Using Social Media and Professional Learning Communities as Tools for Novice Teacher Collegiality and Improved Self-Efficacy

by

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ABSTRACT

Teacher attrition and the migration between schools and districts can have a negative impact on quality of education and teacher performance. Novice teachers leave the profession because they are overwhelmed by the workload and responsibilities of the job. In a previous action research cycle, I found that novice teachers' perceptions of isolation and lack of opportunities to share experiences had a negative effect on teacher perceptions of efficacy. This action research project examines the effect of leveraging social media and professional learning communities to provide opportunities for a group of novice teachers to share experiences and seek advice. By addressing the challenges that novice teachers face and providing solutions for common problems, it is the hope of this researcher that highly effective teachers will remain in the classroom. The results of the study indicate that the combined use of Twitter and YouTube in collaboration with professional learning communities will improve teacher perceptions of efficacy. Teachers who participated in the social media based professional learning communities are also more likely to remain in the classroom.

Keywords: Science-Education, Attrition, Social-Media, Twitter, Efficacy, YouTube
DEDICATION

This dissertation is dedicated to my wonderful and loving family. Thank you Andrea, Audrey, and Jack for your support and encouragement! To my parents, Warren and Terri, and my siblings John, Michael, and Lynsey for encouraging me to never give up on my dreams. To my grandparents, thank you for your loving support and encouragement. I miss you and I hope I continue to make you proud!
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Chapter 1

INTRODUCTION

Leadership Context and Purpose of Action

Social media has become a mainstay of communication in our culture. Facebook, Twitter, and LinkedIn, to name a few, represent powerful tools that encourage communication and collaboration among users. Until very recently, social media had yet to be leveraged in the field of education (Kisicki, Bostick, Giacumo, 2011). Bandura’s social learning theory states that humans learn through observing and interacting with others (1969, 1973, 1967 & 1993). His emphasis on internal reward and reinforcement of social interactions demonstrates a connection to cognitive developmental theories. I hope to show that the use of social media in conjunction with professional learning communities can increase perceptions of self-efficacy and collegiality among a group of novice science teachers in the Mary Lou Fulton Teachers College teacher education program.

Social Media as a Tool for Novice Teacher Collegiality

Teacher attrition is a serious problem in our educational system, accounting for more than 50% of new teachers leaving the profession within five years (Dill & Stafford, 2008; Olsen & Anderson, 2007; Gilbert, 2011). Although several factors have been attributed to teachers’ decisions to leave the classroom, teacher isolation and lack of collegiality have been found to be a major influence (Norton, 1999; Schlechty & Vance, 1981; Murnane, Singer, & Willett, 1989). The social working environment of novice teachers has a direct impact on their perceptions of efficacy and sometimes leads to depression (Devos, Dupriez, & Paquay, 2012). In many cases, the social working
environment has been implicated as the direct cause of teacher attrition and migration (Winstead-Fry, 2009; DeMik, 2008; Hancock, 2008).

At the start of every school year, administrators at both elementary and secondary schools frantically search for candidates in an effort to address the exodus of teachers leaving the classroom (Imazeki, 2004; Murnane, 1987). The problem stems from federal and state mandates, the retirement of “baby–boom” era teachers, and, most significantly, from the extremely high attrition rate of new teachers. According to the No Child Left Behind Act (2001), teachers must be highly qualified in all subject areas that they teach. In rural and high poverty districts, where teacher turnover and attrition is most considerable, the challenge of finding and retaining highly qualified teachers creates an insurmountable task for the district human resource office (Hill & Barth, 2004).

Aaronson, & Meckel, (2009) found that the retirement of “Baby Boom” era teachers will increase in record numbers in the coming decade and the impact of those retirements will have the greatest impact on teacher learning and performance.

The loss of experienced teachers to retirement is significant and important, but the problem is compounded by the tremendous loss of new teachers to the profession (DeAngelis & Pressley, 2011; Henry, Fortner, & Bastian, 2011 & Murnane, 1987). Nearly 50% of all new teachers will leave the profession by the end of their 5th year of teaching, many of them more academically capable than those left behind in the classroom (Olsen & Anderson, 2007; Gilbert, 2011; Schlechty & Vance, 1981). Failure to retain teachers has cost our educational system more than 7 billion dollars, however the most significant impact of new teacher attrition lands directly on the students in the classroom (Barnes, Crowe & Schaefer, 2007; Hancock & Scherff, 2010; Henry et al.,
With the turnover of new teachers, students can end up in a cycle of having novice, unproductive teachers year after year and this cycle has an effect on student performance (Henry et al., 2011). Research has even shown that effective teachers are the most important variable related to student achievement (Harris & Sass, 2011).

In Arizona, teacher attrition (not counting retirement) cost the state education system more than 88 million dollars in one year (U.S. Department of Education, 2000). The problem is even more pronounced among science teachers. Patterson, Roehrig, & Luft (2003) followed a group of novice science teachers in Arizona and found that the group was far more likely than any other group of subject-area teachers to leave the profession or migrate between schools and districts.

As a clinical instructor at Arizona State University’s Mary Lou Fulton Teachers College, I work with novice science teachers in Title 1 urban schools in Phoenix, Arizona. Over the last five years I have worked with more than 150 novice science teachers in Phoenix area schools and I have noticed considerable turnover and migration among them. No more than 10 teachers from the more than 150 have remained in the classroom beyond the two-year requirement of Teach For America. This instability not only affects teacher performance, but also the overall effectiveness of schools and student learning.

In my first cycle of action research, I worked with a group of first and second year intern science teachers at Arizona State University (ASU) and investigated their perceptions of connectedness, collegiality, and efficacy. These intern science teachers were completing coursework towards teacher certification while working full time as the teacher of record in a secondary education classroom. The teachers were part of a Teach
For America (TFA)/ASU collaboration in which highly qualified science teachers were placed in high need and high poverty school districts in urban and suburban Phoenix. The teachers were instructed and supported by both ASU and TFA. In the spring of 2011, using the Teachers’ Sense of Efficacy Scale (Appendix C) and structured interviews, I found that among teachers who indicated they were “most likely to leave the profession” there was a significant perception of isolation; and that those same teachers reported isolation and low self-efficacy most frequently as the reasons that they were dissatisfied with the teaching experience.

In an attempt to counteract these perceptions of seclusion and isolation, I used the work of Louis, Kruse, & Associates (1995) to develop Personal Learning Communities (PLC) focused on positive interdependence and targeted collaboration. Teachers participated in the PLCs both face to face and virtually using Skype or iChat and we maintained 100% participation through the semester. Each of five PLC groups was made up of 3-5 science teachers. While there are a number of working definitions and interpretations of PLCs, I focused on the idea that PLC’s are groups of people sharing, reflecting, and collaborating as a collective enterprise (King & Newman, 2001; Toole & Lewis, 2002). The PLCs met monthly to share teaching resources, collaborate on curriculum projects, discuss problems occurring in the classroom, and brainstorm solutions. In addition to the professional interactions revolving around the issues listed, there were also informal interactions of a supportive nature occurring on an ongoing basis throughout the semester. To evaluate the effects of the PLCs on the teachers’ efficacy, I used the work of Tschannen-Moran & Woolfolk-Hoy (2001) to adapt and develop a Teachers’ Efficacy Scale. As a result of the PLC intervention, I found an improved
feeling of community and self-efficacy from pre to post. The teachers indicated an increased feeling of connectedness to both their peers as well as to the “outside” world and they reported an increase in perceived efficacy in classroom management according to the Teacher Efficacy survey.

One of the underlying concepts of my intervention is that perceptions of isolation impact teachers as social beings. When teachers are able to form relationships and communicate with others, they are more likely to enjoy their work. They are also able to learn from others through shared experiences. This model is built on the concept that learning is largely social and that humans are largely social beings (Bandura, 1977).

Bandura emphasized the importance of learning through observation and modeling, and proposed that we not only learn from simply watching and experimenting, but also from conversations that occur during those experiences (Bandura, 1993). Vygotsky (1978) looked at learning in the social situation where it takes place. In his view, cognition is formed developmentally through social phenomenon and experiences (Williams, 1999; Puzyrei, 2007; Tice, 1997). Although it has been argued that Piaget’s developmental theory is based on the concepts of learning in isolation, DeVries (1997) concludes that Piaget was very much concerned with the role of the social experience in learning. Piaget’s constructivist theory describes how we learn through accommodation and assimilation (Airasian, & Walsh, 1997). In this model, students learn through experiences and interactions with others. Assimilation occurs when learners are able to easily connect experiences to prior knowledge, as in the case of using new forms of communication (Waldecker, Seibold & Flanagin, 2004). Accommodation occurs when
learners must integrate and adapt new information in areas where there were no previous connections (Davis & Sumara, 2002).

Wenger (2000) developed the use of communities of practice and social learning systems. Wenger defines a framework describing how learning occurs within an organization as well as within broader learning systems. The work of Li et al. (2009) focused on the implementation of communities of practice within the workplace. They found that the most effective communities of practice occur when support structures are in place that encourage interactions, provide for the sharing of knowledge, and build a sense of belonging among groups.

For my innovation, I relied on the theories of social learning and communities of practice to create a support network for novice science teachers. The communities leveraged the power of social media through the use of Twitter to allow for real time conversations about teaching. The members of the community included a cohort of second year intern science teachers. All communication occurred through Twitter or other social media sites that incorporated Twitter feeds and through professional learning communities (PLC) built upon the Communities of Practice framework (Wenger, 2000). Teacher efficacy of the participants was measured before and after the innovation and the results were compared to results of second year intern teachers not using the innovation who served as a comparison group. Additional qualitative data about efficacy, collaboration, and future teaching or education career decisions were collected from video recording of the PLCs and from one-on-one teacher interviews.
The research questions for this study were:

• How and to what extent will the focused use of social media in communities of practice increase the sense of collegiality and job satisfaction among second year intern teachers?

