice science teachers, and induction-phase teachers. I also used key words such as empowerment, rural, teachers, novices, science, attrition, retention, resiliency, and education. When I began my search, I used the University of Texas Libraries databases: JSTOR, Web of Science, Academic Search, Education, and Education Resources Information Clearinghouse (ERIC). During the research process my focus was on publications from

the 1980s through 2012. When my research stalled or I did not have access to some papers, I used Google Scholar and Google to obtain hard-to-get publications. Conversations with other researchers including Dr. Amy Moreland, Dr. Mary Hobbs, and Dr. James Barufaldi led me to valuable papers and books that contributed greatly to my research.

REVIEW OF THE LITERATURE

Rural Schools

> RUPRI (2013) stated,
>
> According to the U.S. Department of Education, the definition of 'rural schools' is those schools eligible to participate in the Small Rural School Achievement (SRSA) program. SRSA includes districts with average daily attendance of fewer than 600 students, or districts in which all schools are located in counties with a population density of fewer than 10 persons per square mile AND all schools served by the districts are located in a rural area with a school locale code of 7 or 8. (p.1)

Rural schools tend to have many characteristics that make them very different from urban schools, and some of those characteristics (such as small class sizes and a closer relationship with students and parents) are advantageous to teachers (Barley, 2009). While these attributes may be admired by some, there are problems that tend to mitigate against teachers choosing to work in rural schools. On the adverse side of things, "smaller

numbers of students limit the ability of teachers to specialize and may require them to deal with wider ranges of pupil needs" (Monk, 2007). This researcher saw this more often at the secondary level where a single teacher may be responsible for teaching all the science disciplines instead of focusing on what he or she has specialized in. Low student enrollment can also make it difficult for rural schools to offer more subject choices because teachers may not be available or they may not be certified to teach more advanced courses. School districts may also suffer from low student numbers because there is not much of a cushion from year to year as schools try to meet adequate yearly progress and other measures from the NCLB Act (Monk, 2007). According to Monk (2007), teachers in rural schools also face lower salaries than those offered to teachers working in large urban schools, and many of these teachers may not be certified to teach the subject they were hired to teach. Teacher shortages or the inability to hire more qualified teachers tends to haunt rural schools and cause hardships for teachers as well as students.

Generalizations made about education in rural areas of the United States may or may not be valid or supported by evidence. Nonetheless, generalizations can provide important information for examining issues and trends in a regional and local area.

The rural schools included in this study have student populations that range in size from 73 students to 900 students. These schools all still meet the rural standards based on the rule that they are located in counties with a population density of fewer than 10 persons per square mile and all schools served by the districts are located in a rural

area. One school in this study definitely stands out as a larger school with a population of 900 students. I chose to include this school because it pushed the limits for rural schools.

EXISTING THEORY

Professional Empowerment

In reference to the discourse on empowerment one thing is clear: empowerment is a complex construct with ambiguous meanings. It is multidimensional in scope and it may take on different meanings and practices in different settings, like businesses, industries and schools. For the purpose of this research I will focus briefly on the roots of empowerment in business and then give a more in depth look into the roots of empowerment in education.

In the business world companies have been using the empowerment model for years by involving employees in decision making in order to increase the quality and production of their products. The empowerment construct used by businesses was meant to create autonomy and sharing of information through boundaries and team building in employees (Hur, 2006, p.526). In Terblanche's (2003) research on Empowering People in Organizations, he states that employees and employers would all be winners if true empowerment were achievable. His basis for the underlying principles of empowerment is a positive attitude, leadership and teamwork (p.129). Terblanche (2003) argues that the essence of empowerment comes from releasing the knowledge, experience and motivational power that is already in people, but is being underutilized (p.129).

The business concept of empowerment soon spilled over into the educational communities as new reforms swept the country (Glenn, 1990). According to (Hur, 2006) synthesis of theoretical perspectives on empowerment the earliest form of empowerment theory in education was traced back to a Brazilian humanitarian and educator (Freire, 1973), when he suggested a plan for liberating the oppressed people of the world through education (p.523). According to Hur's (2006) account of Freire, (1973) the oppressed or the disadvantaged can become empowered by learning about social inequality (i.e. conscientizing), encouraging others by making them feel confident about achieving social equality, and finally liberating them (p.527). In short he felt that education was the key to becoming empowered.

The concept of empowerment really became prevalent after the education reform movement in the late1980's which was spurred by a *Nation at Risk*. (David, 1989) The *Nation at Risk* report was published in 1983 by President Ronald Reagan's "Blue Ribbon Commission" which gathered information on the nations school systems. This document portrayed American education and its schools as mediocre and failing in most cases which in turn caused a perfect storm of reform efforts at all levels; local, state and federal platforms. For many years teachers were seen as the problem in our schools instead as the vehicle to change schools into quality learning environments. Teachers were put under a microscope to determine if they were fit to teach and new reform efforts were put into place to try and change the glum outlook for American education. According to Lichtenstein, McLaughlin, & Knudsen (1991) a conclusion many have drawn from the

discussions of the 1980's is that "empowerment is something given to teachers by shifting institutional lines of authority. And at both local and state levels restructuring schemes or site-based management strategies that allow classroom teachers direct influence over decisions have gained popularity as a promising means to improve the quality of classroom practice" (p.1).As a result school districts raced to implement school based or site- based management on their campuses in hopes of "changing educational practice to empower school staff to create conditions in schools that facilitate improvement, innovation and continuous professional growth" (David, 1989, p.45). Lichtenstein et.al (1991) reported that in the schools they studied institutional empowerment was in name only and teachers felt as though their input was never utilized. A considerable amount of time by teachers was spent on committees and their ideas never came to fruition. The concept of institutional empowerment was meant to give teachers a voice in events that would ultimately empower them and impact student achievement however Lichtenstein et.al (1991) found that knowledge based reforms were much more likely to promote teacher empowerment. He argues that empowered teachers possess three components: knowledge of professional community, educational policy and subject area (p. 12). In Richard Ingersoll's 2003 book *Who Controls Teachers' Work? Power and Accountability in America's Schools*, Ingersoll attributes problems with staffing and retention in part to the way schools are structured and to a lack of respect for the teaching profession. These factors must change for the quantity and quality of the teacher workforce to improve. In many schools, key decisions are made with minimal

input from teachers, but in schools where teachers are more empowered in decision-making, he says there are fewer problems between staff members and students and less teacher attrition.

According to Short (1994) empowerment is a process in which school participants develop the competence to take charge of their own growth and resolve their own problems. Empowered individuals believe they have the skills and knowledge to act on a situation and improve it (p. 488). Melenyzer (1990) defined professional empowerment as "the opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession" (p.18). Glenn (1990) argues that teacher empowerment means that schools are structured so that teachers have more responsibility for making decisions concerning philosophy, methodology, content, and timing of the learning process (p.1). Research implemented by Barufaldi et al. (2010) on the empowerment of K-12 science teachers', stated that empowerment is most often viewed as a process through which people become powerful enough to engage in, share control of, and influence events and institutions affecting their lives. In part, empowerment requires that people gain the knowledge, skills, and power necessary to influence their lives and the lives of those they care about. Teacher professional empowerment is an integral part of education and the functioning of schools (p. 2).

As you can see empowerment is not an endpoint or absolute stage for teachers to attain it is a dynamic link or ongoing quest to more powerful certainties and a constantly

evolving construct. The construct of empowerment in education and teachers is a powerful means to reforming schools and educating our youth.

There is a tremendous amount of research on empowerment in the business world but little has been done on how empowerment emerges and the events that shape its emergence in teachers. Very little empowerment research exists that actually sheds light on the voices of the teachers from the trenches. Hobbs (2004) research on Systems Dynamics and Empowerment in Career Science Teachers: a Narrative Theory delves into how empowerment begins to emerge in science teachers. Even though her study looked at a small sample of teachers her research was very important in that it chronicled the voices of teachers and how they saw themselves evolve over time with empowerment. Her study focused on fifteen career science (veteran) teachers and their perceptions of how their empowerment has changed as a result of key events during their careers as defined by the six elements presented by Short (1994) which include decision-making, professional growth, status, self-efficacy, autonomy, and impact (Hobbs, 2004). Teachers gave their stories as their events and behaviors were documented by using behavior over time graphs. Her research validated the relationships of the six dimensions of empowerment as identified by Short (1994).

An important model emerged from Hobbs empowerment study that depicted the experiences and perceived growth in empowerment by the teachers. The model represented empowerment as a "growth process with three phases of development; The Initiating Phase, the Growth Phase, and the Sustaining Phase" (Hobbs, 2008, p.7). The

dimensions of the model increase in complexity and reach maturity during the last phase (Hobbs). The initiating phase (Years 1-3) was characterized by teacher struggles and lack of preparation. Teachers in this phase spent most of their time trying to figure out "what to teach and how to teach it" (p.7). In the Growth Phase (Years 4-8) teachers became aware of opportunities for growth through professional development and their feelings of self-efficacy came from student successes. This group of teachers began to become more involved in decision-making and leadership roles. In the Sustaining Phase (Year 9 and beyond) these veteran teachers "saw learning as a lifelong process" (p.8). These teachers were making an impact in education and were developing a new sense of self-efficacy, however by the 9th year their empowerment leveled off and their learning was thwarted (Hobbs, 2004). It was apparent from Hobbs model that professional development should not come in a one size fits all box, it should be individualized depending on the career trajectory of the teachers involved.

Moreland's (2011) research shed more light on how empowerment emerges in mid-career (years 4-8) science teachers through her mixed methods study. Moreland (2011) also used the construct of professional empowerment as the theoretical framework as she studied K-12 mid-career science teachers. Her results showed that gains in science content knowledge through professional development events was an important factor in the emergence of empowerment in her teacher participants. (Moreland, 2011) argued that the increase in "content knowledge connected positively with the dimensions of decision-making, status and impact" (p.173).

The overarching framework for this research and professional empowerment relies heavily on the work of Short (1994). Short (1994) presents "six empirically-derived set of dimensions of teacher empowerment that help define the construct and broaden the dialogue beyond the rhetoric of empowerment (p.488) ; involvement in decision making, teacher impact, teacher status, autonomy, opportunities for professional development or professional growth, and teacher self- efficacy (p.489). These dimensions were developed as a result of research from the "Empowered School District Project" conducted on school empowerment in nine school districts across the country from 1989 to 1992 (Short, 2004, p.488). It is important to point out that some dimensions fall into the category of personal empowerment, while others are areas of organizational empowerment. Professional growth, self-efficacy and status are all dimensions of personal empowerment. Autonomy, decision making and impact are dimensions of organizational empowerment.

The six dimensions and their descriptions are as follows:

1. Involvement in **decision making** denotes the teacher's ability to be involved with key decisions that might affect how they teach and their workplace environment.
2. **Status** is a dimension of empowerment that is most often seen in teachers that have some experience as it pertains to how they are perceived and respected by their peers for being knowledgeable and functioning at a high level.

3. Teacher **impact** refers to teachers perceptions that they make a difference and have a profound effect on school life.
4. **Self-efficacy** according to refers to teachers perceptions that they have the skills and abilities to help students learn, are competent in building effective programs for students and can effect student learning (p 490).
5. **Autonomy** refers to teacher's beliefs that they can control certain aspects of their work life such as the curriculum they teach, scheduling of events and pedagogy (p.490).
6. **Professional growth** refers to the idea that teachers believe that the school in which they work provides them with opportunities to grow and develop professionally, to learn continuously, and to expand one's own skills through the work life of the school(p.490).

The next section will focus on each of the six dimensions in more depth in order to understand what they bring or contribute to the construct of professional empowerment.

Self-efficacy

Self-efficacy is an important dimension of empowerment and tends to develop early as teachers begin to see student success (Hobbs, 2004).Teacher self–efficacy is defined as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated" (Guskey & Passaro, 1994; Short, 1994).

According to Tschannen-Moran, Hoy & Hoy, (1998) “teachers with a high level of self-efficacy believed that they could control, or at least strongly influence, student achievement and motivation”. Bandura & Adams (1997) and Tschannen-Moran, et al., (1998) described teacher efficacy as a type of self-efficacy in which people construct beliefs about their capacity to perform at a given level of attainment. These beliefs influence how much effort people put forth, how long they will persist in the face of obstacles, how resilient they are in dealing with failures, and how much stress or depression they experience in coping with demanding situations (p.203). In Guskey’s (1984) research he noted that teachers who implement “more effective instructional practices and realize more positive learning outcomes on the part of their students would seem likely to attribute that positive change to their efforts” (Guskey, 1984, p. 246). Guskey stressed that even though teachers may attend professional development that heightens their self-efficacy as a teacher they might need support during implementation of the new practices in the classroom to insure positive learning outcomes on the part of the student. Guskey (1984) hypothesized that teachers who undergo a positive transformation in their pedagogical skills would “a) assume greater personal responsibility for the learning outcomes of their students, (b) like teaching more and express more positive attitudes about various aspects of teaching, and (c) express greater confidence in their abilities as teachers (p.246). Research completed by (Darling-Hammond, Chung, & Frelow, 2002) and (Tschannen-Moran, Hoy, & Hoy, 1998) report that (a) teachers self-efficacy is related to the teacher’s preparedness to teach and their

effectiveness with students (determined by the success of students) (b.)Views of self-efficacy form in the early years of a teacher's career and are difficult to change once formed. If this is true then it would be wise to find ways to positively impact teacher's self-efficacy in the first few years of their career.

Autonomy

According to the Business Dictionary, (Luthra, 2011) the definition for autonomy states that it is "a degree or level of freedom and discretion allowed to an employee over his or her job (p.1). As a general rule, jobs with a high degree of autonomy engender a sense of responsibility and greater job satisfaction in the employee(s) (White, 1992). As a teacher the definition of autonomy in the classroom may be more problematic than this simplistic definition. Short (1994) states that "autonomy as a definition of empowerment, refers to teachers' beliefs that they can control certain aspects of their work life" (p.3). For teachers this would include scheduling, scope and sequence, curriculum, instructional planning or lesson plans, and choosing textbooks to name a few. Short also points out that schools that promote risk taking and experimentation by teachers also builds teachers sense of autonomy, for example, allowing a teacher to pilot a new science program within the classroom. The Shizuoka definition of teacher autonomy states that autonomy is a socially constructed process, where teacher support and development groups can act as teacher-learner pools of diverse knowledge, experience, equal power and autonomous learning(Barfield, 2001). In Hobbs (2008), study of fifty veteran teachers, she found that

"autonomy appeared early as a naive sense of choice and evolved over time into a mature sense of responsible decision-making and autonomy, the most complex and abstract of the dimensions most nearly mirrored empowerment itself" (p.5). Hobbs (2008) also argues that "a personal sense of autonomy gave "heart" to the empowerment process, allowing teachers to persist through trying circumstances" (p.5).

Many would argue that with high stakes testing that teacher autonomy has been greatly minimized (Archbald & Porter, 1994). State standards and standardized curricula along with graduation requirements and standardized testing have greatly impacted what teachers actually control in the classroom. One empowerment proponent sums up the damage from central curriculum control with this message (McNeil, 1988):

By prescribing curriculum and instruments of assessment, such reforms separate the craft of teaching from teaching style and remove teachers' discretion from their judgments about students and what they need to know. In this de-skilled model of teaching one teacher lamented, the teacher becomes little more than an assembly-line worker, performing mechanical tasks" (McNeil, 1988, p.335)

Professional Growth

In reference to empowerment in the teaching profession, professional growth refers to the idea that teachers believe that the "school in which they work provides them with opportunities to grow and develop professionally, to learn continuously, and to

expand one's own skills through the work life of the school" (Short, 1994, p.3). Glenn (1990) believes that real empowerment comes when teachers have full command of their subject matter and pedagogical skills. According to Hobbs (2004) “as teachers obtain more knowledge their feelings of self-efficacy increased, they were more likely to be involved in and confident in decision-making, and they increased in status and had more impact” in the classroom (Hobbs, 2004, p. 9). Professional growth can occur in deliberate attempts by teachers seeking out information to further strengthen their subject matter or pedagogical skills. School districts offer “one size fits all” in-service training for teachers based on state mandates and individual campus needs however teachers can also seek professional development on their own to help build their repertoire of subject matter and teaching skills. Hobbs (2004) showed that in her study the “beginning teacher was concerned with the lack of preparation for instruction and absence of knowledge about needed professional development opportunities” (p.82). She stated that these were major factors in shaping feelings of teacher empowerment. One participant in Hobbs’ study stated that they had to have professional growth in order to obtain autonomy and that these two constructs were dependent on one another. Hobbs’ also noted that the “professional development needs of the teachers varied as their careers progressed and the context of their assignment changed” (Hobbs, 2008, p.6).

Decision Making

According to Short (1994), decision making as a dimension of empowerment "relates to the participation of teachers in critical decisions that directly affect their work" (p.489). In the classroom this could take on the role of preparing budgets, writing curriculum and serving on hiring committees. Short (1994), believes that when schools provide teachers with a significant role in decision making that empowerment is heightened. Short (1994), also noted that for the decision making to impact empowerment teachers must believe that their involvement in decision making is genuine and valued.(Maeroff, 1988), argues that if teachers have a low opinion of themselves then access to decision making will be out of reach. "There will be no empowerment while teachers feel small and insignificant because they are doing a job that they think is not adequately appreciated by those outside the schools" (p.474). Maeroff (1988) believes that in-service training and professional development opportunities can break down walls and lead teachers to more opportunities for decision making. True empowerment leads to increased professionalism as teachers assume responsibility for and an involvement in the decision making processes (Melenyzer, 1990, p.16).

Impact

Impact refers to “teachers’ perceptions that they have an effect and influence on school life” (Short, 1994, p. 494). Teachers like to be recognized for their accomplishments by peers, students and parents, and when this is not forthcoming teachers can suffer from low self-esteem (Short, 1994).(B. Klecker & Loadman, 1996) study of over 4000 teachers reported that they observed a moderately high positive correlation between impact and each of the other five dimensions when using the School Participant Empowerment Scale.

Status

Status as a dimension of empowerment refers to teachers’ perceptions that they have professional respect and admiration from colleagues (Short, 1994, p.490). Status is important as it gives teachers a sense of self-worth and bolsters their self-esteem. Maeroff (1988) suggests that low pay and public opinion play a large part in the status of teachers and how they feel about themselves. In today’s world the media often depicts teachers in a bad light adding more fuel to low opinions of educators. In Hobbs (2008) study she found that “success in promoting student achievement and recognition from administrators, parents, colleagues and others were important in enhancing the sense of

status felt by the teachers. However, the teachers often generated negative stories related to their status" (p.5).

These six dimensions will be explored to see how one or more of them contribute to the overall professional empowerment of teachers by exploring events and experiences in the context of the teachers work environment.

FACTORS THAT MAY AFFECT TEACHER EMPOWERMENT

Every teacher brings to the classroom his or her educational background, social status, and own unique interests. Therefore, other factors must be considered that might also contribute to the hindrance or attainment of teacher empowerment. Day, Kington, Stobart and Sammons (2006) stated:

> In teacher education, research of the literature demonstrates that knowledge of the self is a crucial element in the way teachers construe and construct the nature of their work, and that events and experiences in the personal lives of teachers are intimately linked to the performance of their professional roles. (Day, Kington, Stobart, & Sammons, 2006, p. 603)

Some researchers have shown that teachers' personal and professional backgrounds directly and indirectly influence their socialization into the teaching profession. Teachers' cultural, racial, and class backgrounds and personal histories influence their professional socialization in three ways. Teachers' personal backgrounds shape their worldviews, affect their selection of the schools in which they work, and enhance or degrade their

connections with students. In turn, these factors shape the context for the teachers' socialization experiences, and they learn about teaching by observing their own teachers (Achinstein, Ogawa, & Speiglman, 2004, p. 560). Age is another attribute that may affect early teacher empowerment. Older novice teachers tend to have more positive changes in self-efficacy than their younger counterparts (Chester & Beaudin, 1996, p. 251). One study has shown that teacher personal attributes have no real effect on self-efficacy except that male teachers tend to exhibit less self-efficacy than females. Males reported significantly lower self-efficacy than did females (b = - . 185, t = - 2.75). However, other personal characteristics of teachers (experience, prior education, and race) were unrelated to self-efficacy once the intra-teacher predictors and disciplinary specialization were controlled for (Raudenbush, Rowan, & Cheong, 1992, p. 162). An important finding in this survey-based qualitative research argued that the teaching assignment had a heavy influence on a teacher's self-efficacy, especially for science and math teachers. Those teachers that were assigned to high-track classes such as honor courses tended to have a higher self-efficacy than teachers in lower-track academic classes and vocational classes (Raudenbush et al., 1992).

