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**ONLINE COMMUNITIES OF PRACTICE
AND TEACHERS PERCEIVED SENSE OF EFFICACY
A Mixed Methods Study of National Association of Agricultural Educators
Communities of Practice Users**

by
Robin Claire McLean

A Dissertation

Submitted to the
Department of Educational Leadership
College of Education

In partial fulfillment of the requirement

For the degree of
Doctor of Education

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Rowan University
November 19, 2012

Dissertation Chair: Maria Sudeck, Ph. D.

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Dedication

This paper is dedicated in memory of my grandmother, Etta E.C. McLean who supported every step of my educational and professional journey.

Acknowledgements

It is with great appreciation that I acknowledge the communities I belong to who have helped and supported me during this dissertation adventure.

First and foremost, I thank the community of professors at Rowan University. It is with gratitude that I acknowledge my dissertation chair for not only her guidance and pushing me to constantly move forward, but also for her regular reminders to “Keep it Simple!” I appreciate the support of my committee members as I navigated the challenges of using mixed methods research. Additionally, without the professors who laid the foundation with my initial coursework, this journey might not have been possible.

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Additionally, I am fortunate to be part of a community of agricultural educators and leaders, who supported my study, proofread my work, talked me through statistics, and served as sounding boards as I explored my findings.

Lastly, I thank the community of friends who became all too familiar with the phrase “when the dissertation is done” in response to their requests to attend activities. They too provided the gentle reminders and inspiration I needed to keep going. Thank you to all my communities for what you have done to help me along this journey.

Abstract

Robin Claire McLean
ONLINE COMMUNITIES OF PRACTICE
AND TEACHERS PERCEIVED SENSE OF EFFICACY
A Mixed Methods Study of National Association of Agricultural Educators
Communities of Practice Users
2012
Maria Sudeck, Ph. D.
Doctor of Education in Educational Leadership

The purpose of this convergent design mixed methods study was to assess the perceived sense of efficacy of teachers who use the National Association of Agricultural Educators (NAAE) Communities of Practice, an online community for pre-service teachers, secondary educators, and university professors in agricultural education. The convergent design used the quantitative Teachers' Sense of Efficacy Scale and a qualitative case study with the data collected in parallel, analyzed separately and then merged at the end of the study for comparisons. Significant differences in perceived self-efficacy were not noted between mentor and neighbor users within the community. Communities of Practice content analysis and participant interviews found that Communities of Practice members support self-efficacy constructs of student engagement, classroom management, and instructional strategies through their involvement in the community. Additional interpretive categories including use, profession/ professional, and social emerged to support the value of online communities of practice in enhancing teachers' sense of perceived efficacy.

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Chapter 1: Context and Significance of Study

Teacher collaboration has been identified as a tool with positive influence on classroom practice (Desimone, Porter, Garet, Yoon, & Birman, 2002; Easton, 2008; McCaslin & Parks, 2002) and professional knowledge (Ikpeze, 2007). Professional learning communities (PLC) have been touted as a means of collaboration to facilitate teacher reflection and change (Fullan, 2007). Although collaboration is often associated with a face-to-face PLC, not all collaboration needs to occur within the confines of school district walls. Scribber (2003) suggested it was important to expand the professional learning community beyond the school district, especially if a person is the sole teacher of a particular subject in their district. Forty-two percent of all agricultural education teachers in the United States teach in one-person (single teacher) departments (Kantrovitch, 2010, p. 19) without a content area colleague in their district. For these individuals it is especially important for content area collaboration to happen beyond the school walls.

Context

One method suggested by researchers (Owston, Sinclair, & Wideman, 2008; Treacy, Kleiman, & Peterson, 2002) to help provide teachers with a venue for collaboration and professional growth is through online communities of practice. These subject or content-area specific forums provide teachers with opportunities to develop their instructional and classroom management competencies through resource sharing, dialogue and support (Brooks, 2010; Duncan-Howell, 2010; Hur & Brush, 2009). However, teachers' decisions about if, how, and to what extent they will participate in online communities are shaped by their online knowledge sharing beliefs. These beliefs

include concepts such as lack of knowledge, time or technology, as well as negative attitudes towards sharing (Hew & Hara, 2007), in addition to knowledge sharing efficacy beliefs and social networking ties (Chen, Chen, & Kinshuk, 2009).