• How and to what extent will the focused use of social media and communities of practice increase second year intern teachers’ sense of self-efficacy?

• How and to what extent will the focused use of social media and communities of practice increase second year intern teachers’ decision to remain in the field of education?
Chapter 2

REVIEW OF SUPPORTING SCHOLARSHIP

For my innovation, I used the theory of social learning and Communities of Practice as frameworks to develop communication and collaboration through the targeted use of social media and PLC groups. Second year intern science teachers connected virtually to discuss the issues and challenges they encountered during their teaching experiences and their observations and reflections from PLC meetings. The goal of the innovation was to increase novice teachers’ collegiality, perceptions of efficacy, and to encourage teachers to remain in the field of education.

Theory of Social Learning

The theory of social learning, first described by Bandura in 1962, describes how learning occurs from observations of and interactions with others. Bandura believed that others play a large role in the learning of new processes and internalizing meaning through the use of modeling (1963). The use of live modeling, where a person demonstrates how the new knowledge is integrated into existing systems, is most effective when the information must be learned and implemented immediately (Whyte, 1978, Lauridsen & Whyte, 1980).

According to Bandura, reciprocal determinism is an important component of the social learning experience (1962, 1963, 1969 & 1977). There are four components of reciprocal determinism: attention, retention, reproduction, and motivation (Bandura, 1963). The learner must pay attention to the instruction in order to retain the details of the experience. Once the learner begins to implement the new learning, they must be able to
reproduce the important details of the model and there must be sufficient motivation to encourage the learner to practice and perfect the learning.

In *Social Learning and Clinical Psychology*, Rotter (1954), used the concept of locus of control to describe how the environment affects learning and behavior. In this model of social learning, the expected outcomes have a significant effect on a learner’s motivation to use that behavior (Rotter, Chance & Phares, 1972). Once a learner takes personal responsibility and control over a situation, the positive or expected results of the activity will increase. As the positive experience and results increase, so does the confidence of the learner (Rotter, 1954, Rotter, Chance & Phares, 1972).

**Developing Communities of Practice to Support Novice Teachers**

Communities of Practice can be described as groups of people with a common interest who join together to communicate, problem solve, and collaborate on issues or concerns (Daniels, Grove & Mundt, 2007). Lave & Wenger (1991) described Communities of Practice as having three distinctive characteristics.

The first characteristic is mutual engagement of participants. Mutual engagement occurs when group members join together in a state of fully immersed focus (Sawyer, 2003). This connects to communities of practice because it is about the process of learning how to work with other people. To facilitate mutual engagement among novice teachers, Goor & Bennison (2008) created a voluntary and unstructured participation environment where teachers were free to develop outcome expectations for the interactions. Twitter creates an ideal environment for this because interactions are necessarily brief and teachers can participate as much or as little as needed. These relationships bind the group together to form a new social entity (Wenger, 1998).
The second requirement of Wenger’s Community of Practice involves a negotiation of a joint enterprise. The concept of a joint enterprise includes a shared, common understanding of what binds a group together (Wenger, 1998). Lave and Wenger (1990) described the use of social interactions as a means of developing situated learning experiences. Mills (2011) found that the use of social networking communities contributed to the enhancement of interpersonal and interpretive communication modes and further enhanced the development of joint enterprise. For the community of practice in this study, the joint enterprise was the idea of improving instruction and efficacy among novice intern teachers who had the challenge of learning to teach science in a Title 1 school in urban Phoenix, Arizona.

The third component of Communities of Practice includes the development of a shared repertoire for creating meaning. Wenger (1998) described the shared repertoire as community resources that assist in the development of joint enterprise. The vastness of the Internet and easy access to social media provide an ideal place for a shared repertoire to develop. Watson (2006) found that novice science teachers were able to assist each other in the development of best instructional practices through the shared process of making meaning. This ability to collaborate in the development of educational practices not only strengthens the community of practice, but also increases perceptions of teacher efficacy (Wenger, 1998, Watson, 2006).

In my study, I used the communities of practice (COP) framework to develop groups of novice intern teachers that support each other through face-to-face and virtual meetings and communication. The camaraderie that arises from the COP approach
creates a culture of collaboration and common goals that support and encourage new teachers through a variety of communication media.

**Novice Teacher Attrition Due to Perceptions of Self-efficacy and Isolation**

Teachers’ lack of self-efficacy is one of the major causes of teacher attrition, especially in high poverty, urban settings (Hagiwara, Maulucci, & Ramos, 2011). Teachers in these schools are placed in some of the most challenging environments with students often learning English in addition to academic content (Zimmer, et al., 2007). High poverty schools also have some of the highest rates of teacher absenteeism, and parent involvement is rare (Taylor, 2005). In many cases, teachers are able to make significant gains with their students, however those students are at times so far behind that the gains still leave them below grade level (Burney & Beilke, 2008). Often times, teachers in these challenging environments find fault with themselves and their ability to meet the needs of students (Robinson, McKinney, Haberman, & Stafford-Johnson, 2008). In the case of TFA, this perception can be damaging because these teachers were chosen for their ability to improve the educational experience of this specific population of children (Teach For America, 2012).

Teacher isolation is also a significant factor in teacher retention (Hahs-Vaughn & Scherff, 2008, Norton, 1999). High poverty schools traditionally have higher teacher turnover, leaving novice teachers with reduced opportunities for developing lasting friendships (Bradley & Loadman, 2005). In addition, the workload of a novice teacher often leaves little time in the day for opportunities to socialize. Schlichte, Yssel & Merbler (2005) found that teacher isolation and burnout are the two most important indicators of teacher retention and a major factor in school failure. By promoting
opportunities for teachers to interact and collaborate on pressing issues, schools can be successful at retaining them (Davis, 1986).

**Collegiality Among Novice Teachers via Social Media**

Initiating and maintaining academic and professional relationships among intern teachers is one of the more challenging responsibilities I encounter each semester. One strategy to improve both the number and the quality of social connections between intern teachers is through technology. The use of social media, such as Facebook and Twitter, have been shown to facilitate relationships as well as provide opportunities for extended engagement beyond the typical face-to-face experiences (Brooks, 2009). Twitter provides opportunities for teachers to initiate dialogue about relevant issues that can be organized based on keywords in the tweet, or according to hashtags (#) that are added by the author (Lacina, 2006; Chou & Min, 2008). These tools can provide opportunities for social and emotional connections that are uncommon in the intern teacher experience (Baird & Fisher, 2006).

The use of Twitter as a pedagogical tool has been documented in several studies. Using Twitter in the classroom as a specific tool for engagement can result in greater interaction with the course material as well as increasing interactions between teachers (Rinaldo, Tapp & Laverie 2011). Ebner, Lienhardt, Rohs & Meyer (2010) reported that Twitter provides great potential for informal learning through a high volume, unrestricted communication tool where teachers are able to communicate and socialize in a non-synchronized format. Wright (2010) referenced the use of Twitter in teacher education as tool for encouraging self-reflection. “Participants appreciated reading other’s tweets and receiving messages of support when they faced challenging situations” (p. 259). In a
study on the varied uses of Twitter in E-Learning environments, Gibson (2010) created a list of educational opportunities demonstrated by Twitter users. By using a hash (#), Twitter users are able to save and search keywords for relevant topics and to see what others are saying about the topic. Class chatter allows teachers to continue discussion topics outside the classroom and provide for deeper connections to both content and each other.

One of the factors that make social media different to traditional face-to-face interactions is the increased opportunity for connection among users. Social media, by its very nature, is asynchronous (Rourke, Anderson, Archer, & Garrison, 1999). Users can communicate when and where they choose, providing increased opportunities for connections beyond the classroom or workplace (Baird & Fisher, 2006). While the use of social media, such as Facebook, Twitter, Google+, and numerous others have become widespread among teachers and students, the impact on social and emotional associations have yet to be verified.

Although educators are sometimes concerned about the potential for distraction with the use of Internet accessible mobile devices in the classroom, there is evidence that their use can be helpful to the novice teacher. Skiba (2011) found that the use of mobile devices as a microblogging tool could be useful for connecting teachers with events and opportunities. According to the New Teacher Center (2011), those connections can help novice teachers collaborate and socialize, which greatly increases chance at retention. While this is a tremendous benefit, Skiba (2011) comments that the devices can provide frequent interruptions despite engagement, and some faculty may not be as familiar with the pedagogy of social media as effective instruction.
Social media has been shown to be a valuable tool for initiating and maintaining teacher interest and engagement in the classroom setting. Facebook and Twitter demonstrate tremendous potential for expanding the educational experience beyond the traditional classroom setting and they allow for teacher exploration and reflection on concepts and theories that they find interesting. When used effectively, social media can be an invaluable tool for improving the quality of the educational experience in the university setting.

The purpose of my innovation was to evaluate the use of communities of practice along with social media with a group of novice intern science teachers. During the innovation, the teachers met in Personal Learning Communities, both face-to-face and virtually, on a regular basis to discuss problems or solutions in all aspects of teaching. It was my hope that by supporting collegiality through social media communication sites and PLC’s, the novice intern science teachers will increase their teaching efficacy and will remain in the field of education.
Chapter 3

RESEARCH DESIGN

The purpose of action research is to perform systematic inquiry with the goal of improving the effectiveness within a community of interest (Mills, 2007; Stringer, 2007). As a mentor and instructor of new teachers, I care very much about the quality and effectiveness of the teachers with whom I work. My goal is to prepare them to be reflective practitioners who are committed to improving their skills throughout their career. Since action research is an excellent fit for my situation, I used it to evaluate to what extent the use of social media and communities of practice increase feelings of collegiality and efficacy among intern teachers. I also investigated if and how increased perceptions of collegiality and efficacy influence teachers’ decisions to remain in the field of education at the end of the internship.