Klecker and Loadman (1998) surveyed more than 4,000 teachers using the School Participant Empowerment Scale (Short & Rinehart, 1992) which is based on the six dimensions of empowerment, and found that elementary teachers rated their empowerment higher (4.19) than high-school teachers (3.94). They also reported that, on the professional growth scale, female teachers had higher ratings (4.25) compared to

males (4.04). Elementary teachers scored higher in impact (3.71) compared to high-school teachers (3.41). Higher autonomy was also tilted towards elementary teachers (3.41) verses high-school (2.80) (B. J. Klecker & Loadman, 1998). Overall, elementary teachers tended to have higher empowerment than did their peers in secondary schools. This comparison can be problematic for some because the nature and environment of the two school types are dramatically different. However, it can give an insight into which teachers may feel more empowered at their beginning of their careers.

In order to foster empowerment in teachers, administrative leaders must facilitate the process through shared responsibility and authority by cooperative means, rather than by using conflicting methods of governance such as manipulation, dissension, and domination (Blase & Blase, 1997). Blasé and Blasé's (1997) research examined exemplary principals by using the Inventory of Principals' Characteristics that Contribute to Teacher Empowerment (IPCCTE), an open-ended questionnaire that was administered to teachers. The survey was designed to collect personal meanings on how these exemplary principals contributed to teacher empowerment. The data indicated that creating a non-threatening environment, free from fear, criticism, and reprisals for failure, was especially important in encouraging innovation and empowering teachers (Blase & Blase, 1997, p. 153). Teachers felt that they could try new things and stated that risk-taking was encouraged as long as they accepted the responsibility that came with it. Principals promoted teacher innovation through formal decision-making structures (i.e., teams, committees, special task forces), professional development structures (i.e., staff

development, workshops, conferences), individual formal structures (i.e., conferences), and informal interactions that included conversations and impromptu classroom visits. According to the study data, principals also reinforced their support for innovation by exhibiting trust, providing support (i.e., classroom resources), giving rewards (i.e., praise), and demonstrating caring (i.e., sincere interest) (Blase & Blase, 1997, p. 153). Further, Blasé and Blasé found that five major strategies employed by exemplary principals had moderate to high impacts on all major dimensions of teacher empowerment: demonstrating trust, developing shared governance structures, encouraging and listening to teaching input, encouraging teacher autonomy, and encouraging teacher innovation (Blase & Blase, 1997).

Attempts to address concerns for empowering new teachers and to decrease attrition or migration have led to research on the professional needs of novice teachers. In a case study of 21 math and science teachers, researchers asked teachers to discuss their support structures, if present, in semi-structured interviews (Friedrichsen, Chval, & Teuscher, 2007). Teachers cited internal and external support structures that were crucial to their overall support as novice teachers. Internal factors consisted of mentoring, beginning-teacher meetings, administrators, subject-specific coaches, teaching assignment, other teachers, department heads, and other beginning teachers. External factors that contributed to their support included professional conferences and organizations, and beginning-teacher institutes as well as teacher preparation institutions. The four most commonly used strategies were: (a) seeking advice, (b) talking with other

beginning teachers, (c) finding someone to listen (mentors), and (d) enacting and reflecting on changes in instructional practice (Friedrichsen, et al., 2007, p. 176). These researchers hypothesized that beginning teachers who leave the profession participate in fewer support programs, lack a supportive network, and initiate fewer strategies to build such a network (p. 178).

SUMMARY

The literature on empowerment has given us attributes or qualities of what empowerment might look like. However, vital pieces of understanding on how events or experiences cause empowerment to emerge and fluctuate in novice science teachers have been underreported. The literature on novice science teachers in secondary schools is limited to the research presented by Hobbs (2004) and Moreland (2011). However, their research focuses on mid-career and veteran teachers, which leaves a gap in the literature concerning novice teachers. The present research fills in a part of that gap and will gather information on how empowerment emerges and fluctuates in the beginning years of a science teacher's career in a rural secondary school. Themes and patterns may emerge from this research that will allow us to provide specialized support for novice science teachers to meet their needs which in turn can help empower and sustain teachers over time and help them reach their professional goals. This support can be provided by professional development opportunities and school administrators.

Chapter 3. Methodology

"An empowered organization is one in which individuals have the knowledge, skill, desire, and opportunity to personally succeed in a way that leads to collective organizational success." Stephen Covey

INTRODUCTION

The purpose of this chapter is to provide a review of the research-method design and strategies for this study.

RESEARCH APPROACH

I chose to use a qualitative approach based on Hobbs's (2004) empowerment interview techniques to examine the construct of professional empowerment and its six dimensions in which qualitative data was used to investigate the research question. I used the Teacher Empowerment Survey (Hobbs & Moreland, 2009) as a tool to filter candidates that meet the criteria of this research and to promote discussions in the interview process. I conducted five in-depth case-study interviews of novice science teachers from rural secondary schools. Those teachers were chosen from the group of ten teachers that completed and returned the Teacher Empowerment Survey and who met all the research criteria as well. By pursuing a qualitative research design approach, I endeavored to produce a rich and robust study in which the interviews and graphs recorded by teachers produced insight into how empowerment emerged and fluctuated in their teaching environment. Table 3.1 depicts the methods used for this research.

Table 3.1 Qualitative Research Chart

Method	Qualitative
Data collection strategy	Novice science teachers in rural secondary schools were given the Teacher Empowerment Survey (TES)—a 31-question survey consisting of multiple-choice questions, open-ended questions, and demographics. (Hobbs & Moreland, 2009) Survey is self-administered. This survey was used to consider the participants for the study. Empowerment Interview (Hobbs, 2004): Interview-based case studies (bounded system) (Creswell, 2007) of five novice science teachers selected from the pool of participants who completed the TES. These interview-based case studies used narrative inquiry and behavior-over-time graphing (Clandinin, & Connelly, 2000; Pegasus, 2011).
Purpose	The interviews allowed teachers to tell their stories, while the case studies focused on a particular situation, event, or phenomenon (empowerment). The end product of each case study is a rich description of the phenomenon under study. (Merriam,1998)
Sample Population	Purposeful selection of teachers that met the criteria set forth for this research: Teachers in their first three years of teaching science in grades 6-12 in a rural school district. Teachers selected for the in-depth interviews of the case studies were chosen from teachers that completed the Teacher Empowerment Survey. The initial pool of teachers invited to participate in the TES were chosen from a convenience sample of novice secondary-school science teachers, using contacts that know of novice teachers who might want to participate, (chaining) (Patton, 1990) and emails sent to schools asking for teacher participation in the research.
Measures	The interview-based case study is an empirical inquiry that investigates a contemporary phenomenon (in the present research, empowerment and its six dimensions) within its real life context (school). (Yin, 1994)
Data Collection (what data is collected and where)	Interviews took place in settings chosen by the participants that included restaurants and classrooms. Case-study interviews collect the voices of the participants contextualized in the settings in which they provide experiences and the meanings of their experiences. Behavior-over-time graphs provide a snapshot of empowerment or its dimensions over a period of time as experienced by the novice science teachers.
Data Analysis	The transcribed interviews were coded using a modified grounded theory approach which looked for and allowed themes and patterns in the dialog to become apparent. I engaged in member checking and peer debriefing to insure accuracy in the data. These transcriptions were then analyzed to answer the research question.

HISTORY OF EMPOWERMENT RESEARCH METHODS

Empowerment research has covered the range of research methods from studies that were quantitative and analytic to qualitative ethnographies and case studies. Much of the early quantitative research in the 1970s and 1980s focused on institutionalized empowerment and failed to represent the voices of the very people under study: the teachers. Short's work (1994) was based on quantitative research from the Empowered School District Project that studied school empowerment in nine school districts across the country from 1989 to 1992. In this study of 211 schools they developed the School Participant Empowerment Scale (SPES), an instrument that measured teacher empowerment. Her research was important as it identified six dimensions that can contribute to overall teacher empowerment (Short, 1994). Melenyzer's (1990) ethnographic and narrative research took place over a period of one year with 40 middle-school teachers ass he tried to capture the meaning of teacher empowerment through daily observations and interviews. Her research showed organizational culture promoted or sustained teacher empowerment, that the social practices and social knowledge of empowered teachers promoted and sustained teacher empowerment, and that empowering leadership promoted and sustained teacher empowerment (p. 1).

Lichtenstein et al. (1991) conducted a qualitative study on institutional empowerment and its effects on teachers, and found that in most cases institutional

empowerment did not have an effect on teacher empowerment. Their study of math collaborative teachers reported a high level of empowerment among the participants that the researchers attributed to being part of a network of teachers in which they could collaborate and share information. Lichtenstein et al. further stated that "in addition, they claimed that knowledge carried its own authority" (p. 3). Past research has not attempted a look at novice secondary-school science teachers and empowerment. However, the work of Hobbs (2004) and Moreland (2011) focused on science teachers on different career trajectories. The present study of novice science teachers will follow in the footsteps of Hobbs's study of veteran science teachers and Mooreland's study of mid-career science teachers to fill in the gap on the career trajectory. Their qualitative methods were unique in that they intended to make the emergence of empowerment visible by using the Teacher Empowerment Survey and behavior-over-time graphs that captured a period in time of their teachers' careers. Hobbs's *Systems Dynamics and Empowerment in Career Science Teachers: A Narrative Theory* delves into how empowerment begins to emerge in science teachers. Even though her study looked at a small sample of teachers, Hobbs's research was very important in that it chronicled the voices of teachers and how they saw themselves evolve over time with empowerment. Her study focused on 15 veteran career science teachers and their perceptions of how their empowerment has changed as a result of key events during their careers. Hobbs's research relied on empowerment as defined by the six elements presented by Short (1994) which include decision-making, professional growth, status, self-efficacy,

autonomy, and impact. Teachers gave their stories, and the key events and behaviors were documented using behavior-over-time graphs.

One of the models that emerged in Hobbs's (2004) study depicted "empowerment as a cycle with three stages: the Initiating Phase, the Increasing Phase, and the Sustaining Phase. Although all the dimensions are present during all stages, they become increasingly complex and sophisticated and reach maturity during the third phase" (p. 9). Moreland's (2011) mixed-method research on mid-career K-12 science teachers combined an interview-based case-study design that employed narrative inquiry with behavior-over-time graphing, as well as an online Teacher Empowerment Survey (Hobbs & Moreland, 2009). Moreland's work included six case studies and 78 completed surveys. Moreland's results showed that "science content gained through professional development opportunities was an especially important factor in supporting mid-career teachers' sense of empowerment" (p. 6).

The literature on empowerment has given us attributes or qualities of what empowerment might look like. However, vital pieces of understanding on how events or experiences cause empowerment to emerge and fluctuate in novice science teachers have been underreported. When studying teachers and the construct of professional empowerment, this researcher feels the rich narratives gathered from novice science teachers by using narrative inquiry with behavior-over-time graphing made the events or experiences that impact empowerment more visible.

QUALITATIVE DESIGN

I have chosen to use a qualitative approach to examine the construct of professional empowerment and its six dimensions. “In contrast to quantitative research which takes apart a phenomenon to examine component parts, qualitative research can reveal how all the parts work together to form a whole” (Merriam, 1998). Qualitative researchers are interested in how people make sense of their world and the experiences they have in their world (Merriam, 1998). Creswell (2008) stated that qualitative research provides a more detailed account from the “voices” of the participants being contextualized in the settings in which they provide experiences and the meanings of their experiences. According to (Yin, 2003), four tests can be used to determine the quality of case study research: construct validity, internal validity, external validity, and reliability. Table 3.2 illustrates the type of data that was collected in this study that added to the validity and reliability of this research.

Table 3.2 Quality of Research Design (Yin, 2003)

Tests	Case Study Tactic	Phase of research where tactic occurs
Construct Validity	Multiple sources of evidence	Data collection: recorded interviews, observations, data-BOTG and narrative inquiry.
	Chain of evidence	Data collection: Maintain all recorded interviews, transcriptions, graphs, field notes and surveys.
	Key informants review draft	Composition
Internal Validity	Pattern matching	Data analysis: Using different types of data and different points in time potentially strengthens internal validity and increases external validity of findings.
External Validity	Multiple case studies	Research design: May not be generalized to all teachers, only to the group studied. Using different types of data and different points in time potentially strengthens internal validity and increases external validity of findings.
Reliability	Use case-study protocol Develop case-study database	Data collection: includes case study notes, audio-recordings, graphs, narratives etc.

In this case of qualitative research, Hobbs's (2004) Empowerment Interview techniques and the Teacher Empowerment Survey (Hobbs & Moreland, 2009) were used to examine the research questions. This researcher chose to use qualitative case studies because they can be characterized as being "particularistic, descriptive, and heuristic Particularistic means that the case study will focus on a particular situation, event, or phenomenon, which in this case is empowerment. Descriptive proclaims that the end product of a case study is a rich description of the phenomenon under study. The heuristic qualities of a case study can explain the reasons for a problem, what happened and why" (Merriam, 1998, p. 30). The Teacher Empowerment Survey was used as a tool to screen participants to insure that all criteria set forth for the research were met. The survey also allowed me to choose teachers that were experiencing issues with the dimensions as well as those that seemed to be experiencing empowerment. The surveys also acted as a springboard to facilitate the beginning of the interviews with the five case-study participants.

SAMPLING

Teachers participating in this study were part of a purposeful selection of teachers that met the criteria set forth for this research. To be included, selected teachers had to be working in grades 6-12 and teach a full load of science in a rural school district. Teachers selected to complete the Teacher Empowerment Survey were chosen from a convenience sample of novice secondary-school science teachers, using this researcher's personal

contacts who knew of novice teachers that might want to participate (chaining) (Patton, 1990). Additionally, emails were sent to schools asking for teacher participation in this research. Ten Teacher Empowerment Surveys were returned completed however five teachers were chosen that met all the criteria as well as being an interesting subject for the research. The five teachers chosen to participate added extra comments and information that informed me that they would be good candidates for this research.

RESEARCH QUESTIONS

The purpose of this research is to investigate what can be learned from the "professional voices" of novice science teachers in rural secondary schools during their first one to three years of their teaching assignment and to examine how their perceptions of empowerment change as a result of key events or experiences that occur in the context of their work. This research will use the term empowerment as defined by (Melenyzer, 1990) and the six dimensions as defined by Short (1994). The following question was of principal concern in this study:

1. What kinds of events or experiences cause professional empowerment to change or fluctuate in novice science teachers in rural secondary schools?

INSTRUMENTATION

The present study used a qualitative research approach similar to the work of Hobbs (2004) and Moreland (2011). It used qualitative data in the form of case-study interviews gathered from novice science teachers in rural secondary schools. To investigate my research question, this project used the Hobbs (2004) Empowerment Interview techniques, and a paper-and-pencil version of the online Teacher Empowerment Survey (Hobbs & Moreland, 2009). The Empowerment Survey was used to determine which teachers met the criteria for further inclusion in the research. Five teachers were chosen for case-study interviews from the ten returned completed surveys. The one-on-one empowerment interviews included narrative-inquiry techniques (Clandinin & Connelly, 2000) with systems dynamics behavior-over-time graphing. The Teacher Empowerment Survey was developed by Hobbs & Barufaldi (2006) in their NSF-funded research project because interviewing numerous subjects was time consuming and they could include more participants with the survey. According to Moreland (2011), the Teacher Empowerment Survey was funded by a four-year NSF grant, *Project Instrument Development (I.D.): Exploring the Professional Growth Continuum* (p. 63). In 2009, the survey instrument went online as part of Moreland and Hobbs's study (Hobbs & Moreland, 2009), and presently can be found at http://www.empoweredteacher.org. The survey consists of "quantitative and qualitative

open-ended elements" and is intended to measure K-12 science teachers' sense of professional empowerment by means of the six empirically derived dimensions of the construct (Moreland, 2011, p. 63). The Teacher Empowerment Survey items were statistically tested and validated by an external statistician from *Project I.D.: Instrument Development for Exploring the Professional Growth Continuum* (NSF Grant No. 0554468, 2007; (Moreland, 2011, p. 60).

The purpose of this research is to understand how empowerment emerges and fluctuates in novice science teachers in rural secondary schools as they are exposed to events or experiences in their work.

RESEARCH PROTOCOL

The Teacher Empowerment Survey provides questions that are both qualitative and quantitative in nature. This survey was "intended to measure K-12 science teachers' sense of professional empowerment by means of the six empirically derived dimensions of the construct" (Moreland, 2011, p. 63). In this study, the survey was used as a tool to choose suitable candidates that met all of the criteria for the interview-based case-study portion of the research. It was delivered to rural secondary schools in Texas that have novice science teachers who are in the first three years of their teaching careers. Teachers chosen for the five in-depth interviews were selected from 10 surveys that were completed and returned (see Appendix B for the survey). The Teacher Empowerment Survey allowed this researcher to take a look at existing empowerment in teachers and to

determine which teachers would be the best participants for the research. The TES identifies experiences related to empowerment and its six dimensions for novice science teachers by using a modified Likert-style scale where a response of 1 indicates the respondent strongly disagrees, ranging up to a response of 5 to indicate the respondent strongly agrees, and a response of 0 means the respondent doesn't know (Moreland, 2011). The Likert scale indicates the intensity of empowerment and its six dimensions. The answers to these questions were used to gauge the teachers' general empowerment and aid in the process of choosing suitable participants for the rest of the research. Table 3.3 shows the alignment between survey items and empowerment and the six dimension constructs. This table could be used to associate each teachers answer to the appropriate dimension and overall empowerment.

Table 3.3 Survey item alignment between items and constructs

Survey Item Numbers	Construct Alignment (Dimensions of Empowerment)
A-2,B-1, B-2, B-3, B-4	Professional Empowerment
A-3	Autonomy
A-5,	Professional Growth
A-9, A-10	Decision Making
A-12, A-15	Self- Efficacy
A-16	Status
A-17	Impact
B-5, B-6	Stimuli for Attrition or Retention

RESEARCH PROTOCOL (QUALITATIVE)

This research began with semi-structured, interview-based case studies that included narrative Inquiry and behavior-over-time Graphs. Narrative inquiry is often used in studying educational experiences. The foremost reason for the use of narrative inquiry in educational research is that humans are storytelling organisms who, individually and socially, lead storied lives. The study of narrative, therefore, is the study of the ways humans experience the world. This general notion translates into the view that education

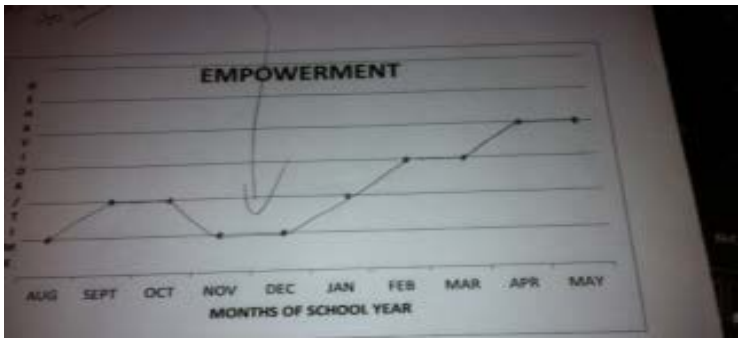
is the construction and reconstruction of personal and social stories; teachers and learners are storytellers and characters in their own and other's stories (Connelly & Clandinin, 1990, p. 1).

Behavior-over-time graphs (BOTG) are a type of systems thinking tool that allows one to make thinking visible by constructing a graph that consists of a horizontal and vertical axes, with a line showing how something is changing over time. "Systems thinking starts with a simple concept called feedback that shows how actions can reinforce or counteract each other. Eventually rich language forms describing a vast array of interrelationships and patterns of change" (Hobbs, 2004, p. 69). A BOTG depicts time on the horizontal axis and behavior on the vertical axis. BOTGs focus discussions on patterns of change over time rather than on precise numbers or values (Pegasus, 2011). The completed graphs will then represent a period in time experienced by the novice teachers, and give "voice" to the teachers' professional lives.

Participants were selected according to completed surveys that met the following criteria: participants must be in their first three years of teaching, work in a rural Texas secondary school, carry a full load of science courses and they must be teaching in grades 6-12. The five teachers selected for the study completed the 31-question Teacher Empowerment Survey which was analyzed for selection criteria and which teachers might contribute more to the study. Teachers that added more comments about their teaching were chosen over surveys that left some questions blank. The next phase allowed the selected teachers to tell their stories during the course of one-on-one

interviews and behavior-over-time graphing activity (Hobbs, 2004). Interviews for the five teachers took place over a 6-month period, and the interviews lasted anywhere from 1.5 to 3 hours at locations chosen by the teachers. All teachers were interviewed once and followed up with questions by email. Interview sites varied from local restaurants to the classrooms of participating teachers. Those that chose to be interviewed in their classroom obtained a permission letter for me to be on campus. (Appendix D) Teachers were given a piece of graph paper that was demarcated with the months of the school year on the horizontal axis and behavior on the vertical axis. The teachers were asked to graph their overall sense of empowerment for their current year of teaching (years 1, 2, or 3) after the definition of empowerment (Melenyzer, 1990) had been read to them. The figure below is an example of the graph used in the fall pilot study conducted with novice science teachers.

Figure 3.1. Behavior over time graph from pilot study.