Online Communities of Practice

Communities of practice focus on members' shared interests. They allow members to develop professional identity while sharing resources, experiences and problems to build expertise about common areas of interest (Gray, 2004; Monaghan & Columbaro, 2009; Wenger, 2006). Learning that occurs in communities of practice tends to be social and builds on a constructivist paradigm that allows teachers to meet their learning needs as they arise (Monaghan & Columbaro, 2009). The self-directed learning and professional development that occurs in communities of practice allow teachers to have control over their own knowledge acquisition and collaboration. Online or virtual communities of practice exist for a myriad of subject areas within the educational field. Examples of these communities include: Tapped In which began in 1997 and provides a web based arena for professional development; the Southern Regional Education Board virtual community for teachers who conduct classes online; PBS's online community for teachers to share ideas about how they have used the resources PBS offers in their classroom; and the National Science Teachers Association (NSTA) online member community forums within their virtual NSTA Learning Center.

In 2007, the National Association of Agricultural Educators (NAAE) created "Communities of Practice" for their members. This community is an online community that is open to NAAE members. Members who participate in Communities of Practice earn points for content they post. The points accumulate to assign them user status levels

within the community. This professional networking site is organized into content and topic specific areas where agriculture teachers can post discussion questions, share lesson plans and files, and use a virtual setting to collaborate on projects. Knowledge sharing is voluntary. One of the benefits of this site is that activities and comments shared have already been tried in the real-world setting.

In March 2012, the community underwent reorganization at the request of the NAAE Board of Directors. The board wanted to develop a more “robust way to award points” (J. Fritsch, personal communication, March 29, 2012) to users of the community. This revised system created a way for lower level users to advance more quickly through status levels through their postings rather than reaching a plateau at a lower user level. The earlier system had user levels of apprentice, novice, advanced, and ToPCoP. It was more challenging to earn points to advance. This resulted in many members plateauing at the novice user level (J. Fritsch, personal communication, November 15, 2010). The rationale Ms. Fritsch stated for this change was to “create a sense of buy-in and excitement as people see their activities helping them gain status in the community” (J. Fritsch, personal communication, March 29, 2012).

Teacher Efficacy

The NAAE online Communities of Practice provides user with an opportunity to not only discuss teaching content, but also strategies related to other aspects of teaching. Bandura (1997) identified that teacher efficacy perceptions go beyond a teacher’s subject matter teaching ability. Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) provide the commonly accepted definition of teacher efficacy as “the teacher’s belief in her and his ability to organize and execute the courses of action required to successfully accomplish

[sic] a specific task in a particular context” (p. 233). Often teachers who are self-inspired and self-empowered demonstrate self-efficacy (Bandura, 1993). Additionally Woolfolk Hoy, Hoy and Davis (2010) described efficacy as a self-perpetuating cycle where “greater efficacy leads to greater effort and persistence, which leads to better performance, which in turn leads to greater efficacy” (p. 5).

Self-efficacious teachers have been found to spend more class time focusing on academic activity and instruction than discipline (Gibson & Dembo, 1984). Teacher efficacy matters because it allows teachers to be more open to new ideas, to engage students in inquiry activities and group work, and to experiment with new teaching methods to differentiate and meet student needs (Woolfolk Hoy et al., 2010). Teachers who were highly efficacious often had high expectations for their students. Blackburn and Robinson (2008) found that teachers with the same knowledge and skills may have differing levels of success in the classroom based on self-efficacy.

Studies Related to Teacher Efficacy or Communities of Practice

Studies have been conducted to identify relationships between teacher efficacy and how teachers responded to stress and other changes, how teacher efficacy influenced the choices teachers make and effort they exerted in the classroom and in seeking to expand their own professional knowledge, and if efficacy impacts whether or not teachers implement and new methods in their classroom (Bray-Clark & Bates, 2003; Henson, 2001; Woolfolk Hoy, et al. 2010). Other teacher sense of efficacy studies have reviewed the impact of teaching experience (Henson, 2001; Blackburn & Robinson, 2008) and gender (Shahid & Thompson, 2001) on efficacy.