To effectively and accurately measure the results of my innovation, I used a mixed methods approach to data collection. Mixed-methods design indicates that both qualitative and quantitative data sources will be used to answer my research questions (Greene, 2007). To analyze my data, I used the Triangulation Design: Convergence model (Creswell & Clark, 2007). Using this model, qualitative and quantitative data were collected and analyzed separately and the results were compared/contrasted during the interpretation of data.

Setting

The study took place at Arizona State University in the Mary Lou Fulton Teachers College and at the schools of the intern teachers. The schools, working collaboration with the Teach For America program, were all high poverty, high need
Title 1 schools in the Phoenix metropolitan area. The PLC groups met face to face during evening teacher training classes at Arizona State University one night during the first four weeks of the innovation. The teachers used Twitter to communicate outside of the PLC meetings and cohort-specific teaching videos were posted to YouTube.

**Participants**

The participants in this study were 18 intern science teachers. A comparison group of 50 intern teachers in the areas of language arts, social studies and mathematics were assessed pre and post using the teacher efficacy survey but did not participate in the innovation. The teachers in the study were placed in grade levels ranging from 5th to 12th grade. There were 14 females and 4 males in the innovation group, and 38 females and 12 males in the comparison group. At the start of the intervention, all of the teachers had completed one year of teaching and one year of graduate studies in education. This group of teachers represents a researcher-selected sample (Winship & Mare, 1992) that is comparable to the general population of intern teachers in the Phoenix cohort of Teach For America.

**My role as researcher**

In action research, the researcher is an important part of the process from research design to data collection (Wadsworth, 1998). I am a clinical instructor with the Mary Lou Fulton Teachers College. I supervise and instruct novice intern science teachers in the Intern with Masters and Certification (InMAC) program. In my instructional role, I teach a variety of courses in the teacher education program in the evening. As a supervisor, I spend the day visiting teachers in their classroom. During those visits, I offer advice and feedback to improve instruction and classroom management. The balance between
instructor and evaluator can be tough to balance, however it has been effective to use instruction time to speak directly to the situations that I observe during the day. I continued my role in this innovation as an instructor and evaluator, but I also was responsible for conducting the research and collecting and analyzing data. My role as a traditional instructor and evaluator changed slightly during the innovation as the focus moved from face to face observations with paper and pencil evaluations to video recorded observations with virtual, web-based evaluations. As both a researcher and participant in this study, my role was described as a participant-observer in the innovation (Gay, Mills, & Airasian, 2009).

**Data Collection Tools**

I used a mixed methods approach to data collection. Components of qualitative and quantitative data were used to measure the effects of using social media on teacher perceptions of collegiality, self-efficacy, and retention.

**Teacher survey.**

The teachers in the innovation and comparison groups completed a survey both before and after the intervention (see Appendix C). The survey was adapted from the work of Tschannen-Moran and Woolfolk Hoy (2011) and served to measure teacher efficacy for instruction, management, and efficacy. The teachers in the study completed the pre-survey in August of 2012 and the post survey in November of 2012.

The original assessment as designed by Tschannen-Moran and Woolfolk-Hoy (2001) used a 9-point scale with descriptors labeling how teachers perceived their ability to carry the responsibilities of teaching. The survey included three constructs: teacher engagement, instructional strategies, and classroom management. I modified the survey
to use a 5-point scale with the descriptors “a great deal”, “quite a bit”, “some”, “very little”, and “not at all”. A score of “5” is associated with “a great deal” while a score of “1” corresponded to “not at all”.

Because the original survey was modified for use in this study, I conducted a Cronbach alpha analysis using data collected in a pilot study with the revised survey in the Spring of 2011 to measure the internal consistency of the survey (Cronbach, 1951, George & Mallery, 2003). The Cronbach alpha for the revised survey is 0.95. Table 1 (below) shows the Cronbach alpha for the survey as well as for each of the constructs. The scores indicate that this survey tool is highly reliable.

Table 1

<table>
<thead>
<tr>
<th>Teachers Sense of Efficacy Scale Cronbach Alpha values</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
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<tr>
<td>Teacher Sense of Efficacy Scale</td>
<td>7.1</td>
<td>0.94</td>
<td>.95</td>
</tr>
<tr>
<td>Construct 1: Engagement</td>
<td>7.3</td>
<td>1.1</td>
<td>.87</td>
</tr>
<tr>
<td>Construct 2: Instruction</td>
<td>7.3</td>
<td>1.1</td>
<td>.90</td>
</tr>
<tr>
<td>Construct 3: Management</td>
<td>6.7</td>
<td>1.1</td>
<td>.90</td>
</tr>
</tbody>
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**Interview questions.**

Intern teachers in the intervention group were interviewed after week 6 of the intervention. Data from the interviews helped to answer the following research questions:

“How and to what extent did the focused use of social media and communities of practice increase the sense of collegiality and job satisfaction among second year intern teachers?”

“How and to what extent did the focused use of social media and communities of practice
increase second year intern teachers’ sense of self efficacy?” and “How and to what extent did the focused use of social media and communities of practice increase second year intern teachers’ decision to remain in the field of education?” The interview transcripts were evaluated according to the data analysis plan that follows. The interview questions are in Appendix D.

**Small group meeting transcripts.**

As the clinical instructor to the group of novice teachers in the innovation group, I had the opportunity to meet in small groups to discuss the innovation on a weekly basis. Prior to each meeting, each teacher in the group watched video recorded lessons of the other teachers in the group. The videos were posted in a private YouTube channel. During the meetings, we discussed what was working, what was not working, and made general suggestions. Data from these meetings helped to answer the questions “How and to what extent did the focused use of social media and communities of practice increase the sense of collegiality and job satisfaction among second year intern teachers?” and “How and to what extent did the focused use of social media and communities of practice increase second year intern teachers’ sense of self efficacy?” I used the questions from the group to create prompts in the Twitter feed.

**Twitter Responses.**

During the 10-week span of the innovation, the teachers in the innovation group used Twitter to ask questions about teaching, to respond to questions from others in their group and questions posted by me. Twitter organizes each conversation in “threads” that are easy to follow and provide a timeline of responses. Teachers could also create unique posts or make general comments using the hashtag (#) feature of Twitter. The hashtag
feature helped me to organize conversations and create new threads based on teacher-created themes.

**Description of the Innovation**

The purpose of connecting novice teachers through social media was to provide an opportunity for teachers to build collegiality and increase self-efficacy, thus increasing the likelihood that they would stay in the profession.

Data were collected during the Fall 2011 academic term (August 23, 2012 – November 30, 2012). The novice intern science teachers were enrolled in the course SED 579, Apprentice Teaching in Secondary Education, of which I am the instructor. In SED 579, the teachers met weekly in small groups within a community of practice framework and shared experiences and questions through face-to-face interactions as well as through social media tools. In addition to my teacher responsibilities as the instructor, I participated in the small group meetings, and social media discussions. As part of my role as instructor and facilitator, I posted questions to twitter on a weekly basis and asked each teacher in the Twitter group to respond with a reflection or response at least three times per week. I then responded to tweets when necessary and asked clarifying questions or posted possible solutions.

**Week One (August 27, 2012).** During the first week of class, the instructors of SED 579 distributed the teacher efficacy survey to all year 2-intern teachers. Teachers in my section of SED 579 were informed of the innovation and were included in community of practice groups based on school location and grade level of teaching. The teachers in my section also set up expectations and norms for communication and participation for both face-to-face and virtual interactions.
**Week Two (September 3, 2012).** I conducted an initial analysis of the Teacher Efficacy Survey from both sections of SED 579. During the first week, my section of teachers in SED 579 met face-to-face to discuss any questions about the innovation and to plan future meetings (face-to-face or virtual). Each meeting was recorded and the topics of the class were arranged around questions or experiences that the intern teachers address during the meeting or virtually.

**Weeks Three – Week Eight (September 10, 2012 – October 15, 2012).** Weekly meetings continued either virtually or face-to-face. The transcripts of the meetings were analyzed according to the data analysis plan addressed in the methods section. Teachers continued to use social media to document experiences or ask questions about their teaching experiences.

**Week Nine (October 22, 2012).** During this week, teachers continued meeting and discussing experiences. At the end of week nine, post teacher efficacy surveys were distributed to all participating sections of SED 579. Teachers continued to use social media to document experiences or ask questions about their teaching experiences.

**Week Ten (October 29, 2012).** During week ten, I completed the final interviews from classroom observations and began the data input and analysis of the data.

**Data Analysis Plan**

The qualitative and quantitative data from this research were analyzed using the mixed method approach of sequential design (see Figure 2). Sequential mixed methods data collection is a process that allows the data from earlier phases in the research to be evaluated in context with later findings (Driscoll, Appiah-Yeboah, Salib, & Rupert, 2007; Creswell & Plano Clark, 2007).
Quantitative Data Analysis.

Quantitative data were collected from the teacher surveys administered both before and after the innovation to all 68 teachers in the study.

Teacher survey.

The pre and post teacher survey data were entered in SPSS. Construct scores were computed as the means of all items targeting each construct. Cronbach Alpha coefficient values were calculated for the total survey and each of the 3 constructs (Cronbach, 1951). I used the descriptive statistics function to compute the means and standard deviations of the innovation and comparison groups’ pre and post survey scores. Means between groups were compared using a paired samples t-tests two-tailed test of significance (Cohen, 1988; Gay, et al., 2009). A One-way ANOVA was conducted to evaluate the relationship between the innovation and the efficacy of the innovation group and the comparison group (Green & Salkind, 2011).

Qualitative Data Analysis

Qualitative data were collected through the use of teacher survey, interviews with participants, small group meetings and from communications on Twitter. I used the theoretical and conceptual framework of social learning theory and communities of practice to look for relationships to the research questions (Greene, 2007). After initially evaluating the data, I used grounded theory, including the components of open and axial coding, to analyze the qualitative data (Glaser & Strauss, 1967).

Open Coding.