The teachers continued in the same manner graphing their personal experiences with the six dimensions of empowerment as defined by Short (1994). The seven definitions that were read came from the Teacher Empowerment Survey (Hobbs & Moreland, 2009) and are as follows:

1. Empowerment: The opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession (Melenyzer, 1990).
2. Self-efficacy: Teachers' feelings of ability to be effective.
3. Autonomy: Freedom to control professional life and decisions.
4. Professional Growth: Opportunities for teachers to develop and expand their perspectives and skills.
5. Impact: Ability to directly influence life in the school.
6. Status: Respect and admiration from colleagues.

7. Decision making: Teachers' participation in important school-related decisions.

Once all graphs were completed, the teachers were then asked to explain the highs and lows in their graphs as they told their stories about the events or experiences that shaped their construct of empowerment and the six dimensions, as well as their novice year of teaching. Teachers labeled their graphs with the events that caused the changes in their empowerment and six dimensions so the graphs could be used later in the transcribing of the research. All interviews were recorded directly to my computer with a microphone so they could be transcribed and coded using a modified grounded-theory approach that looks for and allows themes and patterns in the dialog to become apparent. During the interviews I began the process of member checking to insure validity and accuracy for the qualitative study. I often repeated what was said to make sure I understood what the teacher was saying. After the audio of the interviews were transcribed I sent each participant a copy to review for accuracy. I corresponded with several of the interviewees to answer questions that I still had about their interviews. None of the five participants replied with any changes to the transcripts. The next level began with level one coding where I went through the transcription looking for key words such as curriculum, and CSCOPE which occurred quite frequently. The second round of coding looked more at coding quotes as I realized this was a more efficient way of coding this material for example, “I do not get to determine the curriculum I use with my students it is all directed by a mandated curriculum called CSCOPE”. This later turned into the theme mandated

curriculum as it occurred in four out of the five teachers. I made large charts to enable me to see patterns and micro themes emerge from the data. At this point I took my coding process to the next level (peer debriefing) and asked fellow researchers to look over my processes to provide meaningful feedback on the results, interpretations and analyses to insure my biases did not cloud my judgment. To insure trustworthiness I used abundant quotes from the teachers to provide evidence to support my interpretations. These coded transcriptions were then used to answer the research question: what kinds of events or experiences cause professional empowerment to change or fluctuate in novice science teachers in rural secondary schools?

During the transcribing and coding process, this researcher tried to ignore the dimensions and focused solely on the "voices" of the teachers, developing categories that would later be merged into themes. It became apparent that most of the dimensions did in fact exist. However, not all of them would be seen in every novice teacher. The themes and dimensions will be further discussed in Chapter 4.

All interviews, surveys, and transcriptions will be kept confidential and secured so as not to breach the privacy of the participants. All teachers participating in the study were given a pseudonym in order to protect their identities.

SUMMARY

This chapter represented the qualitative research design used in this study, including participant selection, research protocol, data analysis, and demographics. Chapter 4 presents the results of this study.

Chapter 4. Results

"The best and most beautiful things in the world cannot be seen or even touched. They must be felt within the heart."-Helen Keller

INTRODUCTION

The purpose of this chapter is to summarize the collected qualitative data and to present the "voices" of the participants in the study. The purpose for collecting the data was to investigate what can be learned from the "professional voices" of secondary novice science teachers in rural schools during their 1-3 years of their teaching assignment and to examine how their perceptions of empowerment change because of key events or experiences that occur in the context of their work environment. This qualitative, interview-based case study investigates five secondary novice science teachers' (three females and two males) career stories through the six dimensions of professional empowerment as defined by Short (1994). The one-on-one interviews began with teachers telling their stories and using behavior over time graphs to document how events or experiences caused their empowerment and the six dimensions to change over time. The interviews lasted for about 2 hours and were audio recorded and transcribed for a more detailed analysis.

In this study, I chose teachers to participate based on their completion of the *Teacher Empowerment Survey* (TES), which allowed me to select participants that met all the required criteria. The TES measures empowerment through the six dimensions;

autonomy, self-efficacy, decision-making, professional growth, status, and impact as defined by Short (1994). This research allowed me to explore the professional lives and voices of teachers in the field more in depth and to tell their stories so schools, professors, or science specialists could provide appropriate support or professional development opportunities for their new teachers and help these professionals move along the professional continuum.

DEMOGRAPHICS

All teachers meeting criteria for the research were Anglo, rural science teachers in their first 3 years of teaching. Four out of the five teachers were presently teaching in year two while one teacher was in year three. Two of the five teachers were high school teachers and two were middle school teachers; one teacher was both a middle and high school teacher. Three of the five teachers obtained alternative certifications for their teaching certificate while two had a traditional teaching certificate. Those with the traditional certifications went to school to be teachers while the other three obtained certifications to teach something other than what they went to school for. All participant demographics can be found in Table 4.1.

Table 4.1 Case Study Demographics and Teacher Representation

Teacher	Ethnicity	Teaching Level	School Population	Experience Years	Science Content	Certification
Braun	Anglo	Middle School	73	2	General	Alternative
Carey	Anglo	Middle and High School	132	2	General & Bio	Traditional
Sara	Anglo	Middle School	121	2	General	Traditional
Luke	Anglo	High School	549	3	Physics & Aquatic	Alternative
Barb	Anglo	High School	900	2	Chemistry & Biology	Alternative

RESULTS

Most of the research on empowerment by Hobbs (2004) and Moreland (2011) examined the growth of empowerment over time as teachers moved along the professional continuum. While I anticipate these teachers will become more empowered over time, I am more interested in determining what key events or experiences causes empowerment to change in the context of the teachers work environment, as the first few years of teaching seems to be a critical time for losing or maintaining teachers. The qualitative data from the five case studies will be presented by summarizing the background information on each teacher participant and the schools in which they work. This information will give the readers perspective on the types of educational environments that are included in the realm of rural secondary schools. The second part

of the results includes data from the participant's' interviews, which will be illustrated in charts (chart design adapted by Moreland, 2011) depicting the six dimensions, the overall empowerment of the teachers in the study, and the positive and negative impact of events or experiences on those dimensions. The last part of this section will present themes that were common to this group of rural secondary science teachers.

TEACHER #1-BRAUN

Background

The first teacher I interviewed, Braun, is in his second year of teaching science in a rural school in south central Texas with a community population of 417 residents. I wanted to include this school in my study because it is very tiny and is characteristic of many small rural schools in south Texas. In terms of student ethnicity, the school is 49% Anglo, 46% Hispanic, and 5% unknown. This school has doubled its population in the last 2 years from 37 students to 73 students in grades pre-k through 8th grade. The school employs six teachers, a superintendent, and eight auxiliary staff members and has a 6:1 teacher ratio, which is much less than the Texas average of 13:1. Braun attended school here when he was a child so he was very aware of how this school operated when he gained employment 2 years ago. Braun had another career as a personal trainer before deciding to become a teacher. He achieved his teacher certification through a program called *I Teach Texas*, which is a web based platform for people that already have degrees and want to become teachers. Braun was first certified as an elementary reading teacher but after gaining employment with his present school, he became certified as a middle

school generalist and is responsible for teaching all of the middle school science in this small school.

Braun teaches a full load of courses to 25 students in 5-8th grade. He teaches science, health, technology, reading, and athletics. Braun stated his school is:

> Small enough to where, for example, in my Reading class: I have 7th and 8th grade together in the same room at the same time. Then Science, I have 5th and 6th together and 7th and 8th together just because there are not enough hours in the day to teach individually. Luckily, for science I do have an aide so I am able to send one class off with my aide to do an assignment while I work with the others and then help with the class and switch with them.

Braun stated that it is very difficult to do labs and hands on activities because he does not have much time to teach science since he has 16 different preparations for the classes he teaches and their athletic program and competitions must be completed by 3:30 pm each day. His school is currently using a curriculum known as CSCOPE which is purchased and serviced through their local service center.

TEACHER # 2- CAREY

Background

Carey, the second teacher I interviewed, is in her second year of teaching secondary science in a rural school in central south Texas. This small community has a population of 1040 rural residents and the school has a predominately Hispanic population of 300 students in grades pre-K -12th grade. The middle school and high school has

approximately 132 students and three science teachers for 7-12th grades. The high school has a 9:1 teacher ratio which is lower than the Texas average of 13:1. This teacher attended a Texas University where she obtained a traditional degree in education. Carey's teaching assignment changed a few days before school started which changed her from a full time high school biology teacher to a full time, 8th grade General Science and high school Anatomy and Physiology teacher. Carey was not certified for this position. Her school is currently using a curriculum known as CSCOPE which is purchased and serviced through their local service center.

TEACHER # 3- SARA

Background

Sarah, the third teacher I interviewed, is presently in her second year of teaching in this small rural school in south central Texas. This community has a population of 2200 people with slightly more Anglos that Hispanics. The middle school (6-8 grade)has approximately nine teachers and 119 students and maintains a 13:1 teacher-student ratio, which is equal to the Texas state average. The school population consists of slightly more Anglos than Hispanics and includes 6% black children. Two science teachers teach all the 6-8th grade students. Sara teaches all of the 8th grade students and one class of 7th grade science as well as coaching middle school athletics. This teacher attended a Texas University and received a traditional degree in Early Education from pre-K - 6th grades. Sara procured her present job knowing that teaching positions were hard to find and

became recertified for 4-8 general science while teaching 7-8th grade science. This school uses curriculum that is created by the teachers as they go throughout the school year.

TEACHER # 4-LUKE

Background

Luke was the fourth teacher I interviewed and he is in his third year of teaching high school science. Luke took part in two similar pilot studies I completed prior to this study. This was his first year in the classroom so I had the privilege of following his growth in empowerment over a 3 year period. Luke teaches Physics and Aquatic Science in a larger rural school with approximately 549 students. There are approximately 48 teachers and they maintain a teacher-student ratio of 12:1 compared to the state average of 13:1. The student population is comprised of 51% Anglo, 36% Hispanic, 8% Black, and 1% Asian with the remaining percent unknown. The community is comprised of about 7000 residents and is denoted as being the county seat of the county. This teacher obtained his teacher credentials by attending alternative certification training through his local service center. His degree states he is certified in Biology; however, he is currently teaching out of his certification area. Luke's school is currently using a curriculum known as CSCOPE, which is purchased and serviced through their local service center.

TEACHER # 5- BARB

Background

Barb was the last teacher I interviewed and she is in her second year of teaching high school Chemistry and Biology. This was the largest rural school in my study. I chose to bring this extra school into the study to show that even though they have more than 600 students, they still meet the criteria of being a district in which all schools are located in counties with a population density of fewer than 10 persons per square mile. In addition, all schools served by the districts are located in a rural area with a school locale code of 7 or 8 (RUPRI, 2013). This city is comprised of approximately 11,000 residents and is considered one of the largest cities in its county. The high school embraces a larger population of Hispanics at 51%, Anglos make up approximately 35%, and Blacks make up 14% of the student body. Barb graduated from a Texas University with a major in Agriculture Education. To obtain employment her first year, Barb became recertified as a Generalist EC-6 and taught one year as a fourth grade teacher. However, she is currently teaching high school science (Chemistry), which required her to become certified in that subject as well. Her school is currently using a curriculum known as CSCOPE, which is purchased and serviced through their local service center.

MAIN RESULTS

Autonomy

I read teachers the definition of autonomy, which refers to teachers' beliefs that they can control certain aspects of their work life such as the curriculum they teach, scheduling of events, and pedagogy (Short, 1994). Teachers were asked to graph their overall autonomy on BOTG's for their present school year. They were then asked to explain their graphs and make notes where necessary on the graph. (Figure 4.1 shows the BOTG for autonomy) During the narrative story telling in the interview it became apparent that autonomy was greatly compromised for all five rural novice science teachers. Four out of the five interviewed (Braun, Carey, Luke, and Barb) said autonomy was low because of using a mandated curriculum called CSCOPE and lack of training on how to use it. While some agreed that CSCOPE could provide a nice overview of what needed to be taught, they all said that it was missing elements that needed to be included in the curriculum. Luke stated quite bitterly:

> I went to school to learn how to be a teacher so I would not have to rely on someone else and I have analyzed the Texas Essential Knowledge and Skills (TEKS) and know how to develop curriculum for my students and then they make me follow CSCOPE.

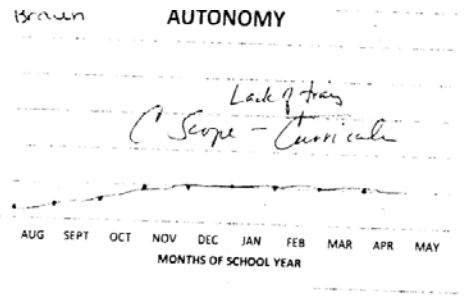
Luke also stated that the teachers in his school who teach the same subject must be on the "same page each day and if kids need to be retaught they cannot do it because they are mandated to stay together as teachers." Carey said, "My autonomy was very low because

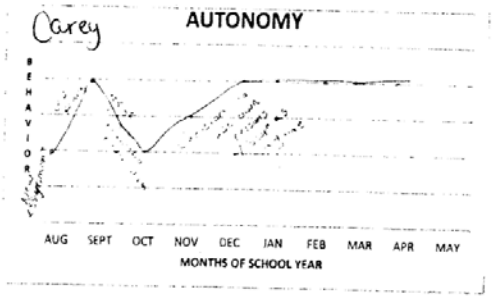
a few days before school started my teaching assignment changed from being an all high school biology teacher to a middle school general science teacher in which I was not certified." Sara stated:

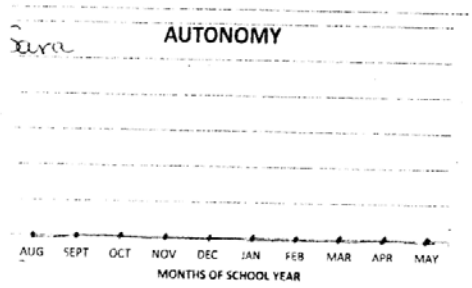
> Even though I am in control of my own curriculum, I have no control over what I do in my classroom. My principal does not trust me and listens in on my conversations in the classroom with my students and berates me over the loud speaker in front of my students. I have no administrative support.

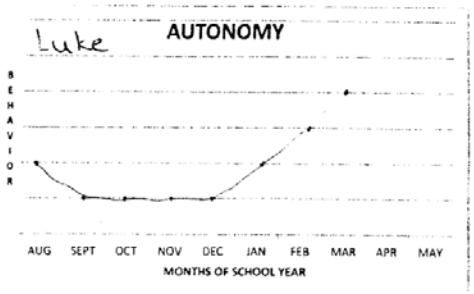
Carey and Luke's graph went up and down as they dealt with the curriculum mandates until mid- year when they were told they could develop their own lessons and only use CSCOPE as a guide. Barb also commented that her teaching assignment changed a few days before school started and that "instead of teaching all chemistry like I was promised I also had to teach two classes of Biology." She also stated that using CSOPE took away her autonomy because she could not choose what lessons her students should be taught. This caused her undue stress and a decline in her autonomy. Barb was not certified to teach either class but later in the year she became certified in Chemistry which caused her autonomy to be a little higher because of the gain in confidence she felt being a certified Chemistry teacher.

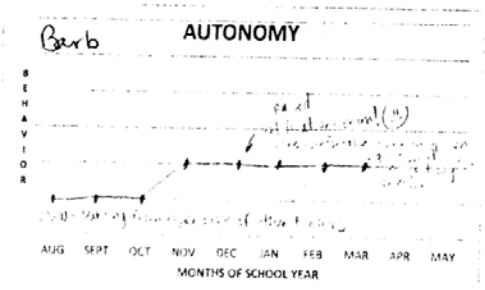
Figure 4.1. Behavior over time graphs for autonomy in rural secondary novice science teachers.











Self-Efficacy

I read teachers the definition of self-efficacy and asked them to graph their overall self-efficacy on BOTG's for their present school year. Self-efficacy refers to teachers' perceptions that they have the skills and abilities to help students learn, are competent in building effective programs for students, and can affect student learning (Short, 1994). Teachers were then asked to explain their graph's highs and lows with special emphasis on what kinds of events or experiences caused the changes (Figure 4.2 BOTG for self-efficacy). Barb focused on student behavior or the lack of it. She stated:

> When I went to college, I loved my college experiences but I felt like with my student teaching experience they sent me to a perfect world school. I'm not in a perfect world here so things were drastically different than what I experienced. I would want to run out of the building in tears most days because of the lack of respect and discipline from the students. My self-efficacy rose as I became more familiar with the students and I realized that I can't change all of them.

Sara started low on the graph because she had numerous complaints lodged against her for being a young, inexperienced teacher, mostly made by parents. As the school year went on and she became more comfortable with what she was doing and the routines she had in place, her self–efficacy rose. Braun started low but continued to go up as the familiarity of the routines and what he expected from the students was carried out. "I had them in fifth grade and sixth grade so they know what to expect coming in, small schools are nice that way. My students are not only acting better they are retaining

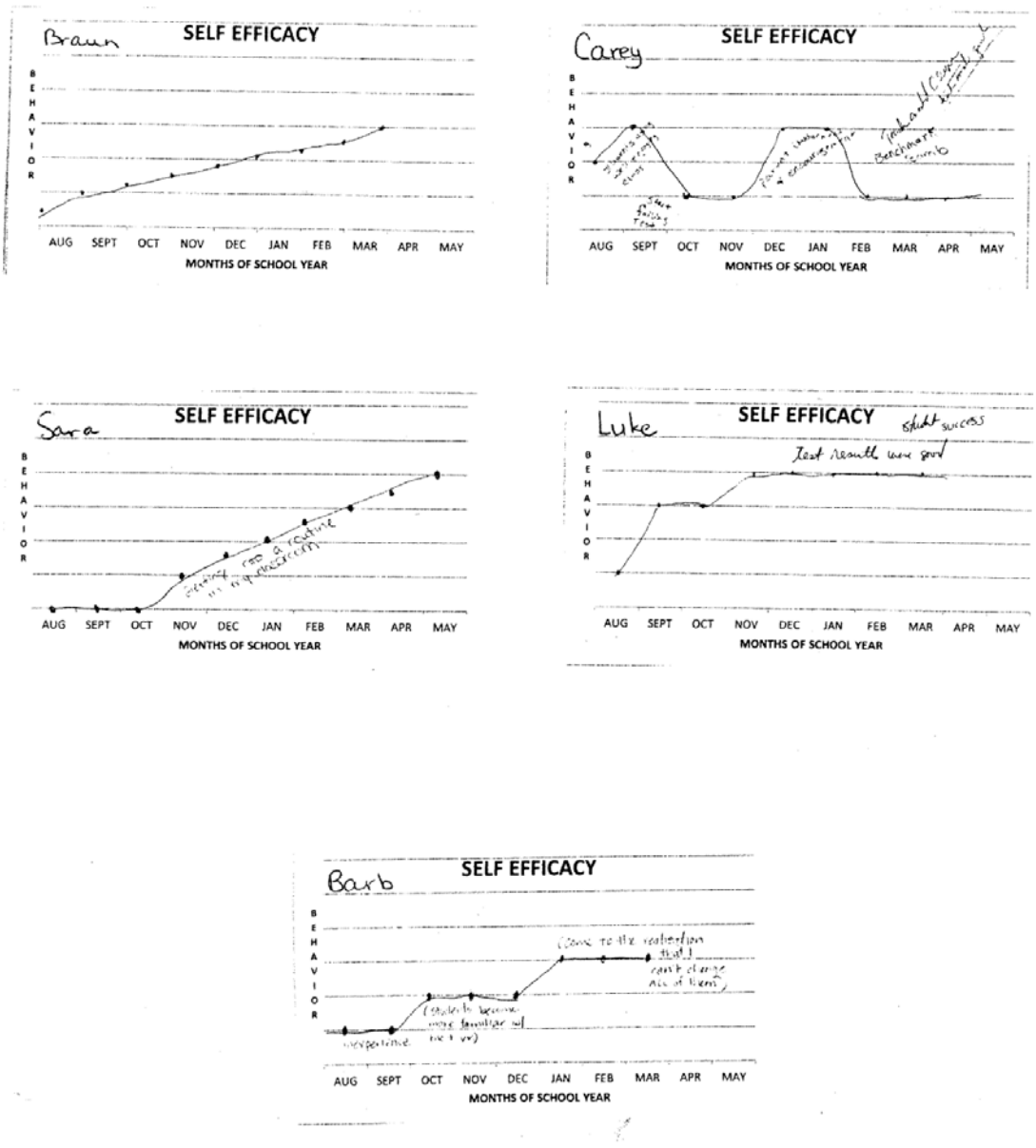
information" (Braun). Carey's graph went up and down throughout the year. Carey stated:

> At first, the students seemed to be doing well then they started failing their tests and were hard to control and could not focus. Then I would get a positive call from a parent saying you are doing a good job and it would go up. Then they bombed their benchmark so it took another dive.

Luke's graph started low but immediately took off and stayed high. Luke shared:

> It started low because of the beginning of the year but as I got things going and classroom management is way better now I felt like I was getting the learning process started faster this year than the previous two years because of behavior issues and knowing how to handle them. It is all classroom management: that is the biggest thing. You have to follow through and be persistent.