Just as studies have been conducted related to teacher sense of efficacy, studies have also been conducted on motivators for and barriers to online knowledge sharing (Hew & Hara, 2007). Additionally, online communities of practice in literacy education (Hew & Hara, 2007; Taylor, 2008), adult learning councils (Gray, 2004), mathematics and social studies (Keown, 2009) have been explored. However, Hur and Brush (2009) identified that there has been a lack of research on online teacher communities of practice, yet the growing popularity of these communities justified the need to study them further. Furthermore, Gray (2004) implied that professional associations with geographically spread members or those in a non-commonly practiced field could benefit from online communities of practice. The National Association of Agricultural Educators is a professional organization available to the nearly 9,000 teachers who instruct agricultural education in 8,013 schools across the country (Case, 2007, p. 13). Therefore, NAAE aligns with Gray's concept of a non-commonly practiced field that could benefit from an online community of practice.

Context Summary

Teacher collaboration has been documented as a method of increasing professional knowledge and providing professional growth for teachers. For teachers in isolated areas or serving as the sole practitioner in a subject area in their school, online communities of practice help provide a venue for collaboration to occur. Agricultural educators have an online community provided by their professional organization, the National Association of Agricultural Educators. A construct that helps teachers grow and be willing to experiment with new teaching ideas is their perceived sense of efficacy.

Several studies exist related to either teachers' perceived sense of efficacy or online communities of practice and teachers.

Conceptual Framework

The conceptual framework for this study is based on both Bandura's self-efficacy theory which is derived from social cognitive theory and online communities of practice. Self-efficacy is defined as an individual's belief in his or her ability to "organize and execute the course of action required to manage prospective situations" (Bandura, 1997, p. 2). It consists of a person's belief about performing certain actions, evaluation of one's actions, then a potential change in action based on new information or skills gained combined with reflection. A strong sense of self-efficacy provides individuals with the ability to have confidence and believe that they are able to set and achieve challenging goals (Wolf, Foster, & Birkenholz, 2009). Factors contributing to self-efficacy include the emotional state one is in about judging their own abilities, mastery experiences, verbal persuasion from others and vicarious experiences of success (Bandura, 1994). Self-efficacy is an individual measure rather than a comparison to others (Wigfield & Eccles, 2000). This sense of efficacy assists educators in developing and executing plans to handle events in their classroom and the school setting.

Communities of practice support the concept that learning is social (Cuddapah & Clayton, 2011; Leiberman & Mace, 2010). A community is "a group formed through mutual engagement, joint enterprise" (Cuddapah & Clayton, 2011, p. 64). The learning which occurs in a community of practice has been described as non-formal yet having the ability to support a teacher's professional learning (Printy, 2008). Wenger (1998) identified that communities of practice include the processes of learning, meaning and

identity. An online community of practice affords these processes to individuals who are not situated in the same building or community. Since people do not need to be in the same area, Koh and Kim (2004) described online communities of practice as relational communities meaning they came together because of a relationship as opposed to a location. “Identification to a task or idea” (Johnson, 2001, p. 51) rather than a place are why online communities exist. Borko (2004) noted that involvement in professional learning communities that are networked, which is essentially what an online community of practice is, provides collegial interactions and the potential to transform teaching practice and how instructional time is spent.

Online communities of practice support the concept of electronic discourse and serve as a tool for distance constructivist learning (Ikpeze, 2007; Johnson, 2001). With a communities of practice format, members are not only able to create their own meaning from events which occur, but also use the social forum to help shape and create meaning. This meaning creation comes from the reciprocity of the social learning process. Chiu, Hsu, and Wang (2006) expressed how the interactions within online communities “increase the depth, breadth, and efficiency of mutual knowledge exchange” (p. 1873).

Specialized Vocabulary and Definition of Terms

- 1) Self-efficacy – an individual’s belief in his or her ability to “organize and execute the course of action required to manage prospective situations” (Bandura, 1997, p. 2).
- 2) Teachers’ sense of efficacy – “teacher’s judgment of his or her capability to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (Tschannen-Moran, Woolfolk Hoy & Hoy, 1998, p. 202).