Open coding is a technique developed to analyze and expose the ideas and meanings in conversation (Glaser Strauss, 1967; Corbin & Strauss, 2008). I evaluated the
text line by line and holistically to group concepts into categories. Using open coding created the foundation for the process of axial coding.

**Axial coding.**

Axial coding is the process of evaluating the categories and subcategories from open coding around the axis of category (Glaser & Strauss, 1967). The process of axial coding elaborates on previously developed categories until the ideas have been thoroughly vetted.

**Twitter, Interview questions, and small group meeting transcripts.**

I used a mixed-method and triangulation design to reduce potential for bias (Greene, 2007). Table 2 demonstrates the data collection tools and techniques that were used and the type of data that was collected. Using my research questions and the study’s theoretical framework as a guide, I generated a list of a priori codes. I read the data and applied codes line-by-line. Subsequently, a second reading of the data was conducted and initial codes were checked and reformulated as needed into new emerging codes. Next, codes were organized into themes. To make assertions, themes and theme related components were united with the original data. Last, quotes were identified to support the assertions. From the results of the coding, I was able to construct themes and provide an analysis of the data. Twitter responses were analyzed in terms of the number of times specific topics or comments were included in Tweets. Specific comments or topics from my observations, including interviews, and small group meetings, were also tallied and evaluated.
## Validation of Data Analysis

To ensure accuracy of qualitative data collection, I used member checks at regular intervals on data collected from interviews, small group observations, and classroom observations. I collected both qualitative and quantitative data to leverage the strengths of both forms of research using different perspectives (Greene, et al., 2010). I used the theoretical framework of Social Learning Theory to frame the coding process (Rotter,
Chance & Phares, 1972; Miles & Huberman, 1994). The analysis was completed when the findings from both qualitative and quantitative data sources were combined.
Chapter 4

DATA ANALYSIS AND RESULTS

In Chapter 3 I described the methodology, data collection tools, and data analysis procedures used in this research. In this chapter I will address the data analysis techniques and present the results from both the quantitative and qualitative analyses. The first section describes how I analyzed the quantitative data (closed-end survey) and provides the results of my analyses. The second section describes how I analyzed the qualitative data (interviews, observations, PLC group reflections, and Social Media feedback) and provides the results of my analyses.

Quantitative Data Analysis

The quantitative data analysis section includes data obtained from the teacher survey and addresses each of the three research questions: How and to what extent will the focused use of social media and communities of practice increase second year intern teachers’ sense of self efficacy? 2) How and to what extent will the focused use of social media and communities of practice affect second year intern teachers’ decision to remain in the field of education?

Teacher Survey.

The survey was administered online to 18-second year teachers who were a part of this action research, and 50-second year teachers who served as a comparison group. The survey was administered in August and again in November to obtain both pre and post innovation feedback. The teachers used a combination of their birth month and the name of the street that they grew up on to provide anonymity, while providing a mechanism to connect pre and post survey data to the same participant. The survey
consisted of 24 closed-end questions formatted with a five-point Likert Scale, targeting three constructs: teacher engagement, instructional strategies, and classroom management. The teacher efficacy survey as distributed to the teachers is included in Appendix C.

**Reliability of Survey.**

The established reliability of the Teacher Efficacy Survey was 0.94, the engagement construct was 0.87, the instruction construct was 0.90 and the management construct was 0.90. To determine the reliability of the edited survey used in this study, I entered the results into the Statistical Package of Social Science (SPSS) and computed Cronbach Alphas for the total survey and for each of the three constructs, both pre and post. The reliability of the total pre-survey was 0.84 and the total post-survey was 0.88. The reliability for both pre and post overall survey and constructs is provided in Table 3.

Table 3

*Cronbach Alpha values for Teacher Efficacy Survey Pre and Post*

<table>
<thead>
<tr>
<th>Survey Constructs</th>
<th>Cronbach Alpha Pre</th>
<th>Cronbach Alpha Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Survey N=68</td>
<td>0.84</td>
<td>0.88</td>
</tr>
<tr>
<td>Engagement</td>
<td>0.66</td>
<td>0.65</td>
</tr>
<tr>
<td>Instruction</td>
<td>0.69</td>
<td>0.64</td>
</tr>
<tr>
<td>Management</td>
<td>0.72</td>
<td>0.87</td>
</tr>
</tbody>
</table>

**Analysis of Teacher Survey Data**

To determine the impact of my innovation, I applied both descriptive and inferential statistical analysis using SPSS. Construct scores were computed as the mean
response to the questions related to the construct. For each survey question the responses choices were 5 for a great deal of influence, 4 for quite a bit of influence, 3, for some influence, 2 for very little influence, and 1 for no influence. Aligned with that format, the construct scores were interpreted by rounding to the nearest whole number anchor: 5.00 – 4.50 = great deal of influence, 4.49 – 3.50 = quite a bit of influence, 3.49 – 2.50 = some influence, 2.49 – 1.50 = very little influence, and 1.49 – 1.00 = no influence at all.

I used the descriptive statistics function in SPSS to compute the means (M) and standard deviations (SD) of each construct for both groups, Innovation and Comparison. I then used the inferential statistics function in SPSS to run paired samples t- tests to compare pre and post scores. I used a one-way ANOVA to look for differences in scores between the Innovation group and the Comparison Group (Gay, et al., 2009). The results of the survey can be found in Table 4 below.

Table 4.

Pre/Post Survey Constructs and Descriptive Results by Teacher Group

<table>
<thead>
<tr>
<th>Construct and Teacher Group</th>
<th>Pre M</th>
<th>SD</th>
<th>Post M</th>
<th>SD</th>
<th>Gain Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement, Innovation (N = 18)</td>
<td>3.48</td>
<td>0.38</td>
<td>3.62</td>
<td>0.45</td>
<td>0.14</td>
</tr>
<tr>
<td>Instruction, Innovation (N=18)</td>
<td>3.35</td>
<td>0.46</td>
<td>3.83</td>
<td>0.36</td>
<td>0.48</td>
</tr>
<tr>
<td>Management, Innovation (N=18)</td>
<td>3.58</td>
<td>0.36</td>
<td>3.94</td>
<td>0.82</td>
<td>0.36</td>
</tr>
<tr>
<td>Engagement, Comparison (N=50)</td>
<td>3.16</td>
<td>0.29</td>
<td>3.47</td>
<td>0.31</td>
<td>0.31</td>
</tr>
<tr>
<td>Instruction, Comparison (N=50)</td>
<td>3.31</td>
<td>0.34</td>
<td>3.56</td>
<td>0.31</td>
<td>0.25</td>
</tr>
<tr>
<td>Management, Comparison (N=50)</td>
<td>3.51</td>
<td>0.29</td>
<td>3.72</td>
<td>0.36</td>
<td>0.21</td>
</tr>
</tbody>
</table>
The first construct measured teacher perceptions of efficacy in teacher engagement. There were eight questions in this construct addressing teachers’ ability to “get through” to the most difficult students and provide instruction that engages students. In the pre-survey, the teachers in the innovation group believed that they had “quite a bit” of influence on student engagement in the pre-survey (M = 3.48, SD = 0.38). The teachers from the comparison group believed that they had some influence on student engagement (M = 3.16, SD = 0.29). Post innovation, the teachers in the innovation group increased their perception of efficacy in student engagement to “a great deal” of influence (M = 3.62, SD = 0.45). The comparison group of teachers had a perception of “quite a bit” of efficacy in student engagement (M = 3.47, SD = 0.31).

A paired-samples t-test conducted to compare teacher perceptions of efficacy in student engagement indicated that there was no significant difference between pre and post scores for the innovation group. However, a paired-samples t-test conducted to compare teacher perceptions between the pre and post scores of the comparison group was significant. These results suggest that there was an increase in the perception in efficacy of engagement among the comparison group, but not the innovation group (See Table 5).

The second construct measured teacher perceptions of efficacy in instruction. The questions addressed a teacher’s ability to evaluate student comprehension and develop lessons that meet the needs of their teachers. In the pre-survey, the teachers in the innovation group believed that they had “quite a bit” of influence on instruction (M = 3.35, SD = 0.46) and increased their perceptions of efficacy in the post-survey (M = 3.83, SD = 0.36). The teachers from the comparison group believed that they also had “quite a
bit” of influence on instruction (M = 3.31, SD = 0.34). In the post-survey, the teachers in the comparison group slightly increased their perception of efficacy to “a great deal” of influence (M = 3.56, SD = 0.31).

A paired-samples t-test conducted to compare teacher perceptions of efficacy in instruction indicated that there was a significant difference between pre and post scores for the innovation group. A paired-samples t-test indicated a significant difference between the pre-comparison group and the post-comparison group. These results suggest that both groups of teachers experienced an increase in the perception in efficacy of instruction.

The third construct measured teacher perceptions of efficacy in classroom management. The survey questions addressed the teacher’s ability to control disruptive behavior and maintain a classroom management plan. The teachers in the innovation group believed that they had “quite a bit” of influence on classroom management (M = 3.58, SD = 0.36). They also increased their perceptions to “a great deal” of influence on the post survey (M = 3.94, SD = 0.82). The teachers in the comparison group also believed that they had “quite a bit” of influence on classroom management in the pre-survey (M = 3.51, SD = 0.29). In the post-survey, teachers in the comparison group increased their perception of efficacy to “a great deal” of influence on classroom management (M = 3.72, SD = 0.36).

A paired-samples t-test conducted to compare teacher perceptions of efficacy in classroom management indicated that there was a significant difference between pre and post scores for the innovation group. A paired-samples t-test also indicated a significant difference between the pre and post scores of the comparison group. These results
suggest that there was an increase in the perception in efficacy in classroom management among both the innovation and comparison groups.

The results of the paired samples t-test are listed below in Table 5. The data show that the results are significant for 2 out of 3 constructs in the innovation group and all of the constructs in the comparison group.