Figure 4.2. Behavior over time graphs for self-efficacy in rural secondary novice science teachers.



Decision Making

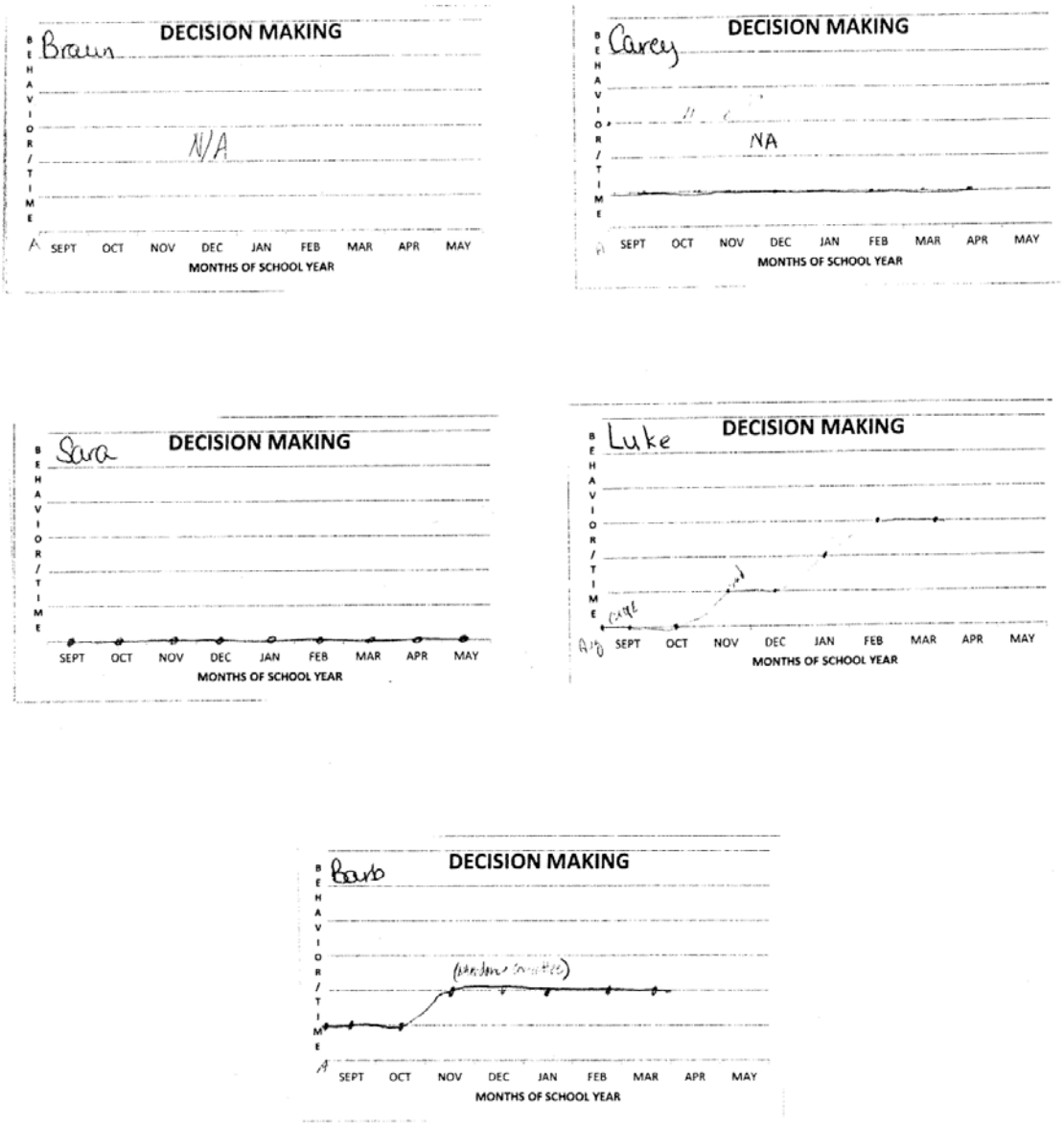
I read teachers the definition for decision making and asked them to graph their overall decision making on BOTG's for their present school year. Decision making refers to teachers' participation in important school-related decisions (Short, 1994). Teachers were then asked to narratively explain their graphs highs and lows with special emphasis on what kinds of events or experiences caused the changes (Figure 4.3 BOTG for decision making). For the most part decision making was low or a flat line for most of the interviewed teachers. Four out of the five teachers stated that they could not control the curriculum they taught and really could not make many decisions. "I am the new kid on the block, older teachers run the school. I sit in the back pew because I am the new kid on the block" (Braun). Barbs graph was low except for when she was asked to serve on a committee. "I don't really help make any decisions for the school however I do serve on the attendance committee" (Barb). Carey also had a flat line and stated that "all my suggestions were ignored, older teachers run the school. If you are new or young your decisions don't mean anything."

Sara also had a flat line graph indicating that she had little or no decision making for her school. Sara said, "Any input I gave was always shot down." Luke started decision making low based on the fact that CSCOPE was chosen for their curriculum and he had no input on how to use it or whether he wanted to use it or not. Luke mentioned:

> I would say low in the beginning because I had no say so over curriculum but then I was asked to present how to use iPads in the classroom to the school board. I felt very good about that because every teacher and student will have one next year.

Luke began to see his decision making go up as he was called on to make presentations and decisions about the technology that would be used in the school.

Figure 4.3. Behavior over time graphs for decision making in rural secondary novice science teachers.



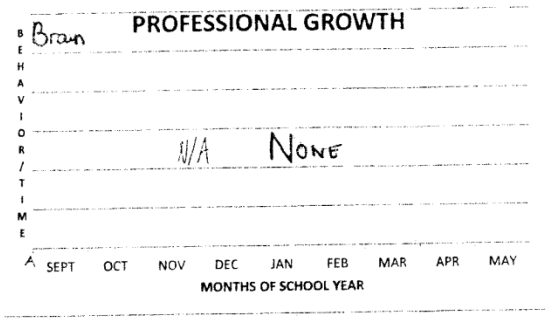
Professional Growth

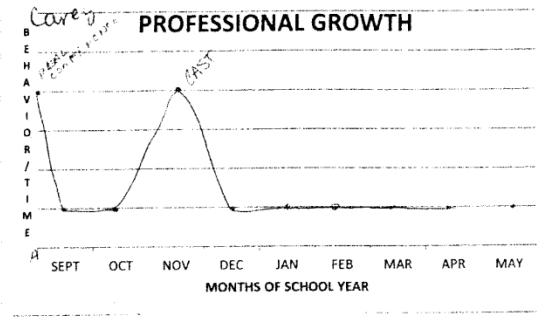
I read teachers the definition of professional growth which refers to the idea that teachers believe that the school in which they work provides them with opportunities to grow and develop professionally, to learn continuously, and to expand their skills through their work in the school (Short,1994), and asked them to graph their overall professional growth on BOTG's for the present school year. Teachers were then asked to narratively explain their graphs highs and lows with special emphasis on what kinds of events or experiences caused the changes. Professional growth refers to the idea that teachers believe that the "school in which they work provides them with opportunities to grow and develop professionally, to learn continuously, and to expand one's own skills through the work life of the school" (Short, 1994). (Figure 4.4 BOTG for professional growth)

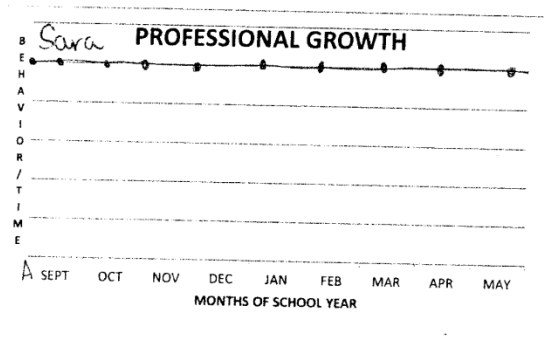
Overall, the graphs for the professional growth dimension were powerful and earmarked key experiences that increased professional empowerment. Four out of five teachers commented on the importance of professional growth and how it helped them feel more empowered and added to their professional content knowledge. Braun's graph showed no professional development for the entire school year. Braun said, "Our school does not promote professional development it is not allowed during the teaching year. It is too expensive and we do not have access to substitutes." As illustrated in the following quotes, other teachers had graphs that were very high due to professional development opportunities. "Attending the Conference for the Advancement of Science Teaching (CAST) conference really helped me understand what I should be doing, there were other

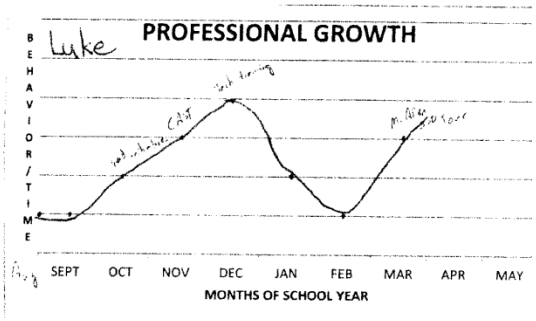
professionals there that could explain things and I could understand them, I would definitely recommend this to all new teachers" (Carey). "I can attend any professional development I want but CAST was the most empowering professional development I attended. When I attended this conference teaching science made more sense to me" (Sara). "Attending CAST and technology training really inspired me but the CAST conference was the most empowering" (Luke). Teachers stated that subject related workshops were very beneficial and allowed them to bring back activities and information to use immediately with their students. "Professional development opportunities are limitless. I attended chemistry related workshops at UT Dana center and it was very empowering. I also attended CAST" (Barb).

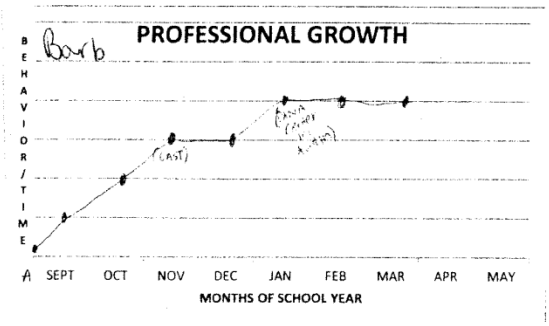
Figure 4.4. Behavior over time graphs for professional growth in rural secondary novice science teachers.











Impact

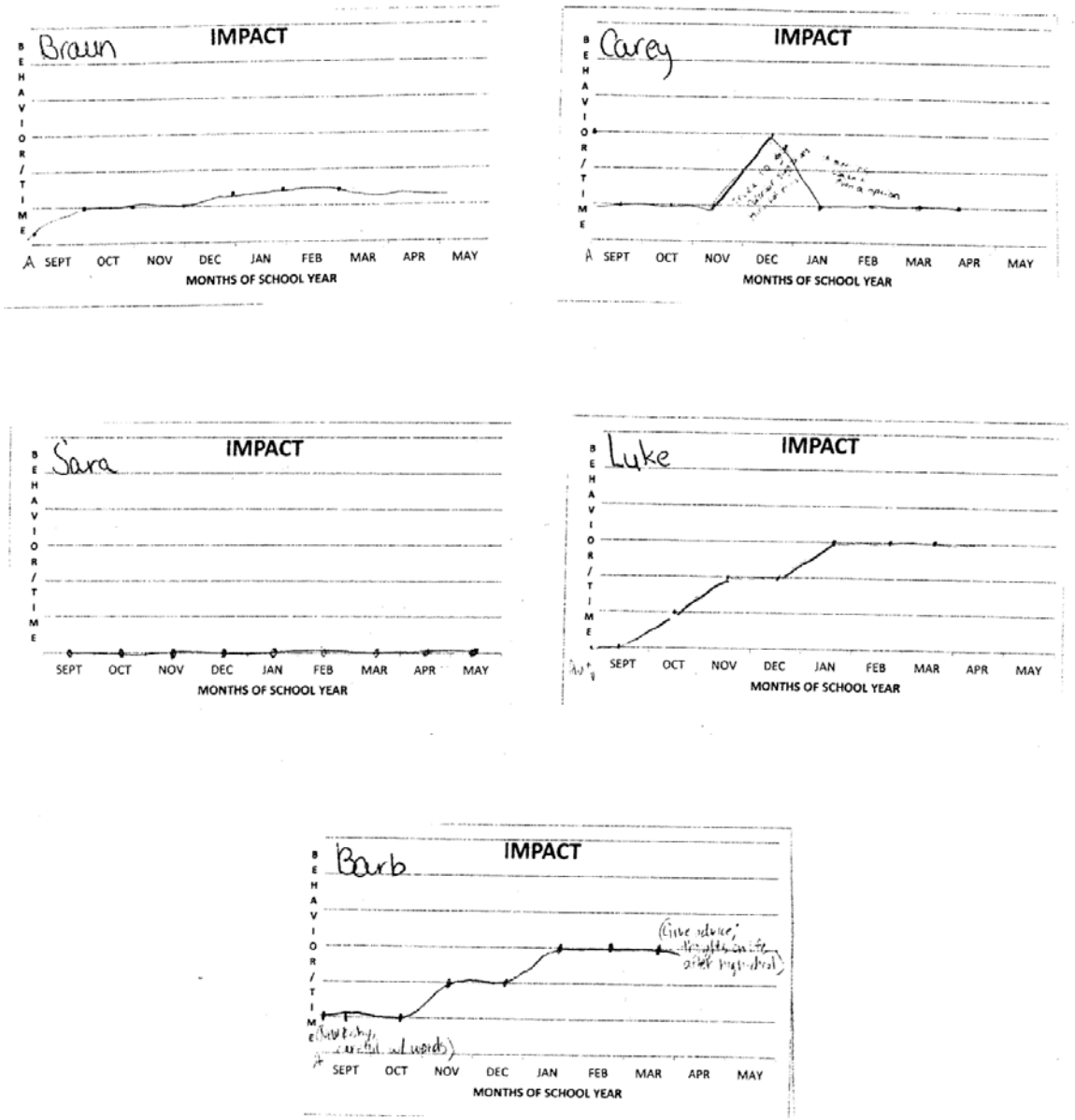
I read teachers the definition of impact which refers to teachers' perceptions that they make a difference and have a profound effect on school life (Short, 1994) and asked them to graph their overall impact on BOTG's for the current school year. Teachers then narratively explained their graphs highs and lows with special emphasis on what kinds of events or experiences caused the changes (Figure 4.5 BOTG for Impact). Impact refers to the ability to directly influence life in the school (Short, 1994). For the most part, impact was very low for many of the interviewed teachers. Barb shared:

> I started out very low but realized I cared more about the people my students become then the grades they make so I put quotes on the board every day and we talk about it hoping it will make a difference.

Barb felt this was the only way for her to make an impact since she was a young new teacher. Carey also experienced very low impact because she felt she was seen as a young, inexperienced teacher. "My impact was very low because I was continuously shut down when I gave suggestions, why should I waste my time" (Carey). Braun also felt his impact to be low since he was a new inexperienced teacher; he stated, "Very low because I am new, however people are starting to ask me for input now, every teacher wants to feel that they have some impact on the way the school is." Sara's graph was flat-lined "because I don't think I have any impact on the school; however kids do look up to me because I am their coach." Luke's impact graph was higher than the other four teachers

were. “My impact on the school is going up because I am so involved with the developing technology on our campus and my input is driving what we do” (Luke).

Figure 4.5. Behavior over time graphs for impact in rural secondary novice science teachers.



Status

Teachers read the definition of status and graphed their overall status on BOTG's for their present school year. Teachers then narratively explained their graphs highs and lows with special emphasis on what kinds of events or experiences caused the changes (Figure 4.6 BOTG for Status). Status refers to respect and admiration from colleagues (Short, 1994). Status was higher than anticipated for these novice teachers as they went through the school year. "Status has gone up over the year because some of the teachers are commenting on some of the good things I am doing in my classroom with my students" (Sara). Barb mentioned:

I started out low but I am surrounded with very respectful coworkers and as I get more experienced it is going up. I know I am young and it takes a while to build relationships. I do feel they respect me though.

Braun said:

> It started out low because there are teachers here that were here when I went to school and they still see me as a little boy not a man, however whenever the superintendent/principal is away I fill in as the problem solver and take care of discipline so I am being viewed in a different light so my status is going up.

Carey stated:

> My status was low in the beginning because I was viewed as a young new teacher and these teachers thought I did not know what I was talking about. My principal

> ignored me and picked on me and this led me to be low as well. I had no leadership until one of the teachers befriended me and helped me a little.

Luke explained:

> My status was flat except for two things: the counselor would pick teachers to honor and it was posted for the whole school and I was chosen, it was very nice and it made me feel respected. On another occasion, the superintendent sent me an email complimenting me on my input with the new technology. That email was very nice and it caused my status to go up.

Tables 4.2 – 4.5 include quotations and micro-themes associated with the six dimensions from the five interviewed participants. The table design is adapted from Moreland (2011).

Figure 4.6. Behavior over time graphs for status in rural secondary novice science teachers.

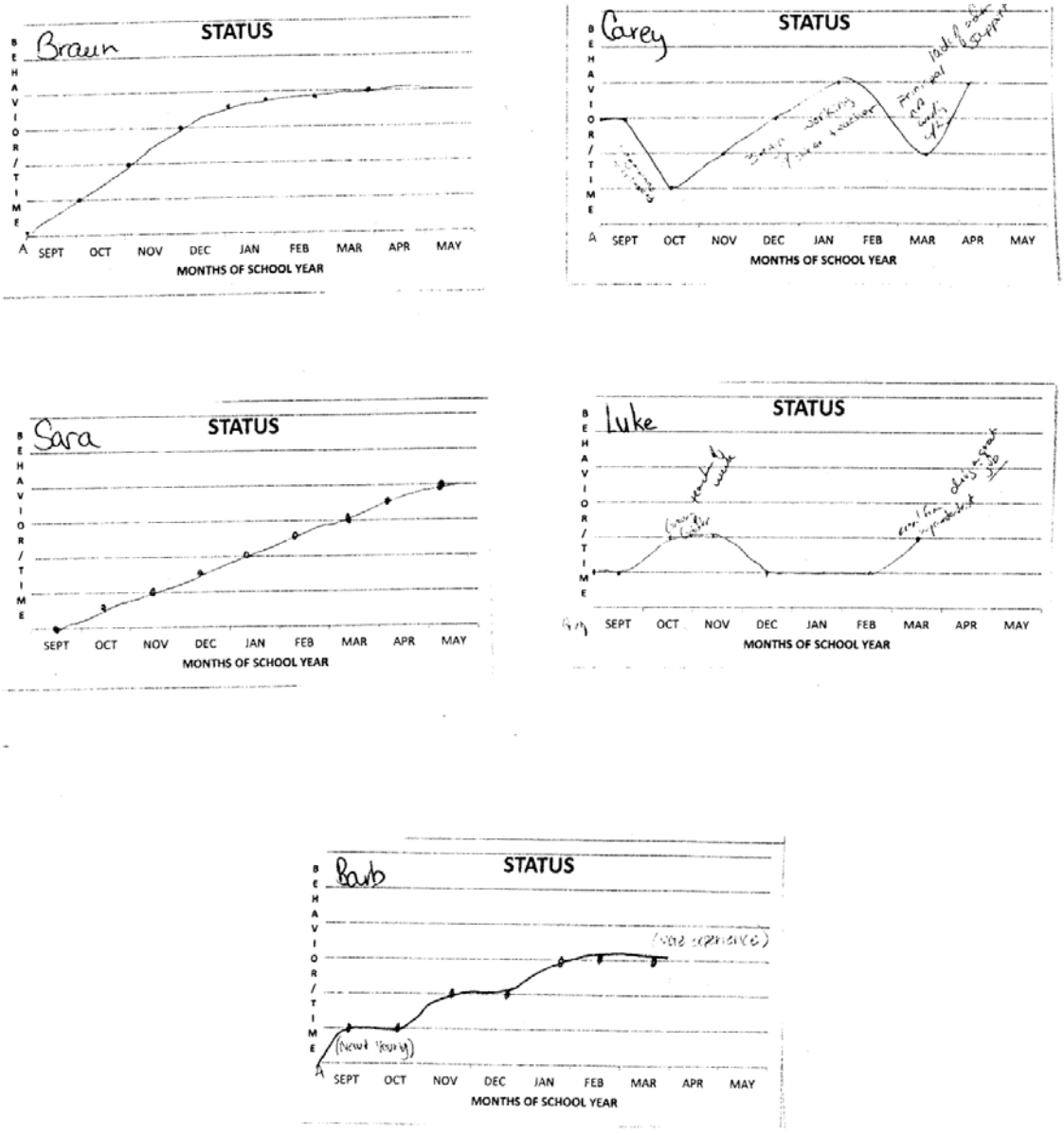


Table 4.2 Empowerment Dimensions and Micro-Themes for the Five Rural Novice Science Teachers Interviewed