- 3) Teachers' Sense of Efficacy Scale – twenty-four question rating system designed at The Ohio State University by Tschannen-Moran and Woolfolk Hoy (2001) that allows teachers to evaluate their personal perception of classroom management, instructional strategies, and student engagement.
- 4) Online communities of practice – a web based location where people with the same passion and interests, in this study, agricultural education, regularly interact to share resources, challenges, and goals. This community provides a “safe climate, atmosphere of trust and respect, and invitation for intellectual exchange” (Conrad as cited in Lock, 2006, p.667). Online communities of practice are sometimes referred to as virtual communities of practice. However, for the purpose of this study and for consistency, online was used. Throughout this document, when referring specifically to the National Association of Agricultural Educators Communities of Practice, capitalization will be used to refer to this title of their specific community.
- 5) National Association of Agricultural Educators (NAAE) – a federation of state associations which focuses on advocacy for agricultural education, agricultural teacher recruitment and retention, and professional development for agricultural teachers (NAAE About Us, n.d.) National leadership is provided by a national staff of six people and a Board of Directors composed of a President, President-elect, and two regional representatives from each of the six regions.
- 6) Communities of Practice Status Levels – levels designated to members participating on the NAAE Communities of Practice based on points earned in seven criteria areas: posting or responding to a discussion; correctly answering discussion questions (as perceived by the person asking the question); creating new documents; creating new

blog posts; creating a new status update; and user's content was "liked." User status level is determined by points earned as indicated below.

- a. TopCoP – earned 1,000 – unbounded points
- b. Hero – earned 501-999 points
- c. Champion – earned 301-500 points
- d. Mentor – earned 101-300 points
- e. Neighbor – earned 11-100 points
- f. Citizen – earned 0-10 points (J. Fritsch, personal communication, March 29, 2012).

For clarification, the term "mentor" does not imply that a user is serving as a mentor for other community members but rather they have posted content which has earned them 101-300 points through the programmed point generation system within NAAE Communities of Practice. The status levels indicate participation in Communities of Practice and therefore signify members' contribution to the community. This could be viewed as a validation of their participation.

Purpose and Significance of the Study

The National Association of Agricultural Educators established their online Communities of Practice in 2007 and it has over 2,334 agricultural educators nationwide (J. Fritsch, personal communication, November 15, 2010). Studies have been conducted on teacher self-efficacy in agricultural education based on state (Blackburn & Robinson, 2008; Whittington, McConnell, & Knobloch, 2006), gender bias (Kelsey, 2007), student teaching experiences (Knobloch, 2006), teacher certification method (Duncan & Ricketts,

2008) and leadership experience prior to teaching (Wolf et al., 2009). However, it appears that none have been conducted related to online communities of practice.

Studies of online communities of practice have been conducted in other content areas. Hew and Hara (2007) identified that in addition to the literacy teachers' communities of practice, other subject areas needed to be explored to identify if online knowledge sharing is similar to what they noted about literacy teachers. Hur and Hara (2007) concluded that self-generated online communities for teachers are growing in popularity however there is still limited research about them. Nolan's (2009) qualitative study on teacher self-efficacy and professional learning communities showed that mixed methods research would provide greater clarity about the relationship between teacher self-efficacy and professional learning communities.

Purpose

The purpose of this convergent design mixed methods study was to assess the perceived sense of efficacy of teachers who use the National Association of Agricultural Educators (NAAE) Communities of Practice, an online community for pre-service teachers, secondary educators, and university professors in agricultural education. The convergent design used both quantitative and qualitative strands of data collection where the data was collected in parallel, analyzed separately and then merged at the end of the study for comparisons and corroboration. Quantitative and qualitative data are collected to bring greater insight into the relationship between communities of practice use and perceived teachers' sense of efficacy.

Methodology Overview

The quantitative strand used demographics and the Teachers' Sense of Efficacy Scale (TSES) designed by Tschannen-Moran and Woolfolk Hoy (2001) to identify relationships between the mentor and neighbor Communities of Practice user levels and perceived sense of efficacy. The NAAE Communities of Practice has six user status levels – citizen, neighbor, mentor, champion, hero and TopCoP. The qualitative strand used a case study. I developed a community artifact observation tool to identify how teachers use Communities of Practice to support their sense of efficacy. Two teachers from the Communities of Practice neighbor status level and two teachers from the Communities of Practice mentor status level participated in the case study through interviews and completing participant information forms.