Table 5

*Results of Paired Samples Tests*

<table>
<thead>
<tr>
<th>Status</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation Pair 1: Engagement Pre and Post (df=17)</td>
<td>-1.166</td>
<td>0.260</td>
</tr>
<tr>
<td>Innovation Pair 2: Management Pre and Post (df=17)</td>
<td>-2.612</td>
<td>0.018*</td>
</tr>
<tr>
<td>Innovation Pair 3: Instruction Pre and Post (df=17)</td>
<td>-3.446</td>
<td>0.003*</td>
</tr>
<tr>
<td>Comparison Pair 1: Engagement Pre and Post (df=49)</td>
<td>-8.092</td>
<td>0.000*</td>
</tr>
<tr>
<td>Comparison Pair 2: Management Pre and Post (df=49)</td>
<td>-4.211</td>
<td>0.000*</td>
</tr>
<tr>
<td>Comparison Pair 3: Instruction Pre and Post (df=49)</td>
<td>-5.678</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

*Significant p<0.05

A one-way ANOVA was computed to compare the post innovation scores of the innovation group for the constructs of engagement, instruction, and management to the post innovation scores of the comparison group. The results were statistically significant for instruction, but not for engagement or management (p<0.05). The results of the one-way ANOVA can be found in Table 6 below.
Table 6

*ANOVA results comparing the means of the innovation and comparison groups.*

<table>
<thead>
<tr>
<th>Status</th>
<th>F(1,66)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Engagement – Innovation versus comparison group</td>
<td>2.411</td>
<td>0.125</td>
</tr>
<tr>
<td>Post-Instruction – Innovation versus comparison group</td>
<td>9.213</td>
<td>0.003*</td>
</tr>
<tr>
<td>Post-Management – Innovation versus comparison group</td>
<td>2.378</td>
<td>0.128</td>
</tr>
</tbody>
</table>

*Significant p<0.05

**Qualitative Data Analysis**

*Twitter responses, small group PLC meetings, and one-on-one interviews.*

Qualitative data were gathered from Twitter responses, small group PLC meetings and one-on-one interviews with the innovation teachers in my clinical classroom observations. A list containing each qualitative data collection method with a description of the data source and the amount of content coded can be found in table 7.
Table 7

*Qualitative Data Source Inventory*

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Description</th>
<th>Content Coded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twitter Responses</td>
<td>Teachers used Twitter to respond to reflection postings.</td>
<td>166 unique posts</td>
</tr>
<tr>
<td>Small Group PLC Meetings</td>
<td>Groups of teachers in the innovation met once during the study to discuss teaching and reflect on practices. The group discussions were centered on the research questions.</td>
<td>Video recorded sessions from 5 sessions</td>
</tr>
<tr>
<td>One-on-one Interviews</td>
<td>Eight teachers were interviewed during the innovation process to discuss the use of Twitter and to discuss the research questions.</td>
<td>Handwritten transcripts from the interviews.</td>
</tr>
</tbody>
</table>

**Analysis of Twitter Responses.**

The teachers in the innovation group interacted with each other using Twitter as a medium for discussion. There were a total of 166 unique Twitter posts. Unique posts refer to teacher responses that contain unique thoughts or comments that specifically respond to the thread topic. The discussion posts in Twitter were initiated as a response to issues that arose during the PLC meetings and from my classroom observations. The conversations initially began as a reflection statement and the responses varied from responses to the reflection statement to off-topic conversations between teachers. Analysis resulted in the following themes, theme related components, and assertions (See Table 8).
Table 8

Themes, Theme-related Components, and Assertions of Twitter Responses

<table>
<thead>
<tr>
<th>Themes</th>
<th>Theme-Related Components</th>
<th>Assertions</th>
</tr>
</thead>
</table>
| Perceptions of isolation and frustration | 1. Teachers reported that they felt isolated and alone in their classroom.  
2. Novice teachers have little opportunity to interact with others adults during the long school day.  
3. Teachers reported feeling frustrated with the lack of control they felt in their teaching environment. | Many novice intern teachers believe that they lack the training and support to effectively teach and manage a classroom, which leads to perceptions of isolation and frustration. |
| The innovation provided support     | 1. Teachers posted questions for other’s to offer feedback.                                 | Teacher’s found that social media was a place to ask questions and receive feedback in real-time. |
| Retention and future plans          | 1. Teacher’s commented about future plans in teaching and education.  
2. The teachers became aware of the various virtual sources for teacher support and feedback. | The innovation allowed teachers to connect with each other and to identify real solutions for success, which positively impacted their decision to remain in the field of education. |

Inadequate training and support in instruction and management leads to perceptions of isolation and frustration among novice teachers – Assertion 1. When the innovation began, the tweets were universally negative about the teaching environment and job satisfaction. Several teachers wrote comments about feeling isolated and alone in their classroom and school. One teacher spoke about missing family and friends. Another teacher summed up the feeling by stating “not enjoying life right
now…not sure if it would be better for all involved to walk away now”. There was a distinct lack of collegiality among teachers in the cohort in the initial posts. The teachers did not respond to each other, but instead used Twitter to simply post feelings of isolation and frustration.

At the beginning of the innovation, there were a larger number of Twitter posts referring to a lack of isolation and frustration, specifically in reference to the classroom environment. One female teacher summed up the early innovations with her post. “I have no idea what I’m doing. I only hope I’m not doing more damage to my students than help #lost”. The hash tag at the end of the post (#) is a common way for Twitter users to organize posts along themes. This teacher’s post started a trend in which 12 additional posts from other teachers included the hash tag “lost”. A female high school teacher tweeted “already starting the countdown to my last day of TFA…how will I ever make it? #lost”. A male middle school teacher got straight to the point with his post. “Admin (sic) wants my lesson plans for next month. Not even sure what I’m teaching tomorrow. #lost”. A female high school teacher used the hash frustration to tag her post. “Never failed at anything in my life before but this is going to be #frustration”. A male high school teacher said “I’m learning things at ASU now that I needed to know on day one last year. Why wasn’t I prepared for this job”? The general consensus among all of the inadequacy-related posts was a perception of being ill prepared for the responsibilities and time commitment of teaching.

The Twitter responses towards the end of the innovation were generally more positive and moved away from the perceptions of isolation and frustration. There were various examples of teachers offering additional support from other sources. One
example came from a female middle school teacher in response to a male middle school teacher. The male teacher was frustrated with the lack of technology access on his campus and the female teacher pointed him to the site TeacherTube. The response from the male teacher was “THANK YOU! Worked like a charm with zero issues”!

By the end of the innovation, the teachers began to tweet about increased support with specific challenges. An example of a post from a female middle school teacher was “we’re finally learning something in class that I can use to make me a better teacher tomorrow…now I know what to do with my gifted students”! Some of the posts that referred to the teachers’ self-efficacy still addressed doubts about the ability to be a “good teacher”. For example, a male middle school teacher commented, “I feel better about my teaching than I did during year 1 but I’m no where near where I need to be”. A female middle school teacher related similar perceptions in her comment “my kids are getting so much more out of my class this year but I have so far to go to get better #overwhelmed”.

**Teachers found that Social Media can be used to ask questions and receive feedback in real-time – Assertion 2.** Teachers in the study were almost universally proficient in the use of social media. None of the teachers in the study had ever used Twitter as a means to communicate about teaching or to ask questions about specific problems. A high school teacher summed up this concept in the Twitter post “didn’t think about using #Twitter to improve my teaching. Definitely finding lots of support here”! By the end of the innovation, the teachers were competent in using Twitter to find specific solutions for problems as they occurred. In one exchange between two middle school teachers, the teachers found resources and techniques to deal with a new student from Namibia who did not speak English. Together they found a language translation program
that would translate the student’s language (Afrikaans) into English.

Towards the end of the innovation, the Twitter responses began referring to positive perceptions of collegiality and job satisfaction. In a few cases, teachers asked questions of one another to clarify or further the discussion. One teacher wrote, “It really helps to have such valuable resources as close as my Twitter feed – thanks to my cohort for the support!” Another wrote, “I was VERY frustrated with my job, admin, and teachers – wouldn’t have made it through without you all”. The post innovation theme I derived from the Twitter responses was support. Teachers were overwhelmingly positive about the support provided by their peers.

**Teachers made connections with other novice teachers that led to long-term retention in the field of education – Assertion 3.** In the Twitter responses during the early innovation stages, teachers commented that they would have a hard time finishing this academic year. There were no references to future years of teaching. Beginning in week 5 of the innovation, there were a number of Twitter posts referring to future teaching plans and the tremendous support available virtually through social media. By the end of the innovation, there were 38 unique Twitter posts that commented on a future in teaching. One teacher wrote, “Thanks so much for the resources – got great ideas for implementing next year!” Another wrote simply “I can’t wait for a fresh start teaching next year – future is looking bright!” Out of the 18 teachers in the innovation group, 12 made specific comments about future teaching or education plans.

**Analysis of Professional Learning Community Meetings**

In the second year of the Intern Masters and Certification program (InMAC), teachers are required to meet once during the semester in Professional Learning
Community (PLC) groups to discuss teaching practices and issues/challenges that arise in the classroom. The PLC groups were modeled after the recommendations in *Communities of Practice* (Wenger, 1998). During the innovation, we had a total of four different PLC meetings with four teachers in each group. I video recorded the PLC meetings and transcribed the conversations.

To facilitate the meetings, I recorded a formal teacher evaluation and posted the video in a private account to YouTube. Prior to each PLC meeting, the teachers were required to watch their own video in addition to the other videos from the members of their PLC. During the meeting, I provided a short video recording of an important or interesting moment in each teacher’s video. The video prompted the group to reflect specifically to the teaching scenario in the video (e.g. What can you do about a student who does not stay in her seat during class?). The conversation quickly moved to specific examples from the teacher’s classroom and a solicitation for advice. As the PLC leader, I participated in the conversation and asked probing questions when necessary to continue the conversation.