Dimensions *(Macro Themes)*	Teacher Quotes *(Personal Communication)*	Micro-themes Connected to Dimension	Strengthens or Declines S + or D-
Autonomy	"I do not get to determine the curriculum I use with my students it is all directed by a mandated curriculum called CSCOPE" (Braun, Carey, Luke and Barb).	Mandated Curriculum	D-
	"I had no training on how to implement CSCOPE and I already had my curriculum prepared for the new year when we were told two days before school started we would be using this curriculum" (Luke).	Lack of administrative support Short notice	D-
	"I had Complete control over what I put in my curriculum but I was clueless other than following the required TEKS that dictated what I teach. There was no support" (Sara).	Lack of administrative support Not skilled in developing curriculum	D-
	"I had no control over what I did in my classroom because every time I made a decision I got in trouble for it from my principal" (Sara).	Lack of administrative support Lack of trust	D-
	"Two days before school started I was changed from a biology high school teacher to a middle school science teacher which I was not certified to teach and I had to become recertified. The entire curriculum I worked on in the summer was out the window" (Carey).	Lack of administrative support Short Notice	D-
	"When I was hired I was told I was going to teach only Chemistry but a few days before school started I was told I would also teach Biology which I was not prepared for" (Barb).	Short Notice Lack of administrative support	D-

Table 4.3 Empowerment Dimensions and Micro-Themes for the Five Rural Novice Science Teachers Interviewed

Dimensions *(Macro Themes)*	Teacher Quotes *(Personal Communication)*	Micro-themes Connected to Dimension	Strengthens or Declines S + or D-
Self-efficacy	"The kids make it worth it. When this school year started I just picked up with the same students I taught last year and everything flowed, they knew what I expected. Small schools are nice in that respect" (Braun).	Student success Routines	S+
	"I've really gone up and down all year. Students were doing well at first but then they started failing their tests and they were hard to control" (Carey).	Student Success	S and D
	"I had so many parent issues because I am so young. Parents called me telling me I did not know what I was talking about with my curriculum" (Sara).	Undermining parent issues Lack of administrative support	D-
	"I started out low at the beginning of the year but in September it takes a big jump because I really get things going and the classroom management is way better now. Better classroom management led to higher student achievement" (Luke).	Classroom management Student Achievement	S+ S+
	"I did not feel very effective when I started teaching high school. My student teaching experience did not prepare me for what I found here. They sent me to the perfect school where all the students were white and all of them had very caring parents. When I came here I was in shock. I wanted to run out many days crying because of the disrespect from the students" (Barb).	Pre-service teacher training Student behavior	D- D-
Decision Making	"I don't really help make any decisions for the school however I do serve on the attendance committee" (Barb).	Service for school	S+
	"I am the new kid on the block, older teachers run the school" (Braun). "All my suggestions were ignored, older teachers run the school" (Carey).	Ignored by experienced teachers and admin	D-
	"I would say low in the beginning because I had no say so over curriculum but then I was asked to present how to use iPads in the classroom to the school board. I felt very good about that because every teacher and student will have one next year" (Luke).	Teacher was valued by school admin and school board	S+

Table 4.4 Empowerment Dimensions and Micro-Themes for the Five Rural Novice Science Teachers Interviewed

Dimensions *(Macro Themes)*	Teacher Quotes *(Personal Communication)*	Micro-themes Connected to Dimension	Strengthens or Declines S + or D-
Professional Growth	"Our school does not promote professional development it is not allowed during the teaching year. It is too expensive and we do not have access to substitutes" (Braun).	Lack of knowledge to teach subject	D-
	"Attending the CAST conference really helped me understand what I should be doing, there were other professionals there that could explain things and I could understand them, I would definitely recommend this to all new teachers" (Carey).	CAST Networking Pedagogical content knowledge	S+
	I can attend any professional development I want but CAST was the most empowering professional development I attended. When I attended this conference teaching science made more sense to me" (Sara).	Pedagogical content knowledge CAST	S+
	"Attending CAST and technology training really inspired me but the CAST conference was the most empowering" (Luke).	CAST Content knowledge	S+
	"Professional development opportunities are limitless. I attended chemistry related workshops at UT Dana center and it was very empowering. I also attended CAST" (Barb).	CAST Dana Center Subject related workshops	S+ S+
Impact	" I started out very low but realized I cared more about the people my students become then the grades they make so I put quotes on the board every day and we talk about it hoping it will make a difference" (Barb).	Student-Citizen making	S+
	"Very low because I was continuously shut down when I gave suggestions, why should I waste my time" (Carey).	Resentment	D-

Table 4.5 Empowerment Dimensions and Micro-Themes for the Five Rural Novice Science Teachers Interviewed

Dimensions *(Macro Themes)*	Teacher Quotes *(Personal Communication)*	Micro-themes Connected to Dimension	Strengthens or Declines S + or D-
Impact	"Very low because I am new, however people are starting to ask me for input now, every teacher wants to feel that they have some impact on the way the school is" (Braun).	Input and collaboration	S + or D-
	"My graph is flat-lined because I don't think I have any impact on the school however kids do look up to me because I am their coach" (Sara).	Lack of collaboration	D-
	"My impact on the school is going up because I am so involved with the developing technology on our campus and my input is driving what we do" (Luke).	Confidence Collaboration	S+
Status	"Status has gone up over the year because some of the teachers are commenting on some of the good things I am doing in my classroom with my students" (Sara).	Confidence Collegiality	S+
	"I started out low but I am surrounded with very respectful coworkers and as I get more experienced it is going up. I know I am young and it takes a while to build relationships. I do feel they respect me though" (Barb).	Experience and Collegiality	S+
	" It started out low because there are teachers here that were here when I went to school and they still see me as a little boy not a man, however whenever the superintendent/principal is away I fill in as the problem solver and take care of discipline so I am being viewed in a different light so my status is going up" (Braun).	Collegiality	S+
	"My status was low in the beginning because I was viewed as a young new teacher and these teachers thought I did not know what I was talking about. My principal ignored me and picked on me and this led me to be low as well. I had no leadership until one of the teachers befriended me and helped me a little" (Carey).	Lack of leadership and collegiality	D-
	"My status was flat except for two things: the counselor would pick teachers to honor and I was chosen, it was very nice and the superintendent sent me an email complimenting me on my input with the new technology. That email was very nice and caused my status to go up" (Luke).	Positive reinforcement from administrators	S+

Empowerment

I read teachers the definition of empowerment and asked them to graph their overall empowerment on BOTG's for their present school year. Teachers then narratively explained their graphs highs and lows with special emphasis on what kinds of events or experiences caused the changes (Figure4.7 BOTG for Empowerment). Empowerment refers to "the opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession" (Melenyzer, 1990, p. 18). The empowerment graphs and the feeling of empowerment were somewhat high for all five teachers. Braun's empowerment started low but steadily increased over the year. He stated:

> I feel more empowered now compared to last year because my students are more familiar with my ways but I don't have time to do everything I need to do. I have not taught all the science subject matter due to the way our athletic program is set up and I have 16 preps which takes a lot of time.

Carey started out low and went up as she was able to attend some very empowering professional development opportunities but ended up low by the end of the year due to problems with her principal. Carey shared:

> I had a lot of classroom management problems that caused my empowerment to be low and then I had to teach new grade levels and curriculum that I was not certified to teach. I attended REAL Conference and CAST and that brought me back up.

Sara's empowerment was very low in the beginning and went extremely high after attending professional development through CAST and other science related workshops. She said,

"My empowerment was low until I attended CAST and then it all began to fall into place. Networking with other teachers really helped me." Luke began the year very high in empowerment but declined very quickly. He explained:

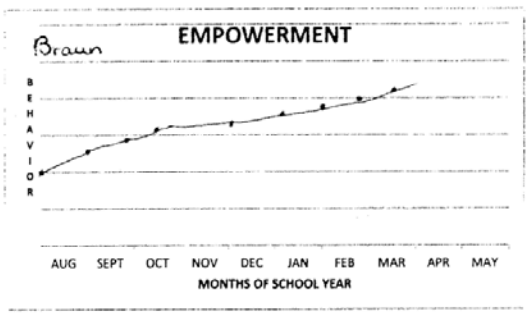
> I found out a few days before school started that we would be using a new curriculum so my empowerment was low. After Christmas I found out that we could just use it as a road map so my empowerment went back up.

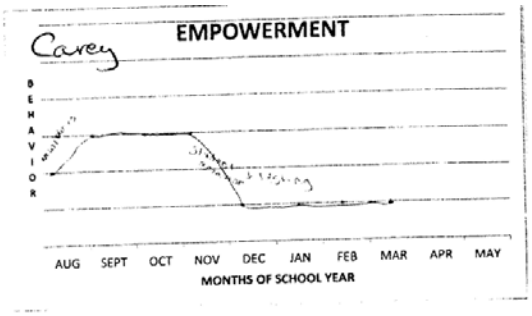
Luke also found professional development to be very empowering. Anna started out low on the graph but steadily went up as the year progressed. Anna shared:

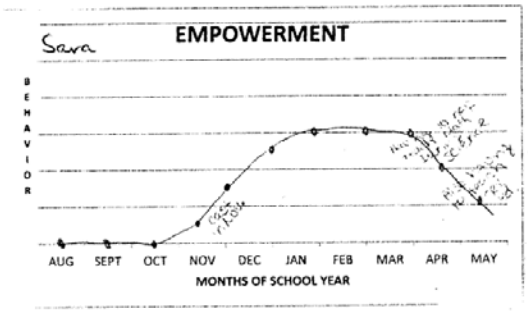
> My empowerment started out low since I was new to the school and not familiar with the students. It went up for a while as I became more familiar with everything but by December it falls because of lack of student attention and poor student outcomes. My classroom management got better as time went on so it went up more…Having great support from fellow teachers and administrators also increased my empowerment.

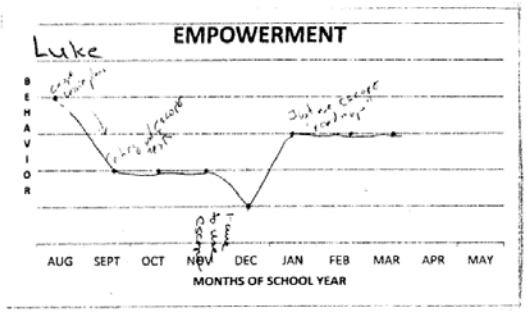
Table 4.6 includes quotes and emergent themes related to experiences that caused empowerment to increase or decrease for the five interviewed teachers.

Figure 4.7. Behavior over time graphs for empowerment in rural secondary novice science teachers.









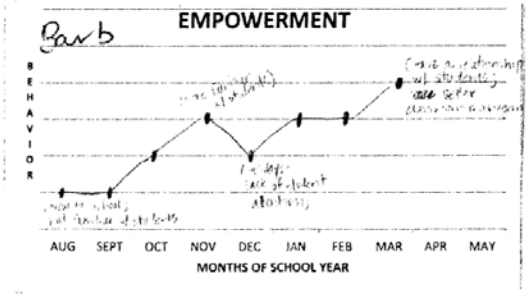


Table 4.6 Empowerment- Themes Relating to Experiences That Caused Empowerment to Increase or Decrease for the Five Interviewed Teachers

THEMES	TEACHER QUOTES	STRENGTHENS OR DECLINES
Professional Development Pedagogical Successes	"My empowerment was low until I attended CAST and then it all began to fall into place. Networking with other teachers really helped me" (Sara).	S+
Classroom Management Leadership Professional Development	"I had a lot of classroom management problems that caused my empowerment to be low and then I had to teach new grade levels and curriculum that I was not certified to teach. I attended REAL Conference and CAST and that brought me back up" (Carey).	D- D- S+
Classroom Management Time Too many preps	"I feel more empowered now compared to last year because my students are more familiar with my ways but I don't have time to do everything I need to do. I have not taught all the science subject matter due to the way our athletic program is set up and I have 16 preps which takes a lot of time" (Braun).	S+ D-
Mandated Curriculum Leadership	"I found out a few days before school started that we would be using a new curriculum so my empowerment was low. After Christmas I found out that we could just use it as a road map so my empowerment went back up" (Luke).	D-
Collegial support Classroom management	"My empowerment started out low since I was new to the school and not familiar with the students. It went up for a while as I became more familiar with everything but by December it falls because of lack of student attention. My classroom management got better as time went on so it went up more". "I have great support from fellow teachers and administrators" (Barb).	Both

EMERGENT THEMES

Each of the six dimensions were examined for emerging themes by looking for key elements or experiences that caused the dimension to change either positively or negatively. Themes were chosen from recurring micro-themes that emerged from the teacher's narrative.

Autonomy generated two emergent themes that seemed to drive each teacher's autonomy graphs. *Mandated curriculum* negatively affected autonomy, which in all cases included the curriculum known as CSCOPE. Even though some of the newer teachers said it had a nice overview quality they all felt stripped of their autonomy because were required to use these materials and follow the prescribed format. In most cases, teachers were not given time or training to learn the new curriculum and it was initiated a few days before school started. "I do not get to determine the curriculum I use with my students; it is all directed by a mandated curriculum called CSCOPE" (Braun, Carey, Luke and Barb).

Lack of *leadership* was the next prevalent theme that impacted autonomy negatively. All five teachers experienced crucial last minute changes in what courses they would be teaching as well as being told a few days before school that their curriculum would change. Poor planning and a lack of leadership caused undue stress on already stressed novice science teachers. Sara did not have a mandated curriculum however she was unsure of what needed to be taught and had very little support from her coworkers

and administrators. "I had no control over what I did in my classroom because every time I made a decision I got in trouble for it from my principal" (Sara).

Self-efficacy was controlled either positively or negatively by three main themes: classroom management, student outcomes, and pre-service training. *Classroom management* was a key element to all teachers on whether they had a successfully run classroom or not. Luke expressed that his classroom management was so much better and that being in control of your classroom led to more student successes:

> I started out low at the beginning of the year but in September it takes a big jump because I really get things going and the classroom management is way better now. Better classroom management led to higher student achievement.

Braun also saw how being an established teacher from one year to the next prepared students for the teacher's expectations and routines they would experience in the classroom. "The kids make it worth it. When this school year started I just picked up with the same students I taught last year and everything flowed, they knew what I expected. Small schools are nice in that respect" (Braun).

Student-outcomes was also an emergent theme. Student academic or behavioral success was viewed positively or negatively depending on how each played out in the work environment. When teachers saw student success and optimistic behavior it had a positive effect on their self-efficacy. "I've really gone up and down all year. Students were doing well at first but then they started failing their tests and they were hard to control" (Carey).

Pre-service training was also seen as an emergent theme. Most teachers commented that they were not prepared for what they would find in the real world classroom. For example, Barb said:

> I did not feel very effective when I started teaching high school. My student teaching experience did not prepare me for what I found here. They sent me to the perfect school where all the students were white and all of them had very caring parents. When I came here I was in shock. I wanted to run out many days crying because of the disrespect from the students.

Decision making was seen as a weak dimension by most of the teachers. Most of the novice teachers saw themselves as new, inexperienced teachers without a "voice." The emergent themes for this dimension were *service* and *collegiality*. When teachers were asked to participate in service roles for the school, those teachers tended to have a higher regard for decision making. "I don't really help make any decisions for the school however I do serve on the attendance committee" (Barb). Barb scored herself higher in this dimension because she was providing a service to her school. Luke also saw his decision making go up because he provided valuable input for his school. Luke stated:

> I would say my decision making was low in the beginning because I had no say so over curriculum but then I was asked to present how to use iPads in the classroom to the school board. I felt very good about that because every teacher and student will have one next year.

Other teachers felt a lack of collegiality and scored themselves low because they felt they were not being listened to by their administrators and coworkers. “I am the new kid on the block, older teachers run the school” (Braun). “All my suggestions were ignored, older teachers run the school” (Carey). Barb felt that the support she received from her coworkers and administrators was very positive and helped her become more optimistic about the new transition to high school.

Professional growth seemed to show a very strong correlation with empowerment for all of the teachers. The overarching themes for this dimension were attending *CAST*, acquiring pedagogical *content knowledge*, and *networking* with other professional science teachers. Four out of the five teachers had very high professional growth charts and attributed this to attending CAST, which provided subject related workshops and opportunities for networking with other professionals. Carey shared, “Attending the CAST conference really helped me understand what I should be doing, there were other professionals there that could explain things and I could understand them, I would definitely recommend this to all new teachers.” Luke mentioned, “Attending CAST and technology training really inspired me but the CAST conference was the most empowering.” Braun was the only teacher who was not allowed to attend any professional development, “Our school does not promote professional development it is not allowed during the teaching year. It is too expensive and we do not have access to substitutes.” Braun stated that he would like to acquire more pedagogical content knowledge; however, the school was not promoting it at this time.

Impact was dominated by the theme of *collaboration* and *resentment*. Some of the teachers in this group felt that they were ignored and looked over by their fellow teachers and administrators. There was very little collaboration and collegiality among the staff and most felt that their voices were not important. Braun said, "My impact is very low because I am new, however people are starting to ask me for input now, every teacher wants to feel that they have some impact on the way the school is." Carey stated, "My impact is low because I was continuously shut down when I gave suggestions, why should I waste my time." Those teachers that had more collaboration with the school and staff scored higher on this dimension. "My impact on the school is going up because I am so involved with the developing technology on our campus and my input is driving what we do" (Luke).

Status was characterized by two themes**;** collegiality and positive reinforcement. *Collegiality* could be viewed positively or negatively, depending upon how it was perceived by the teacher. Status increased for teachers when fellow teachers commented positively about the work that teacher was doing in the classroom. "Status has gone up over the year because some of the teachers are commenting on some of the good things I am doing in my classroom with my students" (Sara). Carey mentioned:

> My status was low in the beginning because I was viewed as a young new teacher and these teachers thought I did not know what I was talking about. My principal ignored me and picked on me and this led me to be low as well. I had no leadership until one of the teachers befriended me and helped me a little.

Positive reinforcement is probably something most teachers only think about with their students but in this study, it had quite an impact on teacher status. Luke explained:

> My status was flat except for two things: the counselor would pick teachers to honor and I was chosen, it was very nice and the superintendent sent me an email complimenting me on my input with the new technology. That email was very nice and caused my status to go up.

Empowerment tended to increase for all five teachers throughout the year and was directly impacted by four prominent themes: *professional development*, *mandated curriculum, leadership*, and *classroom management*. Empowerment refers to "the opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession" (Melenyzer, 1990, p. 18).

The theme *professional development* had the largest impact on overall empowerment for the five teachers. Professional development usually refers to some type of formal training to promote teachers' content knowledge and pedagogical skill; it is widely viewed as an important means of improving teaching and learning. Four out of the five teachers pointed to professional development as a very empowering event or experience. One teacher was impacted negatively by not acquiring any professional development. Carey's empowerment started out low and increased as she attended empowering professional development opportunities; Carey's empowerment decreased by the end of the year. Carey stated:

> I had a lot of classroom management problems that caused my empowerment to be low and then I had to teach new grade levels and curriculum that I was not certified to teach. I attended REAL Conference and CAST and that brought me back up.

Sara stated, "My empowerment was low until I attended CAST and then it all began to fall into place. Networking with other teachers really helped me."

Mandated curriculum had a very large negative impact on empowerment for four of the teachers. "I found out a few days before school started that we would be using a new curriculum so my empowerment was low" (Luke). Most teachers received no training or warning about the new curriculum and many spent countless hours preparing curriculum for the new school year. As such, when the mandated curriculum (SCOPE) was presented, their empowerment decreased. Sara did not have a mandated curriculum but she had no idea where to begin, so she followed the science text book.

Leadership also emerged as a prominent theme that positively and negatively impacted empowerment. Many teachers were caught off guard when their teaching assignments or curriculum were changed a few days before school started. The majority of teachers were not certified to teach in the new positions and this caused some very stressful moments. Many teachers already had prepared a curriculum for the new school year and they were unaware that their curriculum would now be mandated. Carey shared, "I had a lot of classroom management problems that caused my empowerment to be low and then I had to teach new grade levels and curriculum that I was not certified to teach."

Administrators were making last minute changes that were difficult for even the most "seasoned" teachers, much less novice teachers. Many administrators left the new teachers to flounder in the classroom with little or no support and very little follow up. Most administrators did not value the new teachers' suggestions and input, leaving them with the impression that their views were unimportant. Barb felt that for the most part leadership in her school was strong and supportive. She said, "I have great support from fellow teachers and administrators." Barb felt that having support from her coworkers and principal contributed to her overall empowerment.

Classroom management was a key theme throughout each teachers rendering of their story and in most cases impacted their empowerment negatively. Although there is no agreed-upon definition of classroom management, the framework offered by Evertson and Weinstein (2006) represents a current and widely accepted view." According to Evertson and Weinstein, classroom management has two distinct purposes: "It not only seeks to establish and sustain an orderly environment so students can engage in meaningful academic learning, it also aims to enhance student social and moral growth" (p. 4). Most teachers struggled with classroom management because they were not prepared to run a classroom. "I had a lot of classroom management problems that caused my empowerment to be low" (Carey). Barb said,

> My empowerment started out low since I was new to the school and not familiar with the students. It went up for a while as I became more familiar with

> everything but by December it falls because of lack of student attention. My classroom management got better as time went on so it went up more.