Significance of Study

Although the NAAE has coordinated the online Communities of Practice for five years, no studies were found to identify its relationship to teacher sense of efficacy. Since Communities of Practice management is supported by NAAE membership dues, this study may help validate its use. Some university professors are encouraging their pre-service teachers to use the community. Results about the relationship between teacher sense of efficacy and Communities of Practice use will assist in providing pre-service teachers the rationale for why their continued involvement in the community will benefit them post-graduation.

Additionally, rural teachers tend to extend their professional community beyond the confines of the school and school district (Scribber, 2003). Online communities of practice provide for asynchronous professional learning where rural teachers can dialogue

with others nationwide who have a shared purpose or instructional background. Communities of practice can reduce the isolation the rural teachers face and assist in creating a support system that will help improve perceived teachers' self-efficacy.

Scope of Study

The population for my study was composed of 47 secondary agriculture teachers who are registered on the National Association of Agricultural Educators (NAAE) Community of Practice and in the middle ranked user levels of neighbor and mentor. These user groups were selected as middle level groups in the community as the five users in the TopCoP level were either NAAE staff or university professors and the Hero level had only three secondary educators in it. Using nonrandom sampling, the quantitative survey was sent to all mentor users and neighbor users. The qualitative phase applied simple random sampling to select four participants, two from the mentor user level and two from the neighbor user level, for the case study.

Research Questions

This convergent design mixed methods study addressed the following research questions:

1. How does length of teaching experience relate to Communities of Practice use?
2. How does perceived sense of efficacy relate to Communities of Practice use?
3. How are agriculture teachers using Communities of Practice to support and develop their self-efficacy?
 - a. How are teachers using resources, postings and Communities of Practice activities to support their instructional strategies self-efficacy?

- b. How are teachers using resources, postings and Communities of Practice activities to support their student engagement self-efficacy?
 - c. How are teachers using resources, postings and Communities of Practice activities to support their classroom management self-efficacy?
4. To what extent does the quantitative data on perceived teacher sense of efficacy support the qualitative case study data about how teachers are using Communities of Practice to support instructional strategies, student engagement and classroom management self-efficacy?

Limitations of the Study

As this study was conducted with agricultural educators, there will be limited populations for generalizing the results. Attrition, Communities of Practice members leaving the teaching profession and therefore stopping using the community, is another limitation. The community receiving an upgrade mid-research was another limitation. During the upgrade, the community was temporarily offline for two weeks while the system was transferred to the aforementioned method for improving how users progressed through status levels and all content was transferred over to the new system. Originally planned for December 2011, the change did not happen until March 2012. Not wanting to conduct research during the midst of a system transition this limitation was handled by waiting to release the survey and conduct the case study until the upgrade was completed. Although teachers may feel comfortable using the online technology of the Communities of Practice, they may not be comfortable using an online survey instrument. Self-selection with regard to survey reply could have been another limitation. Since

interviews were conducted via distance technology, recording quality provided limitations as well.

Summary

In a time when professional learning communities are being touted as a means to help teachers strengthen their profession, teachers who are single representatives of their subject area may be at a loss for a collaborative partner. Online communities of practice offer a means for teachers to share resources and challenges outside of their school district. The importance of relationships with other teachers in creating change has been noted by Fullan (2007). Bandura (1994) expressed that interactions with others, either vicariously through their success or directly through verbal exchanges can have an impact on self-efficacy. The relationship between teacher sense of efficacy and online communities of practice are the focus of this study.

Chapter 2: Review of Literature

Social networks have the potential to enhance teacher instruction as evidenced by a statement in *Transforming American Education: Learning Powered by Technology* (2010) which identified that these networks “can be used to provide educators with career-long personal learning tools and resources that make professional learning timely and relevant as well as an ongoing activity that continually improves practice and evolves their skills over time” (p. 16). Current research in online communities of practice, a form of social networking, and teacher self-efficacy is limited. Through this literature review, the study’s conceptual framework of both self-efficacy theory and communities of practice are further described. Additionally, I identify the role of social networking in education, what communities of practice are and how these communities of practice are supporting teacher learning, address measures of teacher self-efficacy and explain sense of efficacy. Finally, the gap in literature regarding teacher self-efficacy and online communities of practice is addressed.