**Professional Learning Community results**

As a part of the innovation, the teachers observed a YouTube teaching video of their peers prior to the meeting. We began the PLC by reviewing a short clip of each lesson and the teachers discussed specific observations and asked questions while I recorded their conversations, which were later transcribed. Analysis of the transcriptions of the meetings resulted in 2 themes, 6 theme-related components, and 2 assertions, which can be found in Table 9.
Table 9

**Themes and Theme-related Components of PLC’s**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Theme-Related Components</th>
<th>Assertions</th>
</tr>
</thead>
</table>
| Teacher-Teacher Collaboration | 1. Providing feedback through Twitter was a new and fun experience for the teachers.  
2. Teachers were able to observe their peers teaching, with opportunities for problems solving and academic feedback.  
3. The virtual and face-to-face environment was positive and teachers felt comfortable giving and receiving feedback. | Teachers enjoy seeing other novice teachers teach and they appreciate both giving and receiving feedback and suggestions via social media. |
| The PLC and Twitter experiences allowed teachers to reflect and grow. | 1. The specific questions that arose during the PLC meetings served as topic for the Twitter posts.  
2. The topics of discussion in the PLC and Twitter feeds were centered around lesson planning, solving behavioral issues, and on the teaching profession.  
3. Teachers copied the PLC format and discussion board in their own site-based PLC meetings and shared ideas with their coworkers using Twitter. | Teachers used the PLC to collaborate, discuss specific questions about teaching, and to brainstorm and plan for careers in education. |

**Teachers enjoyed using Twitter and YouTube to observe their peers teaching and to provide and receive instructional feedback – Assertion 1.** The teachers in the PLC groups had a lot to say about teaching, perceptions efficacy, and future plans. Only 6
of eighteen teachers in the study had a Twitter account before the innovation. All of the teachers commented that they really enjoyed seeing other teachers actually “teach” on YouTube and that they really enjoyed using Twitter to share. One teacher commented that she “really enjoyed seeing that she was not alone in struggling with management and instruction” and another said “I never thought I would have a Twitter account but this is kinda (sic) fun”.

The teachers were universally positive about the experience of seeing their peers actually teaching. A high school science teacher said, “It’s pretty cool to see Dominic teaching…his students struggle with the same thing as mine.” Another middle school teachers said, “I thought I was the only one dealing with a kid like that.” “What did you do to get him to behave like that?”

The teachers also commented on their increased comfort level with giving feedback (positive and negative) to their peers and their ability to identify and comment on specific events in the teacher’s video. A high school teacher commented, “It’s nice to be able to say what I’m thinking without the fear of hurting someone’s feelings.” He continued, “I can’t throw too many stones since my video is next!” The teachers in the innovation also commented that they enjoyed having access to assistance in solving specific problems and issues in instruction and practice for their own classroom. The teachers appreciated that the group was able to not only identify and comment on situations, but also to offer advice and solutions. A middle school teachers said, “It’s great to be able to see other people teaching, but it means so much more to get feedback from my friends who are going through the exact same thing as me.”
The PLC meetings led to collaboration, communication, development and teacher retention – Assertion 2. Teachers in the PLC groups commented on the fact that the meetings helped to provide “solutions” to specific problems and that they enjoyed using Twitter to share thoughts. Two statements appeared on a regular basis and helped to inform my coding. A high school teacher summed both ideas during a PLC meeting. “I will be teaching the same lesson next week and I will copy exactly what Jasmine did…she was able to present the topic in chunks that kept her students on task and moving around”.

Since all of the teachers in the innovation group were science teachers, the lessons were very relevant to everyone in the meeting. The teachers often commented that the video session helped them to develop solutions for specific lessons and activities. A middle school science teacher stated “I used the rock cycle lesson from your Video yesterday…I modified it a bit and it worked great”! The teachers also commented that the sessions gave them perspective on student behavior and provided a variety of solutions for dealing with student behavioral issues.

The teachers also referred to the use of Twitter and YouTube as an ideal location to reflect on their own behavior and actions in the classroom. As part of the PLC process, teachers were required to reflect on their own teaching as well as the teaching of their peers. Those reflections served as topics for the Twitter feeds. All 18 of the teachers discussed reflections on teaching and teacher behavior during the PLC group meetings.

The teachers often commented on the use of Twitter and YouTube as an ideal virtual location for professional development. Twelve teachers specifically commented on using video observations with their school based PLC groups in future years. All 18
teachers agreed that they would use this tool in the future and that they believed that this method of professional development should continue to be used in teacher development. Of those 18, nine specifically mentioned using PLC’s at their school “next year”.

**Analysis of Interview Questions**

During the innovation process, I interviewed each of the 18 teachers to answer my three research questions. The interviews were completed during the final third of the innovation in an attempt to effectively measure the impact of my research. The questions were developed to identify in what way the use of social media in communities of practice increase teacher self-efficacy, collegiality, and job satisfaction. I also asked a question at the end of the interview to determine if the teacher was going to continue in the field of education after the completion of the intern teacher process. The interviews took approximately 15 minutes to complete. To be considerate of the teachers’ time, I only asked the interview questions found in Appendix D and did not ask follow up questions unless the teacher initiated them. I typed the interview responses into Microsoft Word and then uploaded the file into HyperRESEARCH. I began by using the same themes as the PLC meeting and adding additional themes as they arose. At the end of the coding, I was able to identify 87 key words/ phrases, which led to 15 initial a priori codes. I wrote the additional codes onto flash cards and further organized the codes and developed two themes and assertions. Those themes, theme-related components, and assertions and codes can be found in table 10.
### Table 10

**Themes, Theme-Related Components, and Assertions from Teacher Interviews**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Theme-related Components</th>
<th>Assertions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support, collaboration, and responsibilities</strong></td>
<td>1. Combined support for ASU and TFA&lt;br&gt;2. Working together to plan lessons and problem-solve behavior issues.&lt;br&gt;3. Support is not only for classroom practice but also for the other areas of responsibility for teachers and teachers in training.</td>
<td>Novice intern teachers work together to support one another and to collaborate on common projects or areas of concern.</td>
</tr>
<tr>
<td><strong>Development and Reflection</strong></td>
<td>1. Growth as a teacher in improving practice and solving problems.&lt;br&gt;2. Observing lessons with other teachers increases opportunities for development and reflection.&lt;br&gt;3. Reflecting on lessons and sharing thoughts with other teachers is easy using social media.</td>
<td>Teachers grow and develop by observing their own teaching, the teaching of others, and by reflecting on those observations.</td>
</tr>
</tbody>
</table>

**Interview Question Results**

Novice intern teachers enjoyed working together on projects and addressing **areas of concern** – **Assertion 1.** All of the themes or theme-related components identified from the interview sessions were positive and reference support from both TFA and ASU. The teachers identified challenges they experienced during their first year teaching that were resolved through our PLC interactions. A male middle school teacher
said, “It was really nice to finally see how what we are learning in class on Tuesday night can actually be applied to what we do in our classroom on Wednesday morning”. A female high school teacher shared that her TFA mentor was using the YouTube videos to help instruct her challenging first year teachers. Among the ideas and comments about the innovation, the most prevalent was about support. The statements that developed this concept were references to support from ASU and Teach For America. An example of a teacher statement for this theme came from a female middle school teacher. “No matter what problem I was facing, I knew that I could post it on Twitter and get an answer within a matter of minutes.” A high school teacher commented “I knew that my ASU and TFA leaders were always there to support me…they had my success as the most important thing.”

The second concept that arose from the conversations was Responsibilities. One example came from a male high school teacher. “In addition to my TFA responsibilities, ASU courses, and school duties, I have to grade papers, plan lessons, manage behavior, and deal with parents. I’ve never had so many responsibilities in my life!” Another high school teacher, this time a female, said, “I don’t feel like I ever get a break. When I finish one thing, I have a million other to do. I have to be a teacher, teacher, friend, and parent. When do I get to be myself?”

Another notion that arose from the interviews was Collaboration. The teachers felt that this innovation in particular allowed them to have the ability to work together and discuss issues more than ever before. Some teachers even had the opportunity to connect with other educators through Twitter to find solutions to problems. “I found another middle school science teacher on Twitter that had just finished the lesson I was going to
start. She was super nice – just sent me her lesson with no strings attached!” Two middle school teachers even spoke directly about the other teacher. “There’s no way I could have made it through this semester without James. He was always the first to respond to my post on Twitter and always had great advice.” “Brandon was great – we were dealing with many of the same issues and I really enjoyed talking to him.”

The teachers unanimously found the video observation reflections that we did in our PLC’s to be rewarding and insightful. “Our other PLC meetings seemed inadequate after we did the video reflections with Brad. The experience really forced me to reflect on my own teaching in the context of others who are in the same spot as me.” “I was first terribly embarrassed about showing my video to my peers but the experience was so rewarding. It gave me a chance to reflect about my teaching in a way I was never able to before.”

Teachers grow and develop by observing and reflecting on their own teaching videos as well as teaching videos of their peers – Assertion 2. The final concept that arose from the interviews was Development. The teachers commented that the combination of professional development and social media made for a different experience that really improved their teaching practice and encouraged team problem solving. A female high school teacher said “I’ve always felt like professional development was a waste of time, and in many cases it was. The experience of sharing my video with my cohort and reflecting on it through Twitter has really helped me to develop as a teacher.” Another middle school female teacher commented that she “has grown and developed this semester far beyond her expectations.” She attributed the support of her cohort and the constant feedback from her peers and me to her overall
success this year, and felt that Twitter and YouTube were great places to support and share.