Each teacher spoke of classroom management problems. However, Luke stated:

> I started out low at the beginning of the year but in September it takes a big jump because I really get things going and the classroom management is way better now. Better classroom management led to higher student achievement.

He ended our conversation by saying “classroom management is everything.”

SUMMARY

This chapter presented the voices of teachers who took part in this study to answer my research question, which investigated the six dimensions of empowerment and key events or experiences that caused overall professional empowerment to change in rural secondary science teachers work environments. Chapter 5 will include the analysis and discussion of this data and recommendations for further research in this area.

Chapter 5. Discussion and Conclusions

"Knowledgeable teachers who act as professionals can improve the education of their students" (Maeroff, 1988)

INTRODUCTION

The purpose of the first part of the chapter is to summarize the major results in more detail with reference to the research question studied, the literature review, and the conceptual framework. The second part of this chapter will propose recommendations, implications, limitations, and suggestions for further research.

SUMMARY OF THE STUDY

This study included an examination of factors associated with fluctuations in empowerment among rural secondary novice science teachers with a focus on what can be done to strengthen empowerment and help novice teachers reach their full potential. I viewed the results of this research through the lens of empowerment as defined by Melenyzer (1990) and Short's (1994) six dimensions. I also compared the results to the empowerment research of Hobbs (2004) and Moreland (2011). This qualitative, interview-based case study investigated five secondary novice science teachers' (three females and two males) career stories through Short's six dimensions of professional empowerment.

All five teachers were in their first three years of teaching science. The one-on-one interviews began with teachers telling their stories and using behavior over time

graphs and Narrative Inquiry to document how events or experiences caused their empowerment and the six dimensions to change over time. The interviews lasted for about two hours and were recorded and transcribed for a more detailed analysis. In this study, teachers were chosen to participate by completing the *Teacher Empowerment Survey* (TES), which allowed me to select participants that met all the prerequisite criteria. The TES measures empowerment through six dimensions: autonomy, self-efficacy, decision-making, professional growth, status, and impact as defined by Short (1994).

This research allowed an exploration into teachers' professional lives and voices in depth and to tell their stories so schools, administrators, professors, or service-center science specialists can provide provisions or professional development opportunities for their new teachers. Additional support can help these professionals move along the professional continuum as well as help retain teachers that otherwise may leave the profession due to hardships endured as a novice teacher. This research demonstrated how novice teachers began to initiate empowerment as well as what strengthens or weakens empowerment. It also confirmed that there are dimensions that contribute to overall professional empowerment as stated by Short (1994). However, some of the dimensions were not experienced by every novice teacher, which supports the literature reviewed for this research. These teachers saw autonomy and decision making as a similar dimension based on not being able to control their curriculum. They also viewed professional growth as one of the most empowering dimensions, as it gave them confidence and

knowledge to be more successful in the classroom. All five of the teachers were concerned with being better at their craft and student success, which led to a higher self-efficacy. Surprisingly all of the teachers in this study had a higher status than was anticipated based on the literature reviewed, which showed this dimension occurring later on the professional continuum when teachers had more experience (Hobbs, 2004). This could be due to the nature of being a rural teacher. In my experience rural teachers tended to have more responsibilities early on in their career due to a very small number of faculty and more exposure due to being the only teacher that taught that subject. Very powerful themes emerged that answered my research question: What kinds of events or experiences cause professional empowerment to change or fluctuate in secondary novice science teachers?

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DISCUSSION

The five teachers in this study demonstrated many of the same experiences I had as a rural novice science teacher: poor classroom management, lack of understanding about curriculum (not sure what to teach), and poor leadership from administrators, which impacted overall empowerment. Unlike me, these teachers were cognizant of the need for professional development. They were also very focused on finding ways to be better teachers by attending professional development that could help them overcome their weaknesses, for example, classroom management and lack of content knowledge.

Because the majority of these teachers were teaching courses, they were not certified to teach, professional development that focused on classroom management and content were very important to them. Moreland's (2011) work with mid-career teachers showed that teachers chose professional opportunities that enhanced content knowledge over staff development that was limited to pedagogy and/or classroom management skills (Moreland, 2011, p. 143).

The findings of this research also confirmed the work of other researchers who documented empowerment acquisition in teachers. For example, Hobbs (2004) developed a model that illustrated empowerment as a growth process with three phases of development. The initiating empowerment phase (Years 1-3) or the novice years were characterized by teacher struggles and lack of preparation. Teachers in this phase spent most of their time trying to figure out "what to teach and how to teach it" (p. 7). My research also supported this phase of empowerment acquisition. All of the teachers interviewed in this study struggled with classroom management issues as well as curriculum problems. Sara was not mandated to use a particular curriculum however she did not have the experience or support to develop curriculum for her students. Barb claimed that she was not prepared for what would happen in the context of her own classroom and that her college did a poor job of equipping her with the skills necessary to be an effective teacher. One study showed that:

> most rural teachers were unprepared for teaching in a rural setting. According to their research, the current structure of education was unable to meet the needs of

> rural schools. They felt that there was a generic approach to education that is more pertinent to urban schools than to rural schools. (Barter, 2008, p. 475)

Hobbs (2004) pointed out that most novice teachers will not experience some of the dimensions known to contribute to empowerment (i.e., decision making, status, and impact) and this was true in some cases. However some of the rural teachers in this study experienced more qualities of the dimensions, which is most likely due to the characteristics of working in a rural school. Teachers in a rural school may be placed into roles that normally would only be held by experienced teachers. However, because of the small number of teachers involved in the everyday operation of a rural school, this could change how dimensions are experienced by teachers. Luke is in his third year of teaching and because of his training (professional development) and expertise using technology he was thrust in to decision making roles for his peers and the school. Barb also saw a small increase in decision making due to being part of a committee on student attendance. My own experiences as a rural, novice teacher required me to take part in numerous committees and make decisions that would impact student learning my first year. Although all six dimensions may be present and contribute to overall empowerment in the career of a veteran or mid-career teacher (Hobbs, 2004 & Moreland, 2011), this study showed that some dimensions may be low or nonexistent in these novice teachers. For example, autonomy and decision making were construed to be a similar in most cases and was driven by the mandated curriculum among four of the five teachers. The five teachers in this study believed that it was at the heart of their autonomy. In this research

study, status was unusually high for all of the novice teachers, which is usually a characteristic of more experienced teachers (Hobbs, 2004). Here again high status could be an overarching characteristic of working in a rural school. Simmons (2005) said, "When teachers choose rural education, the realities of rural schools often results in teachers being given fewer rewards and more responsibilities than their urban counterparts" (Simmons, 2005, p. 1). This goes hand in hand with there being a fewer number of teachers to take part in the running of the school. In my experience as a rural novice teacher I was involved in every committee as a voice for the science department since I was the only seventh and eighth grade teacher. The dimension impact was not experienced by all the teachers in this study. However, Luke showed that he was impacting his school by presenting information about using technology in the classroom to the entire school district. Other teachers felt that they were viewed as young and inexperienced; therefore, these teachers felt that this dimension did not add to their overall scheme of empowerment.

IMPORTANT FINDINGS

This study of rural novice science teachers revealed some important findings that fill in the gaps from Hobbs' (2004) and Moreland's (2011) work:

- Autonomy and decision making were not viewed as distinct dimensions but had significant effects on empowerment

- Self-efficacy was influenced by student successes, classroom management, and inadequate pre-service training
- Professional growth closely resembled empowerment
- Impact did exist for many of the teachers
- Status was higher than expected for all teachers
- Empowerment overall was higher than expected
- Attending conferences such as CAST was a major positive force for empowerment
- Positive reinforcement played a large role in fostering empowerment
- Leadership could either drive empowerment upward or break down empowerment

Each of these findings will be discussed in further detail in the next section referring back to the BOTG's in chapter 4. Behavior Over Time Graphs are another piece of evidence that supports the teachers' stories about the six dimensions and empowerment. These graphs are very powerful as they focus on the "voices" of the teachers and what is important to them.

AUTONOMY

` Autonomy refers to teachers' beliefs that they can control certain aspects of their work life such as the curriculum they teach, scheduling of events, and pedagogy (Short, 1994). All five of the teachers in this study were greatly impacted by this dimension. The emergent themes for this dimension were recurring in each of the five teachers. Four of the five teachers felt restrained due to mandated curriculum that stripped them of their autonomy and their decision making processes. The fifth teacher did not have a mandated curriculum but her autonomy was threatened by micro-managing leadership and inexperience in developing curriculum. Decision making and autonomy was viewed as similar dimensions in most cases by the five teachers and had a negative effect on empowerment. When examining the graphs in chapter 4 closely you can see that autonomy was controlled by not being able to choose curriculum in 4 of 5 graphs. The schools in this study saw a need to control the curriculum being taught to their students to insure that students would be ready for high-stakes testing. "There is a significant relationship between the implementation of high-stakes testing and changes in the content of a curriculum" (Au, 2007, p. 262). Carey and Luke's graph went up and down as they dealt with the curriculum mandates until mid- year when they were told they could develop their own lessons and only use CSCOPE as a guide. Barb felt she had more

autonomy once she passed her chemistry certification test because she felt like she could suggest a better curriculum for her students, given her new found confidence in the subject matter. Sara never felt that she had any autonomy because she was micro managed by her principal and could not make any decisions for herself. Hobbs' (2004) pointed out that "difficult administrators can diminish autonomy in teachers" (p. 107), which can make being a novice teacher even more challenging.

McNeil (1988) described what these teachers were feeling by saying:

> By prescribing curriculum and instruments of assessment, such reforms separate the craft of teaching from teaching style and remove teachers' discretion from their judgments about students and what they need to know. In this de-skilled model of teaching one teacher lamented, the teacher becomes little more than an assembly-line worker, performing mechanical tasks. (p. 335)

Luke said that he went to school to be a teacher and now that right had been taken away from him because the new mandated curriculum was being asserted with great pressure from his administrators. As seen in Figure 4.1, the Behavior Over Time graphs show autonomy going up very high for Luke and Carey after the mandated curriculum was changed mid-year proving that mandated curriculum had a negative effect on autonomy. In Hobbs' (2008) study of 50 veteran teachers, she found that "autonomy appeared early as a sense of choice and evolved over time into a mature sense of responsible decision making and autonomy, the most complex and abstract of the dimensions most nearly mirrored empowerment itself" (p. 5). Hobbs also pointed out that autonomy gave "heart"

to the empowerment process, allowing teachers to persist through trying circumstances" (p. 5). The teachers in my study supported her findings, as autonomy greatly influenced their overall empowerment; it was not always a positive for empowerment.

SELF-EFFICACY

Self-efficacy refers to teachers' perceptions that they have the skills and abilities to help students learn, are competent in building effective programs for students, and can affect student learning (Short, 1994). For some of the five teachers, self-efficacy increased steadily over the year. Four out of five of the teachers ended the year with a higher self-efficacy compared to the beginning of the year and one teacher's graph ended up lower at the end of the year. Self–efficacy tended to be controlled by three main factors: *classroom management, student-outcomes, and pre-service training.* Figure 4.2 illustrates the graphs drawn for the self-efficacy dimension for the five rural novice science teachers. All five teachers were cognizant about their lack of classroom management in the beginning of the year and unfamiliarity with handling student discipline problems. All teachers stressed that they were not trained to run a classroom in their pre-service education and wished that more was done to prepare them for the reality of their own classroom. Barb shared:

> I did not feel very effective when I started teaching high school. My student teaching experience did not prepare me for what I found here. They sent me to the perfect school where all the students were white and all of them had very caring

> parents. When I came here I was in shock. I wanted to run out many days crying because of the disrespect from the students.

Each teacher felt that effective classroom management would lead to more student success and many felt frustrated with their inability to incorporate better classroom management into their prospective classrooms. Luke expressed that his classroom management was so much better and that being in control of your classroom led to more student successes. He said:

> I started out low at the beginning of the year but in September it takes a big jump because I really get things going and the classroom management is way better now. Better classroom management led to higher student achievement.

Guskey (1984) noted that teachers who implement "more effective instructional practices and realize more positive learning outcomes on the part of their students would seem likely to attribute that positive change to their efforts" (p. 246). Darling-Hammond et al. (2002) and Tschannen-Moran et al. (1998) reported that teacher's self-efficacy is related to the teacher's preparedness to teach and their effectiveness with students and views of self-efficacy form in the early years of a teacher's career and are difficult to change once formed. If this is true, then it would be wise to find ways to better prepare teachers for the realities of their own classroom before they enter a classroom on their own. Each teacher felt that student success increased their self-efficacy and when students did poorly, it had a negative effect on this dimension. Self-efficacy increased as teachers got a handle on managing their classroom and students and experienced student successes. In an era of

high-stakes testing teachers always have their eye on students' test scores because this is a reflection of how well they taught their students. Schools need to do more to help novice science teachers as they struggle with self-efficacy issues.

> Schools that offer opportunities for teachers to reflect on teaching and learning with their colleagues and for administrators and teachers to collaborate and communicate, as well as support the use of instructional resources, foster more positive changes in self-efficacy beliefs of both novice and experienced newly hired teachers than schools where such opportunities are limited. (Chester & Beaudin, 1996, p. 22)

Understanding novice teachers' self-efficacy beliefs can provide a framework for school administrators to use to design policies and practices to help support novice teachers during the first few years of teaching.

DECISION MAKING

Decision making was viewed as low by most teachers as they felt this dimension and autonomy were similar. Decision making "relates to the participation of teachers in critical decisions that directly affect their work" (Short, 1994, p. 489). Most of the novice teachers saw themselves as new, inexperienced teachers without a "voice." In the case of these five teachers, decision making and autonomy were almost mirror images of each other. Because teachers had mandated curriculum and a lack of leadership their autonomy was low, which directly impacted their decision making dimension and

empowerment. The emergent themes for this dimension were *service* and *collegiality*. Figure 4.3 illustrates the Behavior Over Time graphs for decision making for the five rural novice science teachers. Three of the five teachers did not draw a graph for this dimension. The two teachers that showed a change in their graph were involved in service roles for the schools and directly related this to higher outcomes for decision making. “I don’t really help make any decisions for the school however I do serve on the attendance committee” (Barb). Barb scored herself higher in this dimension because she was providing a service to her school. Luke also saw his decision making go up because he provided valuable input for his school. He said:

> I would say my decision making was low in the beginning because I had no say so over curriculum but then I was asked to present how to use iPads in the classroom to the school board. I felt very good about that because every teacher and student will have one next year.

Other teachers felt a lack of collegiality and scored themselves low because they felt they were not being listened to by their administrators and coworkers. “I am the new kid on the block, older teachers run the school” (Braun). “All my suggestions were ignored, older teachers run the school” (Carey). This lack of decision making was not surprising according to earlier research. Short (1994) also noted that for decision making to impact empowerment, teachers must believe that their involvement in decision making is genuine and valued. Maeroff (1988) argued that if teachers have a low opinion of themselves, then access to decision making will be out of reach. “There will be no

empowerment while teachers feel small and insignificant because they are doing a job that they think is not adequately appreciated by those outside the schools" (p. 474). Barb felt that the support she received from her coworkers and administrators was very positive and helped her become more optimistic about the new transition to high school. School administrators should take notice of this and promote collegiality and perhaps try and put new teachers in decision making roles.

> Empowering teachers need not mean that principals cease to be in charge, but it should mean that principals engage in more consultation and collaboration. Lack of confidence in their ability to lead assuredly breeds the kind of insecurity among principals that makes some of them feel threatened by the prospect of empowering teachers. Ideally, collegiality will lead teachers and administrators to work as partners and to share power. (Maeroff, 1988, p. 477)

Short believed that when schools provide teachers with significant roles in decision making that empowerment is heightened. Maeroff (1988) considered that in-service training and professional development opportunities can break down walls and lead teachers to more opportunities for decision making. "True empowerment leads to increased professionalism as teachers assume responsibility for an involvement in the decision making process" (Melenyzer, 1990, p.16).

PROFESSIONAL GROWTH

In reference to empowerment in the teaching profession, professional growth refers to the idea that teachers believe that the "school in which they work provides them with opportunities to grow and develop professionally, to learn continuously, and to expand one's own skills through the work life of the school" (Short, 1994, p. 490). Professional growth seemed to be associated with empowerment for all of the teachers in this study. Moreland's (2011) work with mid-career teachers also demonstrated that content knowledge gained through professional development events was an important factor in the emergence of teachers' empowerment. The novice teachers viewed professional development opportunities as an act of survival for their first few years as they struggled with curriculum and classroom management issues. They needed swift fixes for what they were doing wrong and simple activity ideas to use with their students in the classroom. The overarching themes for this dimension were attending *CAST*, acquiring *pedagogical content knowledge,* and *networking* with other professional science teachers. Figure 4.4 illustrates the behavior over time graphs for professional growth in the five secondary novice science teachers in this study. Four out of the five teachers had very high professional growth charts and attributed this to attending CAST, and other subject related workshops which provided subject knowledge, classroom management skills, pedagogical content knowledge, and networking with other professionals. When looking at the charts Carey had two large spikes, which indicated some very powerful professional development opportunities, CAST, and REAL

conference. Carey said, "Attending the CAST conference really helped me understand what I should be doing, there were other professionals there that could explain things and I could understand them, I would definitely recommend this to all new teachers." Luke also had two large spikes, which indicated powerful professional development opportunities. Luke stated, "Attending CAST and technology training really inspired me but the CAST conference was the most empowering." Sara's chart was high across the top indicating that she was allowed to attend all professional development however she also pointed to CAST as being the most empowering experience. Barb's graph was also impacted by her experiences with CAST and a subject specific training at the Dana Center in Austin. All of the teachers that attended professional growth opportunities gained more confidence in their knowledge and pedagogical teaching skills as well as classroom management techniques which positively impacted their empowerment. Braun was the only teacher that was not allowed to attend any professional development. "Our school does not promote professional development it is not allowed during the teaching year. It is too expensive and we do not have access to substitutes" (Braun). Braun indicated he would like to acquire more pedagogical content knowledge however the school was not promoting it at this time. Because of the schools location and the size of their community, teachers did not have access to substitutes to cover their classes so teachers could attend special training. He felt more content knowledge would give him added confidence since he did not have a science background. According to Hobbs (2004), the "beginning teacher was concerned with the lack of preparation for instruction

and the absence of knowledge about needed professional development opportunities" (p.153).

Surprisingly, this study of novice teachers showed that 4 of 5 teachers had a good grasp on professional development opportunities and found these opportunities very empowering. Short (1994) and Glenn (1990) believed that real empowerment comes when teachers have full command of their subject matter and pedagogical skills. Hobbs (2008) pointed out that teachers' professional development needs change as their careers progress and their assignments change. Professional growth is not "one size fits all" and the teachers' needs should be considered before prescribing in-service training for teachers in schools. Schools represent teachers from all phases of the professional continuum and each will need professional development suited for their weaknesses or personal development. Professional development often begins during a teacher's first year in the classroom as this study shows. Without appropriate support and supervision, teachers in their novice years may struggle, become less devoted to teaching, and leave the profession altogether (Smith & Ingersoll, 2004).

IMPACT

Impact refers to "teacher's perceptions that they have an effect and influence on school life" (Short, 1994, p. 494). In this study, impact was dominated by the theme of *collaboration* and *resentment*. Figure 4.5 illustrates the Behavior Over Time graphs for

impact of the five rural novice science teachers. Most of the teachers in this group felt that they were ignored and looked over by their fellow teachers and administrators. There was very little collaboration and collegiality among the staff and most felt that their voices were not important. Braun stated, “My impact is very low because I am new, however people are starting to ask me for input now, every teacher wants to feel that they have some impact on the way the school is.” “My impact is low because I was continuously shut down when I gave suggestions, why should I waste my time” (Carey). Those teachers who had more collaboration with the school and staff scored higher on this dimension. Luke said, “My impact on the school is going up because I am so involved with the developing technology on our campus and my input is driving what we do.” Even though some of the teachers were bitter about the way their ideas were rebuked, impact was the least of their worries as they tried to master running their classroom. When looking at the graphs several are very low and only a few have any activity. Carey has a large spike on her graph because she thought some input she gave at a meeting was being taken to heart and perhaps they were going to use her idea; however she found out later that they never considered what she said as an option. Feedback from coworkers or administrators is important to teachers’ sense that they are having an impact and when that is shot down teachers may suffer from low self-esteem (Short, 1994). Luke’s graph showed that he was having an impact on the school because he was thrust into developing and sharing technology with the entire school district and decisions were being made from his input. He felt proud and had a new sense of commitment toward his

school. In his case professional growth directly correlated with his interpretation of impact. Luke attended many hours of science and technology workshops which ultimately led him to be able to teach his newfound information to the whole school district, so in this case professional development led to a higher impact for Luke. Lightfoot (1986, as cited in Short, 1994) declares that teachers in her study of good schools grew from the respect they received from parents and community as well as the support they felt for their ideas. Barb's graph showed a steady climb however she was not concerned with how she impacted the school, she was more worried about how she impacted her students. She recognized that she was young and inexperienced and making an impact on the school would come in due time; she felt a very strong need to teach her students about life and self-respect. Over the year she felt she had made an impact on some of her students by teaching them respect and how to make good decisions.