Social Networking and Education

The original definition of social networking referred to face-to-face interactions between people. Today, social networking more commonly identifies online interactions. Early technological social networking, Web 1.0, had limited potential for an idea to be shared and explored by many people because correspondence was mainly via e-mail. Today, social networking has changed and has increased sharing efficiency. Often called Web 2.0, these technologies include blogs, wikis, virtual or online communities, video networking sites, and other online venues where participation can occur. Networks have also been identified as computer-mediated communication and according to Hough,

Smithey, and Evertson (2004) provide teachers with “round-the-clock” (p. 362) opportunities for dialogue and reflection. Teachers are able to have both formal and informal interactions where they can share ideas, improve lessons, develop hands-on activities and explore ways to advance opportunities for students (Rhoades, Friedel, & Morgan, 2009).

Social networks allow informal knowledge sharing to occur and Web 2.0 provides access to knowledge when people want it rather than being limited by specific face-to-face contact times. Social networking has changed the way information is accessed and communication and learning take place. Brown and Adler (2008) stated that Web 2.0 has “blurred the line between producers and consumers of content and has shifted attention from access to information toward access to other people” (p. 3). Such shifts in thinking resulted in Gunawardena et al. (2009) calling Web 2.0 a “social web” (p. 4) that helps create a human connection combined with learning. This collaborative focus of Web 2.0 is beneficial to teachers, as it can help remove the sense of isolation which has the potential to prevent knowledge sharing. Chen, Chen and Tsai (2009) noted that the obstacles of “large geographical areas” (p. 1158) can be overcome through involvement in online professional activities. Participating in social networks helped members develop a sense of identity (Hew & Hara, 2007).

Communities of Practice

Communities of practice originated with classical Greek craftsmen where there was social purpose to celebrate a holiday combined with a business function where apprentices trained and were also seen in the Middle Ages through guilds (Wenger & Snyder, 2000). Communities of practice were also evidenced in the face-to-face

communities of Mayan midwives, United States Navy quartermasters, and members of Alcoholics Anonymous (Gray, 2004). Cox (2005) noted that the use of the term communities of practice has diverse meanings. This section will describe traditional communities of practice, explain in general what online communities of practice look like and identify how online communities of practice support teacher learning.

General Communities of Practice

Communities of practice are “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (Wenger, McDermott, & Snyder, 2002, p. 10). Wenger and Snyder (2000) identified that keys in the definition for communities of practice are “informally bound,” “shared expertise” and “passion” (p. 139). Communities of practice provide a connection, shared purpose and trust between like-minded people and have the potential to add to an organization’s effectiveness. Structure is variable and ideas can be free flowing or have a specific agenda. Unlike the earlier communities of practice referenced in the beginning of this section where individuals worked on their own to promote the community, today many communities are within large organizations and it is possible that large communities will be divided into subject matter areas. The focus area for communities of practice is work based and not leisure-minded (Cox, 2005).

There are three main characteristics that define communities of practice – domain, community and practice. Snyder, Wenger and Briggs (2004) identified these characteristics as domain of knowledge that is shared between participants, a sense of shared trust in the community, and a common practice where participants seek to advance the field and develop professionally. These characteristics can also be viewed as what

the community is about, the mutual engagement of how it works, and what is produced over time. Wenger (1998) explained that the community is defined not by the tasks they accomplish but through the knowledge that they define. Communities of practice have the potential to build social capital.

Communities of practice – a social aspect. Supporting the concept of building social capital, Johnson (2001) identified that the origins of communities of practice are connected to constructivism. He further explained that in constructivism problems are realistic, learning occurs in a social context, shared goals exist and there is usually a facilitator or coach. With members bringing a diversity of skills, background and experience, the learning has an aspect of “social interdependence” (Johnson, 2001, p. 47). Chiu, Hsu and Wang (2006) stated that users in online communities participate not only for the content that exists within the community, but also the “social relationships” (p. 1874) they develop that give them support, friendship and belonging.