The final question on my interview asked teachers to identify plans for the future and whether or not those plans included a career in education. Of the 18 teachers, 16 plan on teaching for at least one more year. Of those 16, nine plan on making a career of teaching while three plan on remaining in the field of education but outside of the classroom. All 18 teachers indicated that they will continue to play some role in education, with specific mention to school board members, PTO/PTA members, and general advocates for education.
Chapter 5

FINDINGS

This action research project had two objectives. The first objective was to use social media and professional learning communities to connect novice intern science teachers to one another in an attempt to enhance professional communication and collegiality. This was measured qualitatively through Twitter postings as well as pre/post self-efficacy surveys. The second was to use social media and professional learning communities to enhance job satisfaction among novice intern science teachers. The second objective was also measured through Twitter postings but also included one-on-one teacher interviews. Chapter 4 presented the results of statistical analyses and qualitative analyses in response to each of the three research questions.

Research Question 1. Research question 1 asked, *how and to what extent will the focused use of social media in communities of practice increase the sense of collegiality and job satisfaction among second year intern teachers?* To determine the impact of the innovation on second year intern teachers sense of collegiality and job satisfaction, I used three sources of qualitative data: Twitter responses and reflections, small group Professional Learning Communities (PLC’s) discussions, and one-on-one teacher interviews.

The data indicate that the use of Twitter and Professional Learning Communities have a positive impact on a teachers’ sense of collegiality and job satisfaction. All 18 of the teachers in the innovation group indicated increased collegiality and job satisfaction in Twitter responses, small group PLC’s, and one-on-one interviews. The tweets from the teachers prior to the start of the innovation indicated that there was a general sense of
isolation and frustration among this cohort of teachers. The consensus of the teachers in the innovation group was that I should continue to use social media and communities of practice for teacher professional development.

The results of that analysis resulted in several emerging themes related to concepts of collegiality and job satisfaction. Since teachers were posting “tweets” to Twitter before the PLC groups met, I was able to clearly identify pre-innovation and post-innovation comments. The Twitter themes from pre-innovation described teachers that felt isolated and frustrated. The teachers reflected on an unexpected lack of support from their schools and overwhelming job responsibilities. The teachers also commented on a perceived inability to enact “change” which is a significant component of the Teach For America mission. In the post innovation comments, the theme of “support” became commonplace. Interestingly, the teachers felt not only support in instruction and management, but also emotional support from their peers. One teacher even tweeted that “I’m finally having fun teaching-thanks to my ASU/TFA crew!”

During the innovation process, the teachers met one time during the semester in small, professional learning communities. The purpose of the meetings was to observe videos of each member of the group teaching and to reflect on observations and questions that arose during the sessions. I recorded these sessions in an attempt to capture the comments of the teachers that related to the research questions. Two themes, collaboration and development, developed during the PLC meetings. As mentioned in the pre-innovation Twitter posts, the teachers specified that they felt isolated in their job and classroom. The theme of collaboration arose during intense, focused conversations about the issues that arose during the recorded lessons. The theme of development, as in
professional development, came about as teachers reflected on the effectiveness of their school site professional development and training. A comment from a high school science teacher summed up the thoughts. “I learned more about improving my teaching during the first five minutes of this PLC meeting than all of my PD’s (professional development meetings) combined”.

The final qualitative data source came from one-on-one teacher interviews that I conducted as a part of the formal evaluation of second year intern teachers. The teachers believed that the use of Twitter in conjunction with our PLC meetings resulted in tremendous opportunity for collaboration and peer-to-peer support. The teachers also felt that the innovation increased their development far beyond that of the comparison group of teachers. A middle school teacher commented that she “feels sorry for the other cohorts.” “They never have a chance to see each other teach or to brainstorm solutions for some of the more challenging problems.” “I feel so lucky to have been a part of this process and I hope I get to do it again next semester!”

Research Question 2. Research question number 2 asked, how and to what extent will the focused use of social media and communities of practice increase second year intern teachers’ sense of self-efficacy? To answer this question, I used a mixed-methods approach of qualitative and quantitative data. The quantitative data source was the Teacher Efficacy Survey, administered before and after the implementation of the innovation; and the qualitative data sources were the Twitter responses, PLC meetings transcripts, and interviews. The data indicate that the participants increased in efficacy as a result of the innovation, but the comparison group teachers also showed increases in efficacy.
Analysis of the data from the pre- and post- Teacher Efficacy Survey indicated that the comparison group increased pre to post on all three areas of efficacy whereas the innovation groups only increased on management and engagement. The increase in efficacy across all three constructs for the comparison group was not entirely unexpected, because participants in the comparison group were also intern teachers learning how to teach with the help of student teaching supervisors, albeit without the technology enhancements. The lack of a significant gain in efficacy for the construct engagement for the innovation group was unexpected. However, the data show that the Innovation group had higher efficacy for engagement prior to the innovation than the comparison group (3.48 vs 3.16), possibly attenuating the gain attributable to the innovation.

Results from the one-way ANOVA demonstrated that the innovation group had significantly more efficacy for instruction post innovation than the comparison group (p<0.05), but not on the other constructs. During the PLC meetings and in the subsequent Twitter discussions, a majority of the time was spent on issues surrounding instruction. All of the video clips I used to incite conversation were either examples of exemplary teaching or areas of improvement in instruction. I also encouraged all of the teachers in the innovation group to observe video examples of especially effective instruction, even if it occurred in a different PLC meeting. In the Twitter commentary, 62 unique posts can be connected directly to issues of instruction, with several more addressing ancillary issues related to instruction. I also used the topic of instruction to initiate Twitter conversations for 5 weeks of the innovation. The result of this intense focus on effective instruction clearly had a positive impact on the perception of efficacy in instruction among the innovation group of teachers.
Among the Twitter responses, PLC meetings, and interviews, the teachers initially reported perceptions of isolation, inadequacy and frustration during their experience as an intern teacher. As the PLC meetings and Twitter conversations proceeded, teachers began to identify problem solving strategies and solutions that assisted them to solve pressing issues. Through observing other teachers, the teachers in the study were able to reflect on their own practice and identify resources among their peers to assist in problems or concerns. The teachers were also able to identify areas of strength and weakness through their own observations and through the observations of their peers. The changes that I observed in the teachers mimicked those of the efficacy survey. The innovation group of teachers was better equipped to handle problems with student engagement, instructional design and delivery, and classroom management.

**Research Question 3.** Research question 3 asked, *how and to what extent will the focused use of social media and communities of practice increase second year intern teachers’ decision to remain in the field of education?* This question was challenging to answer, as the intention of the Teach for America program is only a two-year commitment to teaching in a Title 1 school. From my experience working with intern-prepared teachers, I found that teachers in their third to fifth year were much more confident in their teaching ability and appeared to be more content with their choice to remain in the classroom. The purpose of my innovation was to help first and second year teachers develop the resources and techniques necessary to feel like a more experienced teacher.

During the interview portion of the innovation, I asked teachers about their future plans in education. I found that 16 of the 18 plan to remain teaching at least one more
year. Nine of the third year teachers reported that they intend on making a career of teaching while three plan on teaching outside of the classroom in some sort of support role (teacher education, administration, or instructional designer). All 18 teachers vowed to maintain some level of involvement in education, with examples including school board member, PTO/PTA member, or an education advocate at some level.

The Twitter responses from the innovation teachers provided great insight into teacher retention. One of the assertions from this study indicated that the teachers were frustrated with the lack of support and training. The teachers felt isolated in their classroom and school, and those perceptions of isolations were cited as one reason for leaving the profession. Another assertion supported the innovation as a tool for retention. The use of social media allowed teachers to interact with one another to not only focus on solving problems, but to become proactive in identifying solutions for professional success.

The PLC transcripts and one-on-one interviews indicated that teachers used the virtual and face-to-face time to discuss questions about teaching and to think about careers in education. For example, a female middle school teacher enjoyed the PLC experience so much that she applied for a job designing and implementing professional development. She commented that she “had no idea that job even existed until another teacher mentioned it in the PLC meeting.” The interviews transcripts indicated that the process of observing and reflecting on teaching videos leads to growth and development and can positively impact retention. A female high school teacher stated that “the chance to see myself teach and to watch my friends teach really solidified my decision to stay in
the classroom another year.” She felt that she was a much better teacher than she gave herself credit for, and that a career in teaching would be a good fit for her.
Chapter 6

CONCLUSIONS

In this final dissertation chapter, I provide an overall discussion and conclusion to my innovation and action research project. In the first section, Implications of Practice, I discuss how this topic informs my current position as a clinical instructor. In the second section, Future Cycle of AR, I make design recommendations for future cycles of this action research. In the third section, Limitations of the Study, I present limitation in the study and the study results based on the design of this project. In the final reflection topic, I reflect on my own learning and change that occurred during the process of action research.

Implications of Practice

As Stephen Covey (1989) writes in his best selling novel, *7 Habits of Highly Effective People*, “to change ourselves effectively, we first have to change our perceptions.” The experiences of intern teachers are very different from those students in a traditional teacher-training program. I was trained in a traditional teacher-training experience, with a cooperating teacher and a student teaching experience. To effectively plan and implement a teacher support strategy for intern teachers, I had to first change my perceptions of novice teachers. These teachers are the full-time, teacher of record in their placement. They often spend 10 or more hours a day in their classroom and then travel to ASU to take classes in the evening. As a clinical instructor, it is my job to teach these evening courses in a way that deals with the current issues that teachers face while informing the students of the pedagogy and research in educational theory. All too often, teachers did not find solutions to their pressing issues in classroom management,
instruction, or engagement. When I saw this feedback on my course evaluations, I had to find a way to get the teachers the information they need to be successful while still covering the required course content. I found the solution in social media.

Social media is commonly used among my teachers and provides a way to asynchronously communicate with others. I started using social media as a way for students to respond to topics that were previously reserved for a discussion board. What I found in my class was that the teachers were much more likely to share and collaborate in a medium that they were familiar with. I chose to use social media in my action research project because the teachers were already familiar with it and it provided a novelty to the graduate education experience.