STATUS

Status as a dimension of empowerment refers to teachers' perceptions that they have professional respect and admiration from colleagues (Short, 1994). Status was characterized by two themes**;** *collegiality* and *positive reinforcement*. Figure 4.6 illustrates Behavior Over Time graphs for status in the five rural novice science teachers. Collegiality could be viewed in two realms; positive and negative, depending on how it

was perceived by the teacher. When viewing the graphs, all five teachers tended to have a high account of their status in the school. Braun felt his status go up his second year as his peers began to see him as a man and not a child they once taught. He also felt that his gender and size helped his status since he was one of two men on campus. Braun would substitute for the principal when he was away and became a problem solver for the other teachers. Teachers began to respect him more with this new persona; therefore, his status depicts a steady incline for the year. Status increased for teachers when fellow teachers commented positively about the work that teacher was doing in the classroom. Sara's graph showed a steady incline over the year based on more collegiality among peers. She said, "Status has gone up over the year because some of the teachers are commenting on some of the good things I am doing in my classroom with my students." Sara also saw her status go up among her peers because she was a coach and could be consulted for getting students to do their work. Carey's graph had a few highs and lows based on collegial interaction. Carey stated,

> My status was low in the beginning because I was viewed as a young new teacher and these teachers thought I did not know what I was talking about. My principal ignored me and picked on me and this led me to be low as well. I had no leadership until one of the teachers befriended me and helped me a little.

Peer interaction with the other teacher helped Carey get on track in the classroom and boosted her self-esteem. Carey stated that having an experienced teacher to go to was very empowering.

Positive reinforcement is probably something most teachers only think about with their students but in this study it seemed to have quite an impact on teacher status. Luke's graph modulated up and down based on positive feedback from administrators. He said:

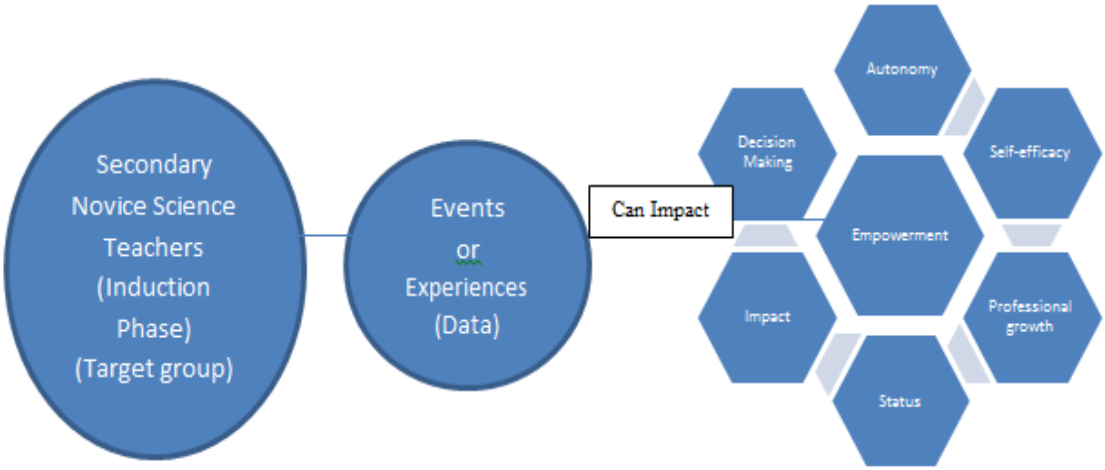
> My status was flat except for two things: the counselor would pick teachers to honor and I was chosen, it was very nice and the superintendent sent me an email complimenting me on my input with the new technology. That email was very nice and caused my status to go up.

Other teachers commented on positive comments from parents that really boosted their self–esteem and status. Status is a dimension that is not normally seen during the novice phase, according to Hobbs (2004). However the teachers in these rural schools tend to have some status among their peers probably because the schools are small and their presence is more noticeable. Recognition from administrators, parents, colleagues and others are important in enhancing the sense of status felt by the teachers (Hobbs, 2004, p. 5). According to Maeroff (1988),

> Boosting the status of teachers is fundamental because, simply put, those who have lost the will are not likely to find the way. The ability to look at themselves and at their colleagues through new eyes can liberate teachers from self-imposed shackles. (p. 474)

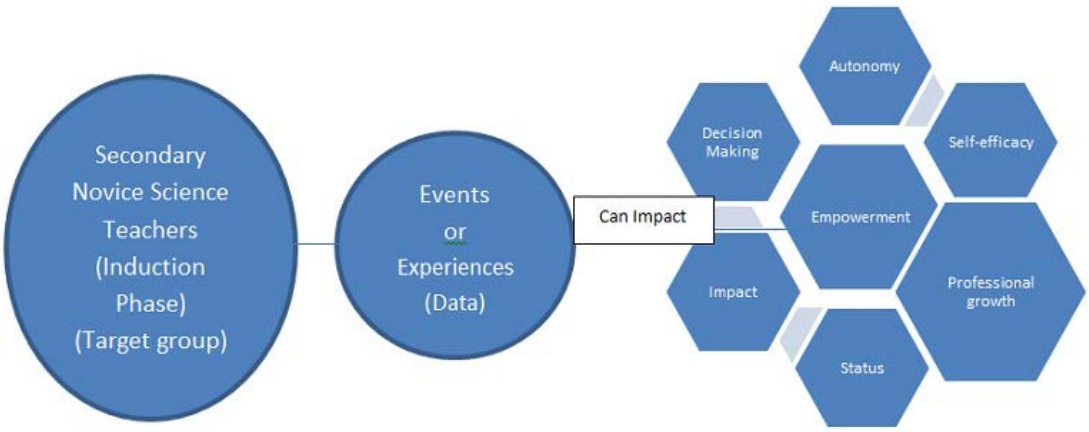
EVENTS OR EXPERIENCES THAT CAUSE EMPOWERMENT TO FLUCTUATE

My research question can be answered from the research by looking at the data and conceptual model (Figure 1) from the study. In my conceptual model, I hypothesized that if any of the six dimensions were affected by events or experiences then empowerment could be impacted positively or negatively.



This research supported this model in that when a dimension was affected it caused empowerment to fluctuate positively or negatively. Some of the teachers in this study seemed to be more successful in finding empowerment through the personal dimensions of empowerment: professional growth, self-efficacy and status as they felt little could be done to control the organizational dimensions; decision making, autonomy and impact; however these dimensions could impact empowerment negatively for some of the teachers. Each dimension can add or take away from empowerment however they do not all need to be present to have an effect on empowerment. Some of the teachers also experienced all of the dimensions which led me to keep the original conceptual model intact with one exception: professional growth would be larger when compared to the other dimensions (See Figure 5.1). Four out of the five teachers felt that professional growth was the most powerful positive dimension and one teacher felt that it had a large negative effect on their empowerment.

Figure 5.1 Revised Conceptual Model



Empowerment was unusually high, tended to increase for all five teachers throughout the year, and was impacted by four prominent themes; professional development, mandated curriculum, leadership, and classroom management, which will be translated to four of the dimensions of empowerment. Empowerment refers to "the opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession" (Melenyzer, 1990, p. 18). With these themes in mind, I took a closer look at the dimensions to determine which fit within these themes. It appears from this research that autonomy and decision making were seen as a similar entity because when one was threatened or reduced the other dimension would also be

affected. The mandated curriculum diminished the novice teachers' ability to make decisions about how and what to teach to their students. Mandated curriculum dominated these two dimensions and caused empowerment to be lower. Most teachers received no training or warning about the new curriculum and many spent countless hours preparing curriculum for the new school year so when CSCOPE, the mandated curriculum, was presented to them it caused their empowerment to decrease. They were forced to use CSCOPE lessons and assessments as well as follow a regimented guide on how it should be taught. Sara was not restricted to any one curriculum; however, she was micro-managed and could not make any decisions on her own, which directly affected her autonomy and decision making abilities. Figure 4.7 illustrates the empowerment graphs for the five rural novice science teachers.

The theme professional development appeared to have the largest impact on empowerment overall for the five teachers. Professional development usually refers to some type of formal training to promote the content knowledge and pedagogical skills of teachers and it is widely viewed as an important means of improving teaching and learning. Four out of the five teachers pointed to professional development as a very empowering event or experience while one was impacted negatively by not acquiring any professional development. Attending the Conference for the Advancement of Science Teaching (CAST) was a dominant force within the professional development theme. Each of the four teachers spoke about how this conference motivated and changed what they were doing in the classroom. Attending conferences gives novice teachers insight

into what being a professional teacher looks like. It also permitted teachers to network with other professionals and ask questions that would allow them to bring back ideas to use immediately with their students. “Access to people, information, and professional development is among the challenges of initiating empowerment in teachers” (Hobbs, 2004, p. 82). This theme fit into the dimension of professional growth and it seemed to drive empowerment upward for four out of the five teachers. Carey’s empowerment graph started out low and increased as she was able to attend some very empowering professional development opportunities. It ended low by the end of the year. Carey said:

> I had a lot of classroom management problems that caused my empowerment to be low and then I had to teach new grade levels and curriculum that I was not certified to teach. I attended REAL Conference and CAST and that brought me back up.

“My empowerment was low until I attended CAST and then it all began to fall into place. Networking with other teachers and content specific workshops really helped me” (Sara). Moreland’s (2011) work also showed that

> Science content knowledge gain, through professional development opportunities, collaboration, and/or access to higher education, was an especially important factor in supporting her mid-career teachers’ growing sense of empowerment and knowledge connected positively with the dimensions of decision-making, status, and impact . (p. 143)

Networking with other professionals at conferences gave these rural teachers who normally teach in isolation from other science teachers a chance to learn new ideas and see what others are doing in the field.

Classroom management was a key theme throughout each teachers rendering of their story and in most cases impacted their empowerment negatively. Although there is no agreed-upon definition of classroom management, the framework offered by Evertson and Weinstein (2006) represents a current and widely accepted view. According to Evertson and Weinstein, classroom management "not only seeks to establish and sustain an orderly environment so students can engage in meaningful academic learning, it also aims to enhance student social and moral growth" (p. 4). Most teachers struggled with classroom management because they were not prepared to run a classroom. "I had a lot of classroom management problems that caused my empowerment to be low" (Carey). Barb mentioned:

> My empowerment graph started out low since I was new to the school and not familiar with the students. It went up for a while as I became more familiar with everything but by December it falls because of lack of student attention. My classroom management got better as time went on so it went up more.

Each teacher spoke of classroom management problems. However, Luke stated,

> I started out low at the beginning of the year but in September it takes a big jump because I really get things going and the classroom management is way better now. Better classroom management led to higher student achievement.

He ended our conversation by saying “classroom management is everything.” This theme fit into the self-efficacy dimension and in four out of the five teachers it had a negative effect on their empowerment growth.

Leadership also emerged as a prominent theme that impacted empowerment both positively and negatively. However, it mainly points to an institutional problem rather than an internal problem that these teachers could solve. This theme could not be directly associated with a dimension. It is noted that positive leadership could promote greater empowerment and poor leadership could cause empowerment to lessen. Many of the teachers were caught off guard a few days before school started when their teaching assignments or curriculum were changed. The majority of the teachers were not certified to teach in the new positions and this caused some very stressful moments. In these rural schools it seems that administrators were always struggling with changing teaching assignments because of last minute “new” hires. Many teachers already prepared a curriculum for the new school year and they were caught unaware that their curriculum would now be mandated. Administrators were making last minute changes that are difficult for even the most “seasoned” teachers much less novice teachers. Many administrators left the new teachers to struggle in the classroom with little or no support and very diminutive follow ups. Most administrators did not value the new teachers’ suggestions and input, leaving them with the impression that their views were inconsequential. In order for schools to foster empowerment in teachers, administrative leaders must facilitate the process through shared responsibility and authority by

cooperative means, rather than by using conflicting methods of governance such as manipulation, dissension, and domination (Blase & Blase, 1997). The data from Blasé and Blasé's (1997) study also indicated that "creating a non-threatening environment, free from fear, criticism, and reprisals for failure, was especially important in encouraging innovation and empowering teachers" (p. 153). Barb felt that for the most part leadership in her school was strong and supportive even though her teaching assignment was changed at the last minute; she said, "I have great support from fellow teachers and administrators." Barb had a very positive attitude as she referred to her teacher mentors and the support of her principal. Barb's school was the largest out of the five rural schools and had more than one science teacher which kept Barb from always being isolated and alone. Blasé and Blasé(1997) found that there were five major strategies that principals could use to impact all major dimensions of teacher empowerment: "demonstrating trust, developing shared governance structures, encouraging and listening to teaching input, encouraging teacher autonomy, and encouraging teacher innovation" (p.153).

RURAL SCHOOLS AND RETENTION

My passion for this research stemmed from my own history as a novice, rural science teacher as well as my concern for retaining science teachers. When I asked each of these teachers if they plan to stay in the profession I was pleasantly surprised that most will continue to teach; however, it might be in a new location. Luke stated that if the mandated curriculum were still in place that he would likely change schools. Other teachers also expressed that it was possible that they would switch grade levels or schools. They had to have a job so they would stay where they are unless something else opens up. Working in a rural school brings many challenges to teachers that urban teachers may not be exposed to. The teachers who participated in this study were all part of a rural school district and experienced numerous problems based on the size and location of their schools. "Several organizational features of rural schools directly affect teacher recruitment and retention. Among the most important are demographic characteristics of the teachers, teachers' workloads, and teachers' salaries" (Monk, 2007, p. 5). Numerous course preparations cause teachers' workloads to be unbearable at times as in the case of Braun who had 16 course preparations. Most of the teachers in this study felt isolated because either they were the only science teacher or there were no common planning periods for science teachers to discuss lesson design and curriculum development. In the rural schools I studied, it was considered a luxury to have a common planning period with other science teachers since their numbers are small. These rural

teachers also had to travel at least an hour or more to receive any kind of professional development or training based on the location of their schools, which is considered a hardship for these teachers. All of the teachers in this study had other responsibilities like class sponsors, clubs, after school tutoring and other organizational duties, which added to an already stressful situation of being a novice teacher. School districts and administrators are aware that finding certified science teachers is very difficult for rural regions because they tend to offer lower salaries than larger school districts. Rural school districts should be concerned about doing all they can to empower and support their novice science teachers given there is already a shortage of qualified science teachers. We are already facing shortages of science teachers due to teacher retirements, increasing student populations, and moving out of the profession all together (Ingersoll & May, 2012). As such, teachers leaving to go to different school districts should be avoided at all costs. This often forces rural districts to lower their standards and hire teachers that are not certified to teach science, which in turn can lower student performance (Ingersoll & May, 2012). When teachers leave to go to another school, their students and the institution suffers. Four of the schools in this study paid for ongoing professional development and training for their teachers so if they leave the district that investment is lost.

The National Commission on Teaching and America's Future currently estimates that it costs a school between $3,600 and $8,400 to replace a teacher who leaves a school. Hiring bonuses, science content stipends, and other recruiting costs are not included in

that estimate (Bozeman & Stuessy, 2009, p. 4) . Ingersoll et al.'s (2012) research showed that:

> 22% of science teachers who left teaching indicated retirement was a major reason, 62% reported a major reason was dissatisfaction or desire for a better job. Teachers in rural schools were up to 20% less likely to depart than were those in urban schools however teachers' salaries seemed to matter more to science teachers and was a contributing factor to those that left the classroom. In schools that provided better principal leadership and administrative support, turnover rates for teachers were distinctly lower. (p. 2)

Ingersoll et al.'s research also showed that "schools with higher levels of school wide faculty decision-making influence had lower levels of turnover and teachers that were trained with content focused professional development had a 10% lower chance of turnover" (p. 19). If this is the case then administrators should provide more scaffolds for their new teachers so they can become more empowered and hopefully be retained within the school district.

RECOMMENDATIONS AND IMPLICATIONS

It is my professional opinion that the five teachers in this study will become more empowered professionals. If these teachers would have received continuous support and supervision from their first day on the job they could have reached a higher level of

empowerment with much less anxiety and perhaps consider staying with their present school. My main concern for these teachers is whether they will stay with their present schools or leave for better working conditions. This research can give administrators and others in the professional community insight into the realm of a rural novice science teacher and their professional needs. More has to be done to promote empowerment and retention among novice science teachers. The following recommendations can be easily implemented by schools and persons involved in developing professional development for teachers, which could definitely benefit these five novice science teachers and perhaps novice teachers in general:

- Individualized professional development programs rich in content knowledge and classroom management techniques
- Attending the Conference for the Advancement of Science Teaching Conference
- Providing an experienced teacher for support
- Strong leadership that promotes positive reinforcement and collegiality among new staff and faculty

In general, rural science teachers in their novice years of teaching need more professional development focused on classroom management practices and content knowledge When new teachers have stronger subject matter knowledge, they are more likely to engage in more sophisticated teaching practices (Davis, Petish, & Smithey, 2006, p. 17). Even

though teachers may have a degree in science it does not always prepare them for the subject they will teach. Most of the teachers in this study are not teaching what they were certified to teach so increasing their content knowledge is a very empowering experience. Other research (Hobbs, 2004; Moreland, 2011) also showed that mid-career and veteran teachers who gained science content knowledge through professional development or higher education gained empowerment from the experience. Those teachers required different kinds of professional development targeted for their experience levels and their personal needs. Professional development is not a one size fits all approach for teaching professionals; it should be individualized according to the needs of the teachers involved. Schools tend to provide campus-wide training for their teachers without considering where teachers are on the professional continuum. When teachers are allowed to attend professional development opportunities that benefit their personal needs, this can effect or change empowerment by connecting positively with autonomy, decision making, self-efficacy, status, and impact. According to Hobbs (as cited in Moreland, 2011), following a 'knowledge is power' maxim, "making teachers more knowledgeable is a vital part of this change because people who are misinformed or ill-informed are certainly not likely to perform as responsible professionals". Luke demonstrated higher empowerment based on his professional growth as he took his knowledge gained through his experiences and shared it with the entire school district. He also felt more successful as a teacher as he employed the new strategies he gained from professional development experiences with

his students. “If teachers are equipped to exert more authority in their schools through professional knowledge gain, real empowerment can occur” (Moreland, 2011, p. 191).

Attending conferences had a positive impact on teacher empowerment in this study. Four out of the five teachers in this study stated attending the CAST conference contributed greatly to their overall empowerment and confidence in teaching. Administrators should urge all new teachers to attend this conference, as it can give them a glimpse into being a professional teacher as well as provide them with activities and ideas that can be taken immediately back to the classroom. Envisioning oneself as a science teacher is critical in becoming a professional (Davis, et al., 2006, p. 26). Networking with other science professionals gave these teachers invaluable information that allowed them to transform their teaching. “Access to people, information, and professional development is among the challenges of initiating empowerment in teachers” (Hobbs, 2004, p. 82).

Many professions provide a transition into the new workplace for their new members like law firms and medical professions, “historically the education profession has ignored the support needs of its new recruits and has been described as the profession that eats its young” (Halford, as cited in Renard, 1999, p. 227). Administrators should not forget that these new recruits need help by providing them with an experienced teacher or mentor for support. Providing a strong teacher mentor for new teachers would give novice teachers a much needed support system that provides ongoing scaffolding for the new struggling teachers. Mentors should be chosen from experienced teachers who can

meet with the new teacher regularly. Meeting in the hallway or in staff lounges with others is not a good idea as novice teachers may be uncomfortable sharing their problems with the entire staff. In small schools, it may be difficult to provide someone that teaches the same subject but an experienced teacher can help new teachers learn the ropes and provide them with classroom management ideas that could help the novices get a firm grip on their classrooms and students. “Providing assimilation into the profession is one way school districts can retain novice teachers” (Kelley, 2004, p. 1). When teachers experience a lack of support and poor working conditions this disillusions teachers and weakens their commitment to stay in the profession (Kelley, 2004). It is imperative that new teachers have opportunities to network with other professionals and possibly observe other teachers in the classroom so they can analyze their own practice in the classroom and make appropriate changes if needed. Carey and Barb certainly benefitted by having supportive teachers that provided guidance and support to help them be more successful in the classroom.

Administrators could make multiple changes to ease numerous problems that novice teachers experience their first few years of teaching. First, administrators should never isolate new teachers. They should provide ongoing support for their new teachers and listen to any problems or ideas that these teachers bring to the table. Second, this study showed that positive notes and comments went a long way with teachers to bolster their empowerment. All of the teachers said they responded positively when principals or other teachers complimented their work. Luke said when he was named teacher of the

week it really gave him a personal boost and others commented on co-workers complimenting them on how they implemented something in the classroom. These simple kind words went a long way with these teachers. Lastly, administrators should be cognizant about promoting collegiality among new staff and faculty. All of the teachers in this study said there was very little collegiality and that the older experienced teachers ran the school. Carey commented many times that her voice was never heard and that her ideas were always shot down by the faculty. This had a huge effect on empowerment and it gave all the new teachers the impression that they were not important. Research has shown that excellent support for novice teachers from teachers and administrators within their schools, is an important factor in the retention of teachers (Patterson, et al., 2003). I think it is truly important to find ways to promote more collegiality among and between faculty members to empower and retain these novice teachers in rural school districts.

LIMITATIONS

It was important to me to use qualitative research methods that could bring more of the novice teacher's voices to the forefront and to tell their stories. Using narrative inquiry which is mostly autobiographical (Connelly & Clandinin, 1990) could be complicated from the researchers own experiences and biases when coding data and themes from the stories the teachers told. As these teachers told their stories, I found myself relating to their stories from my own experiences as a novice teacher. Other

limitations for the study included the small number of participants, demographics, and locations of teachers. This study consisted of only five rural novice science teachers, which could be construed as too small by some. However their stories and graphs give insight into their professional world of teaching science in a rural school. Only five of the returned surveys met the criteria for this research and all teachers were Anglo males and females. Not including other racial groups in this research and only including rural, novice, science teachers in south Texas could be perceived as a limiting factor. Teachers selected to complete the Teacher Empowerment Survey were chosen from a convenience sample of secondary novice science teachers, using contacts that know of novice teachers that might want to participate, (chaining; Patton, 1990) and emails sent to schools asking for teacher participation in the research. This sampling of a convenient population could also be seen as a limitation for the research. The teachers' stories and conclusions drawn from this study can't be generalized to other locations or teachers. However, it can provide us with a more in depth and robust look at professional empowerment in rural novice science teachers.

FURTHER RESEARCH AND QUESTIONS

This research filled in the gaps left by Hobbs' (2004) work with veteran teachers and Moreland's (2011) work with mid-career teachers. My work differed in that my research of novice science teachers took place during the novice years and not years later where teachers had to recount their history. This discrepancy in how teachers viewed their novice years left me wondering if things would be different if I interviewed these

teachers later in their careers. Other probable areas of research arose because of this study on rural novice science teachers. The following investigations may lead to further empowerment research:

- Would urban novice science teachers view empowerment differently from rural novice science teachers?
- Would these five teachers look back on their first few years differently ten years from now?
- Since CSCOPE is no longer going to have mandated lessons will autonomy and decision making go up for all of the effected teachers?
- Would a strong teacher mentor help rural novice science teachers become more empowered?
- Would novice teachers in other fields experience some of the same problems as novice science teachers?
- Does age or gender determine empowerment acquisition in secondary rural novice science teachers?
- Do novice elementary teachers in rural schools share the same empowerment experiences as secondary teachers?

The knowledge gained from this empowerment study and future research can help support the professional community that provides learning opportunities for all teachers. It can be simply stated that depending on where teachers are on the professional continuum determines the professional development needs of those individual teachers.

Appendix A

Dissertation Defense Timeline: Planning Document

Activity	Proposed Date	Completion Date	Notes
Proposal Submitted	10-8-2012		
Proposal Defense	10-16-2012		
Corrections			
IRB Submission	October 20 2012		
IRB Amendments (if necessary)			
IRB Approval Granted			
Data Collection Initiated	January 2013		
Data Collection Completed	February 2013		
Transcribe Interviews and Data Analysis	February-March		
Dissertation Chapter I: Introduction	April-1-15		
Dissertation Chapter 2: Literature Review	April 16-30		
Dissertation Chapter 3: Methodology	May1-May 15		
Write Dissertation Chapter 4: Results	May 16- June 15		
Write Dissertation Chapter 5: Conclusion	June 16- July 16		
Submit First Draft of Dissertation to Adviser	August- 2013		
Submit Final Draft of Dissertation to Committee	September 2013		
Defend Dissertation (Dissertation Defense)	October 30, 2013		
Apply for graduation			
Graduate	12-2013		

Appendix B

Teacher Empowerment Survey

The Teacher Empowerment Survey for Exploring the Professional Growth Continuum was developed for a National Science Foundation funded project intended to identify those pivotal experiences of career science teachers that have promoted their advancement along the teacher professional continuum. Implications for use of the data in this study include the identification and implementation of effective professional development models and experiences that enhance science teachers' retention and effectiveness at the novice level (years 1-3). Thank you for your willingness to contribute to the body of knowledge about secondary novice science teachers. Your responses will be secure and completely anonymous.
Please read all information throughout the survey carefully and completely – paying particular attention to definitions.
This survey has been modified for specific use with novice teachers in their first three years.

SECTION A: DIMENSIONS OF EMPOWERMENT

DEFINITION OF EMPOWERMENT -- Melenyzer (1990) described empowerment as, "The opportunity and confidence to act upon one's ideas and to influence the way one performs in one's profession."

A1) With the definition of empowerment in mind, and in thinking over your career, when do you think you felt the greatest overall sense of empowerment? (Provide year of teaching)
- **1**
- **2**
- **3**

A2) How empowered do you currently feel?
- Not at All
- A Little
- Somewhat
- Much
- A Great Deal
- Don't Know

Researchers have identified certain "dimensions" of empowerment: **autonomy, decision making, impact, professional growth, status, and self-efficacy.** As you encounter each term, think about your highs, plateaus, and lows during your career in relationship to each of these dimensions. For example, autonomy is one dimension. Think about how your feelings of **autonomy, the freedom you feel you had to control your professional life and decisions, has changed during your career.**

DEFINITION OF AUTONOMY -- freedom to control professional life and decisions**.**

A3) With the definition of autonomy in mind, which of the following best describes your current sense of autonomy? (Choose one)

- "No one's in control of me but me."

- "I have total freedom in my classroom."
- "I'm autonomous by default due to lack of leadership…"
- "I choose how to teach, but my content is directed."
- "I have mandated lessons from the district."
- Don't Know

A4) Which would you identify as particularly empowering professional development opportunities that you have experienced. (Check all that apply)

•Science education conference (NSTA, state)
•Educational Conferences (state conferences, National Science Teachers Association, etc.)
•Content-based workshops (Astronomy, Chemistry, etc.)
•Grade-level workshops – "state standards-based curricula"
•Commercial Curricula (Flinn, FOSS, etc.)
•Environmental Education (Project Wild, GLOBE, etc.)
•Pedagogy (Kilgo, journaling, etc.)
•National Aeronautics and Space Administration (NASA) Programs
•Other

DEFINITION OF PROFESSIONAL GROWTH -- opportunities for teachers to develop and expand their perspectives and skills. Some research suggests strong links between long term feelings of empowerment and professional growth.

A5) With the definition of professional growth in mind, which of the following best describes your current sense of professional growth? (Choose one)

•"I'm just starting to learn and opportunities are abundant."
•"I've always had a big commitment to professional development - I think that's just been consistent for me."
•"Teaching is a profession and professions require continuing education."
•"I try to focus on professional opportunities that the school will pay for and doesn't eat up a bunch of my time"
•"I know everything I need to know to teach what I am currently teaching."
•Don't Know

A6) What was the most recent professional development offering you attended? (Choose one)

•Science education conference (NSTA, state)
•Educational Conferences (state conferences, National Science Teachers Association, etc.)
•Content-based workshops (Astronomy, Chemistry, etc.)
•Grade-level workshops – "state standards-based curricula"
•Commercial Curricula (Flinn, FOSS, etc.)
•Environmental Education (Project Wild, GLOBE, etc.)
•Pedagogy (Kilgo, journaling, etc.)
•National Aeronautics and Space Administration (NASA) Programs
•Other

A7) Was this by choice or district/campus mandated?

•Personal choice
•Mandated by district/campus
•Don't Know

A8) Was the experience empowering?

- •Yes
- •No
- •Don't Know

DEFINITION OF DECISION-MAKING -- teachers' participation in important school-related decisions.

A9) With the definition of decision-making in mind, which of the following best describes your current sense of decision-making? (Choose one)

- •"Now that I'm in a leadership role - I'm making more school-related decisions."
- •"I am making as many decisions as I care to make."
- •"Have I ever had that? You know, I'm on a campus committee and I would say I have no decision-making authority."
- •"I am told everything to do; I really have no decision-making authority."
- •"As I've had more authority and the responsibilities that go with that, I really have more limitations on my own ability to make decisions."
- •Don't Know

A10) If applicable, which was your first leadership role?

- •master teacher
- •department chair
- •science mentor
- •team leader
- •science specialist
- •campus/district committee member
- •Not Applicable

A11) How long had you been teaching when you were selected for that role?

- •**1**
- •**2**
- •**3**
- •Not Applicable

DEFINITION OF SELF-EFFICACY -- teachers' feelings of ability to be effective.

A12) With the definition of self-efficacy in mind, which of the following best describes your current sense of self-efficacy? (Choose one)

- •"I'm effective, but I don't feel effective."
- •"I'm effective. I've always been effective."
- •"I can say I'm an effective teacher – I have proof – student successes."
- •"I would like to think that I am still growing; becoming more effective."
- •"I really don't think I'm very effective – I could do a much better job."
- •Don't Know

A13) What is your first recollection of increased self-efficacy? (Choose one)

•satisfaction with classroom management
•satisfaction with lesson planning
•satisfaction with lesson delivery
•student success in my classroom
•student success on benchmark or standardized tests
•student success in competitions
•positive comments from parents, administrators or peers
•Don't Know

A14) When did that occur during your teaching career?

•**1**
•**2**
•**3**
•Not Applicable

A15) What is your most recent experience with increased self-efficacy? (Choose one)

•satisfaction with classroom management
•satisfaction with lesson planning
•satisfaction with lesson delivery
•student success in my classroom
•student success on benchmark or standardized tests
•student success in competitions
•positive comments from parents, administrators or peers
•Don't Know

DEFINITION OF STATUS -- respect and admiration from colleagues.

A16) With the definition of status in mind, which of the following best describes your current perception of status? (Choose one)

•"I have been selected as (Campus/District) Teacher of the Year or similar and my colleagues expressed genuine happiness for me."
•"I have not received 'formal' recognition but I believe my peers respect me."
•"I have been selected for Teacher of the Year or similar but felt resentment from some colleagues."
•"I do not feel respected by my peers."
•"No one on my campus knows me or what I do."
•Don't Know

DEFINITION OF IMPACT -- the ability to directly influence life in the school.

A17) With the definition of impact in mind, which of the following best describes your current sense of impact? (Choose one)

•"New programs or policies have been implemented district wide as a result of my efforts."
•"Changes have occurred on my campus as a result of my work."
•"My only real impact is on my students."
•"If you go by my test scores, I do make a difference."

•"Because curriculum and instruction are mandated from central office, I have no impact upon it."
•Don't Know

SECTION B: OVERALL SENSE OF EMPOWERMENT
Thank you for answering those questions on the six dimensions of empowerment. Now, we'd like to know your thoughts regarding your overall sense of professional empowerment.

B1) My first really empowering experience was:

_____
_____
_____

B2) In what year did that occur during your teaching career?

- **1**
- **2**
- **3**

B3) My first really un-empowering experience was:

_____
_____
_____

B4) In what year did that occur during your teaching career?

- **1**
- **2**
- **3**

B5) If I were to leave the teaching profession today, the primary reason would be: (Check all that apply)

- •low salary/compensation
- •personal/family considerations
- •campus leadership/administrative actions
- •school staffing actions
- •student behavior
- •retirement
- •colleagues
- •paperwork/duties
- •mandated testing
- •overall dissatisfaction with the teaching profession
- •Don't Know

B6) The part of teaching that gives me the greatest joy is: (Check all that apply)

- •the children/students
- •my subject matter
- •planning instruction
- •time off in summers
- •opportunity for lifelong learning
- •colleagues
- •Don't Know

SECTION C: DEMOGRAPHICS

At this final stage of the survey, we would like to know a little more about you and your life experiences.

C1) How many years have you been a 6-12 classroom teacher?

1

2

3

C2) What is your race/ethnicity?

American Indian

Alaska Native

Asian/Asian American

African American

Hispanic/Latino

Native Hawaiian or Pacific Islander

Anglo/White

Other; please write-in _____

C3) What is your sex?

Female

Male

C4) What grade level do you currently teach? (Check all that apply)

MS

HS

C5) What subject(s) do you teach? (Check all that apply)

General science Chemistry

Life science Physics

Physical science Biology

Earth science IPC

C6) Do you teach in a Rural, Urban, or Suburban school district?

Rural

Urban

Suburban

Appendix C

Study Consent Form

Title: ***Empowerment in Rural Secondary Novice Science Teachers***
IRB PROTOCOL # 2013-01-0070
Conducted By: Susan Stehling, of The University of Texas at Austin, *Department of Curriculum and Instruction, Science and Mathematics Education* program. Telephone: 361-648-9496, stehling@gvec.net

Faculty Sponsor: Dr. James Barufaldi, (512) 232-6203, jamesb@mail.utexas.edu

You are being asked to participate in a research study. This form provides you with information about the study. The person in charge of this research will also describe this study to you and answer all of your questions. Please read the information below and ask any questions you might have before deciding whether or not to take part. Your participation is entirely voluntary. You can refuse to participate without penalty or loss of benefits to which you are otherwise entitled. You can stop your participation at any time and your refusal will not impact current or future relationships with UT Austin or participating sites. To do so simply tell the researcher you wish to stop participation. The researcher will provide you with a copy of this consent for your records if you are chosen for the study.

The purpose of the proposed research: The purpose of this research is to investigate what can be learned from the "professional voices" of secondary novice science teachers in rural schools during their first one to three years of their teaching assignment and to examine how their perceptions of empowerment changes, as defined by Short (1994), as a result of key events or experiences that occur in the context of their work environment (Short, 1994).

If you agree to be in this study, we will ask you to do the following things:
• You will complete the 15-minute paper/pencil *Teacher Empowerment Survey* prior to the research, which will be used as a tool to select participants for the study.
• During a one-on-one interview, you will tell your novice science teacher 'career' story as recalled through the six dimensions - including the overall construct of - "empowerment."
• On graph paper, while using a behavior-over-time graphing technique, you will simultaneously be documenting your highs and lows of empowerment throughout the course of your teaching career.
• You are giving consent to be audio recorded during the Empowerment Interview and
• At a later date, I may ask you to verify my transcriptions of this interview, via electronic communications.

Total estimated time to participate in study is about 2 hours to complete both the individual interview and the *Teacher Empowerment Survey*.

Risks of being in the study
• This research study may involve risks that are currently unforeseeable. If you wish to discuss the information above or any other risks you may experience, you may ask questions now.
• Although one common risk in any study would be the loss of confidentiality of participants' responses, I will protect and minimize this risk by maintaining that all data, transcripts, audio files and any other records of this study will be stored securely and kept confidential, under lock and key, in a file cabinet and/or an encrypted and password protected computer within an office that remains locked when not occupied.

• The risk associated with this study is no greater than everyday life.

Benefits of being in the study
• By telling your teaching career story via the empowerment interview and survey, you may gain a better understanding of your professional needs and reflect on the professional choices you have made throughout your career thus far.
Compensation:
• There is no compensation for participation in this study.

Confidentiality and Privacy Protections:
• All surveys, transcripts, and audio files and any other records of this study will be stored securely and kept confidential, under lock and key, in a file cabinet within an office that remains locked when not occupied.
• Audio files and transcripts will always be labeled by codes or pseudonyms so that no personally identifiable information is visible.
• Audio files and transcripts will be heard or viewed only for research purposes by the investigator and my dissertation committee and/or supervisor.
• Furthermore, if a participant grants special consent (at end of this document), the data may be used for educational purposes in a classroom or at a special conference.
• Computers used during this study are password protected.
• Additionally, the electronic files are stored and backed up on a password protected "encrypted" storage disk.
• The data will be retained for at least 5 years by the researcher after this study is completed to provide for future publications.

The records of this study will be stored securely and kept confidential. Authorized persons from The University of Texas at Austin and members of the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. All publications will exclude any information that will make it possible to identify you as a subject. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

Contacts and Questions:
If you have any questions about the study please ask now. If you have questions later, want additional information, or wish to withdraw your participation call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page. If you would like to obtain information about the research study, have questions, concerns, complaints or wish to discuss problems about a research study with someone unaffiliated with the study, please contact the IRB Office at (512) 471-8871 For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Statement of Consent:
I have read the above information and have sufficient information to make a decision about participating in this study. I consent to participate in the study.

Participant Signature:_____ Date:_____

Signature of Investigator:_____ Date: _____

We may wish to present some of the transcriptions and/or audio files from this study at scientific conventions or as demonstrations in classrooms.
I hereby give permission for the transcription and/or audio files to also be used for educational purposes (i.e., conference posters, papers, dissertation, publication). Your identity and personal identifiers will never be revealed. Any personal referencing will be further protected using a pseudonym.

Participant Signature:_____ Date: _____

You will be given a copy of this information to keep for your records.

Appendix D

November 15, 2013

Dr. James Wilson, Ph.D.
Chair, Institutional Review Board
P.O. Box 7426
Austin, TX 78713
irbchair@austin.utexas.edu

Dear Dr. Wilson:

The purpose of this letter is to grant Susan Stehling, a graduate student at the University of Texas at Austin permission to conduct research at _____High School. The project, "***Empowerment in Rural Secondary Novice Science Teachers"*** entails interviewing novice science teachers in their first three years of teaching. The interviews will not interfere with their work and all information gathered and names will be changed so that teachers and our school will remain anonymous. Your School was chosen because it is a rural school that has teachers that meet Mrs. Stehling's criteria. I, (Principal or superintendent name) give permission to Susan Stehling to conduct research at _____ High School.

Sincerely,

Appendix E

E-mail Recruitment Letter to Science Teachers

Subject: Interest in Participating in a Rural Secondary Science Teacher Empowerment Study

Hello,

Thank you for contacting me regarding your interest in participating in my dissertation study, titled: *Empowerment in Rural Secondary Science Teachers.* I am specifically interested in interviewing you, a science teacher who is considered a "novice," that is, you have been teaching in the classroom anywhere from 1 year to 3 years.

The purpose of the proposed study The purpose of this research is to investigate what can be learned from the "professional voices" of secondary novice science teachers in rural schools during their first one to three years of their teaching assignment and to examine how their perceptions of empowerment changes, as defined by Short (1994), as a result of key events or experiences that occur in the context of their work environment (Short, 1994).

What I will be asking you to do:

You will complete the 15-minute paper/pencil *Teacher Empowerment Survey* prior to the research, which will be used as a tool to select participants for the study.
• During a one-on-one interview, you will tell your novice science teacher 'career' story as recalled through the six dimensions - including the overall construct of - "empowerment."
• On graph paper, while using a behavior-over-time graphing technique, you will simultaneously be documenting your highs and lows of empowerment throughout the course of your teaching career.
• You are giving consent to be audio recorded during the Empowerment Interview and
• At a later date, I may ask you to verify my transcriptions of this interview, via electronic communications.
• For this study, your identity will be protected under pseudonyms. All confidentiality measures will be taken very seriously.

Total estimated time to participate in study is no more than 2 hours to complete both the individual interview and the *Teacher Empowerment Survey*.

****Thank you for consideration to participate in my research! If you are definitely interested in this study, please reply to this email and/or call me, and we can begin negotiating the time/place for me to meet you! ****

Cheers,

Susan Stehling - PhD Candidate - Science Education - The University of Texas at Austin
stehling@gvec.net cell: 361-648-9496

Appendix F

E-mail Recruitment Letter for contacts and administrators for Teacher Recommendations

Subject: Wanted: Rural Novice Science Teacher Recommendations for Participation in a Dissertational Study

Hello,

My name is Susan Stehling and I am collecting data for my dissertational research at The University of Texas at Austin's Science and Mathematics Program. I am specifically interested in interviewing 6-12 novice science teachers who are considered to be in there first three years of teaching science.

The purpose of the proposed study The purpose of this research is to investigate what can be learned from the "professional voices" of secondary novice science teachers in rural schools during their first one to three years of their teaching assignment and to examine how their perceptions of empowerment changes, as defined by Short (1994), as a result of key events or experiences that occur in the context of their work environment (Short, 1994).

What I will be asking the teachers to do:

Before being chosen to participate in the research teachers will be asked to complete the 15-minute paper/pencil *Teacher Empowerment Survey.* Teachers chosen to participate will then be asked to do the following:

• During a one-on-one interview with me at a restaurant or other chosen location by the teacher, the teacher will tell her/his novice science teacher 'career' story as recalled through the six dimensions - including the overall construct - of "professional empowerment."
• On graph paper, while using a behavior-over-time graphing technique, the teacher will simultaneously be documenting her/his highs and lows of empowerment throughout the course of her/his teaching career.
• The teacher is giving consent to be audio recorded during the Empowerment Interview.
• At a later date, I may ask the teacher to verify my transcriptions of this interview, via electronic communications.
• For this study, the identities of the teachers will be protected under pseudonyms. All confidentiality measures will be taken very seriously.

Total estimated time to participate in study is no more than 2 hours to complete both the individual interview and the *Teacher Empowerment Survey*.
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If you know someone who may be interested in participating in this study, please forward this email to them and have them contact me at the e-mail and/or phone number below.***

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