My job as clinical instructor also involves observing novice teachers using a formal evaluation rubric. In the past, I would schedule a time in advance to observe my students and provide an evaluation score along with feedback in a post conference meeting. While the experience was valuable to both of us, I felt as though the experience could be expanded to share with other teachers. I also received feedback from my teachers that they never had a chance to see other teachers teach. My solution was to schedule the observation as before, but this time I would record the lesson and share it with other novice intern teachers in a PLC format based on Community of Practice best practices (Wenger, 1998). The result was a very positive environment where teachers were able to share and discuss specific teaching challenges and successes in a non-threatening environment. During the PLC meetings, several questions would arise that I felt were relevant to all of the intern teachers in my cohort. I shared those themes with the other teachers and asked them to reflect or comment using Twitter. Considering the
challenging schedules of the teachers and the fact that the posts were not for a grade, the participation was outstanding. Teachers posted comments, offered suggestions, or listed their own questions at all hours of the night.

The success of the innovation in increasing teacher perceptions of efficacy in engagement, instruction, and management was inspiring. The novice teachers went from feelings of isolation and frustration to feelings of collaboration and problem solving. The teachers also reported that they were spending more time reflecting on their practice and that they were more likely to remain teaching because of the success of the innovation. One of the most important findings of this study is that my teachers learned how to reach out to others through social media to prevent the perceptions of isolation and frustration in the future.

**Future Cycles of Action Research**

One of the most interesting developments since the completion of this dissertation was that the other second year clinical instructors in my program are using my innovation with their students. A number of teachers who were not in my innovation group asked their clinical instructors to use the PLC in the same way I used it with my cohort (word travels fast among TFA teachers). As a result, I did a quick in-service with my peers and they are using YouTube to share teaching videos for PLC meetings.

There are two areas that I would like to implement in future cycles of action research. If I were to conduct this research again, I would prefer to use a different form of social media. Twitter only allows for 140 characters in each post, so the teacher comments were necessarily brief. I would like to see some elaboration on the posts as well as the responses and feedback. The other problem with Twitter is that many of the
school sites have blocked access to the site. To ensure that teachers would be able to use the social media site in an effective way, I would petition the internet director at each site to make access to the site possible, if only for the duration of the study.

The second area I would modify in the study would be to have the comparison group do the PLC the same way as the innovation group. My group of 16 teachers used the PLC to observe video lessons of their peers while the comparison group only had feedback from another clinical instructor. To modify the research in this way would allow for the only difference between the groups to be the use of social media. In the current study, it’s only possible to say that both the PLC groups and the social media had an impact on teacher perceptions of efficacy and potential retention of teachers.

**A Reflection – Practitioner turned Researcher**

The purpose of my intervention was to provide support and effective techniques to intern teachers in an attempt to keep them teaching in the classroom. I have been a part of the ASU/TFA partnership since the relationship began, more than five years ago. During that time I have observed excellent teachers leave the profession in droves. As a practitioner, I was limited to my knowledge and a basic understanding of teacher preparation. As a result, I was left without many options to help support my teachers during their unique experiences. I was also struggling with the idea that we commit two years to preparing the teachers to be reflective practitioners and as an instructor; I was not doing the same thing for myself.

This experience of planning, implementing, and evaluating an action research project has not only prepared me to be an experienced researcher, but it also makes me more relevant to the teachers I work with every day. In ensuring that teachers have high
efficacy and satisfaction, I was neglecting my own needs for the same thing. I now feel better prepared to continue the process of action research while refining my practitioner skills.
REFERENCES


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APPENDIX A

RECRUITMENT LETTER
Dear Participant,

My name is Bradley Bostick and I am working with Drs. Ronald Zambo and Thomas Heck, professors at Arizona State University and Dr. Shelley Isai, principal at Canyon Ridge School. The findings of my study will be used to inform the Mary Lou Fulton Teachers College, the community, the public, educational policymakers and academic scholars about strategies to improve perceptions of teacher efficacy among novice intern teachers.

You are invited to participate in this study to provide and understanding of how the use of social media can improve teacher efficacy in the areas of teacher engagement, instructional strategies, and classroom management. This survey should take 5-10 minutes to complete.

Your responses to the survey will be anonymous. The results of this study may be used in reports, presentations, or publications, but all of the information will only be presented without the identification of any participants.

Your participation in this study is completely voluntary. You can skip questions if you wish and you may withdraw from the study at any time. The MLFTC has given permission for teachers to fill out this survey. They will be no penalty for your participation and this will not affect your employment.

If you have any questions concerning the research study, please contact Bradley Bostick (bbostick@asu.edu). If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Chair of Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance at (480) 965-6788. Completion of the survey will be considered your consent to participate.

Sincerely,

Bradley Bostick
Clinical Instructor
Mary Lou Fulton Teachers College
Arizona State University
602-421-5025
APPENDIX B

THREATS TO VALIDITY
1. History – Many of the teachers in this study are also members of Teach For America (TFA). TFA provides support and professional development to the intern teachers that may impact teacher attitudes or behavior towards perceived efficacy. To counter this potential effect, I will work closely with the TFA mentors to ensure positive collaboration between ASU and TFA. To avoid potential overlap of participants, I will be working with 2nd year intern teachers.

2. Maturation – Many of the perceptions of teacher efficacy can change throughout the first two years of teaching. I have used this efficacy survey in previous cohorts that I will use to compare natural changes in efficacy to the changes observed during the implementation of the intervention.

3. Testing and pretest sensitization – The novice teachers in this study have not been exposed to the survey. They will take the survey once at the beginning of the study and again at the end of the semester. Only taking the survey twice should limit the challenge of repeated testing.

4. Instrumentation – I will use the same survey for both the pre and posttest.

5. Nonequivalence – All intern teachers in the study enter the TFA program with similar backgrounds and training. I will use Chi² tests to validate my results.

6. Regression – The survey I am using has proven reliable with a SD .98 and Alpha .90 (Tschanne-Moran & Woolfolk Hoy, 2001)

7. Mortality – Losing teachers during the first semester of intern teaching is rare. I will use oversampling to avoid the impact of mortality. My sample size of 50+ teachers should counter any losses that occur during the study.

8. Hawthorne Effect - I will address the Hawthorne Effect by limiting my innovation group to the same cohort of teachers. Since the different cohorts rarely mix, I can limit the Hawthorne Effect.

9. Novelty Effect – The use of social media is not new to the study group. The fact that teachers are both already using technology and interested in learning about new technologies will help sustain the implementation after the study is completed.

10. Experimenter Effect – As action research requires the researcher to be engaged in the process, the experimenter effect can be a challenge to my study. I am using a blind study in the sense that I will only identify teachers as a means of comparison to pre and posttest survey results.
APPENDIX C

SURVEY INSTRUMENT
### Teacher Beliefs

Directions: This questionnaire is designed to help us get a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.

<table>
<thead>
<tr>
<th>Efficacy in Teacher Engagement</th>
<th>How much can you do?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A great deal</td>
</tr>
<tr>
<td>1. To what extent can you get through to the most difficult students?</td>
<td>5</td>
</tr>
<tr>
<td>2. To what extent can you help your students think critically?</td>
<td>5</td>
</tr>
<tr>
<td>3. To what extent can you motivate students who show low interest in schoolwork?</td>
<td>5</td>
</tr>
<tr>
<td>4. To what extent can you get students to believe they can do well in schoolwork?</td>
<td>5</td>
</tr>
<tr>
<td>5. To what extent can you do to help your students value learning?</td>
<td>5</td>
</tr>
<tr>
<td>6. To what extent can you foster student creativity?</td>
<td>5</td>
</tr>
<tr>
<td>7. To what extent can you improve the understanding of a student who is failing?</td>
<td>5</td>
</tr>
<tr>
<td>8. To what extent can you assist families in helping their children do well in school?</td>
<td>5</td>
</tr>
</tbody>
</table>

### Efficacy in Instructional Strategies

<p>|                               | A great deal | Quite a bit | Some | Very little | Not at all |
| 9. To what extent can you respond to difficult questions from your students? | 5 | 4 | 3 | 2 | 1 |
| 10. How much can you gauge students’ comprehension of what you have taught? | 5 | 4 | 3 | 2 | 1 |
| 11. To what extent can you craft good questions for your students? | 5 | 4 | 3 | 2 | 1 |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>A great deal</th>
<th>Quite a Bit</th>
<th>Some</th>
<th>Very Little</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. To what extent can you do to adjust your lessons to the proper level for individual students?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>13. To what extent can you use a variety of assessment strategies?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14. To what extent can you provide an alternative explanation or example when students are confused?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>15. To what extent can you implement alternative strategies in your classroom?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16. To what extent can you provide appropriate challenges for very capable students?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Efficacy in Classroom Management**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>A great deal</th>
<th>Quite a Bit</th>
<th>Some</th>
<th>Very Little</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. To what extent can you do to control disruptive behavior in the classroom?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>18. To what extent can you make your expectations clear about student behavior?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>19. To what extent can you establish routines to keep activities running smoothly?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>20. To what extent can you do to get students to follow classroom rules?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>21. To what extent can you do to calm a student who is noisy or disruptive?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>22. To what extent can you establish a classroom management system with each group of students?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>23. To what extent can you keep a few problem students from ruining an entire lesson?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>24. To what extent can you respond to defiant students?</td>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX D

TEACHER INTERVIEW
Teacher Interview

Introduction, open-ended items:

Tell me what you know about teacher efficacy?

In what areas of your teaching do you feel most confident?

In what areas of your teaching do you need help?

How often do you use social media for educational purposes?

What are your plans for the future? Do they include teaching?
APPENDIX E

IRB EXEMPTION
To: Ronald Zambo  
FAB  
From: Mark Roosa, Chair  
Soc Beh IRB  
Date: 06/05/2012  
Committee Action: Exemption Granted  
IRB Action Date: 06/05/2012  
IRB Protocol #: 1206007907  
Study Title: Using Social Media as a Tool for Novice Teacher COlegiality and Improved Self-Efficacy

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1).

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects’ financial standing, employability, or reputation.

You should retain a copy of this letter for your records.