Communities of practice members and roles. Communities of practice are not one dimensional. They are complex systems that thrive on the collaboration between members. The community of practice helps to provide members with a sense of identity and it is possible that people might be part of more than one community at a time. Mitchell, Young and McKenna (2007) described a community of practice as a social fabric. Most communities will have a coach or facilitator. These community members face an additional challenge as they need to identify the needs of the community and its members, help develop the members, support the building of the practice, and evaluate the overall health of the community (Mitchell, Young & McKenna, 2007). Ikpeze (2007) stated that the facilitators’ role include “planning, contributing, and seeking input from

students” (p. 387). Although members of a professional community of practice are not students, the value of input seeking from members is noted.

The bond shared between community of practice members is informal and based on what is done (Wenger, 1998). Monaghan and Columbaro (2009) noted that communities of practice combine two seemingly opposite concepts: self-directedness and collaboration. Individuals who participate in communities of practice tend to be self-motivated and interested in independent learning. Members will select to participate in the community and usually there is a “core of participants whose passion for the topic energizes the community and who provide the intellectual and social leadership” (Wenger & Snyder, 2000, p. 141). Members can engage in active participation or be on the periphery of the community.

Just as self-efficacy was noted to be a cycle, Printy (2008) describes the social learning of communities of practice to be a cycle as well. In this cycle, “participation feeds back into the community and impacts subsequent participation” (Printy, 2008, p. 189). Cox (2005) stated that members tend to share what it means for them to be part of the community and what they are engaged in related to community knowledge.

Communities of practice benefits. Communities of practice benefit both the practitioner and the organization. Wilson and Ride (as cited in Lock, 2006) noted that a group will become a community when “they interact with each other and stay together long enough to form a set of habits or when they come to depend on each other to accomplish a certain ends” (p. 667). These communities of practice build a knowledge base, allow for reflection, support improvements in practice and help spur innovation (Lock, 2006; Taylor, 2008). They serve as a venue for information sharing and help to

keep an organization up to date with trends and cutting edge technology. Activities a community of practice engages in vary based on the needs of the community members (Taylor, 2008). The community renews itself and reinforces its purpose through the generation of knowledge.

For teachers, the experiences they have in a community of practice have meaning created based on the interactions that occur. Support from a professional peer group has the potential to allow teachers to focus on both their practice and student learning (Hough, Smithey, & Evertson, 2004). Communities of practice provide the venue for on-going collaborative professional development that is called for in the Carl D. Perkins Career and Technical Education Improvement Act of 2006 and No Child Left Behind legislation. These communities offer teachers the opportunity to explore daily issues and methods to enhance classroom instruction, as well as providing a safe environment to share lessons and seek help (Sturko & Gregson, 2009). Additionally, involvement in communities of practice provides not only shared activity, but also the creation of shared resources (Wenger, 1998). The learning provided through a community of practice is sustained and continual and it allows the learner to be engaged in their own practice.

Online Communities of Practice

If geography separates members of a community of practice, it makes sense that the community is online. Online communities of practice may also be identified as virtual or web-based communities of practice. Johnson (2001) noted that although a general definition of communities of practice may be “fluid” (p. 52), the “definition of a virtual community is clear: a group separated by space and time” (p. 52) that uses “networked technologies . . . to collaborate and communicate” (p. 53). The United States

Department of Education (2010) identifies a benefit of online communities being the fact that they can be cross-disciplinary, across boundaries, and between nations, cultures or organizations. These communities have fluid boundaries, are organized as the need arises and have norms defined by group members (Johnson, 2010). Online communities of practice provide a venue to increase collaboration and communication between participants. Online communities of practice can include, but are not limited to, chat rooms, e-mails, postings, wikis, and blogs. They provide artifacts such as documents, media and processes for members. As one method of computer-mediated communication, online communities of practice can provide collaboration that is “independent of time and space constraints” (Waggoner as cited in Hough et al., 2004, p. 363).

Liedtka (as cited in Johnson, 2001) described online communities of practice as “individuals united in action” (p. 5). A benefit of online communities of practice is that they can meet the needs of the learner as they are happening. They create a synergy of learning where information can be gathered quickly using the strengths of members. Brooks (2010) found that the social connections created in a community of practice help provide support and the interactions among members provide new understandings. Group identity helps to reinforce the knowledge generation for the collective good and the community support helps to boost the learning of members (Tseng & Kou, 2010). Johnson (2001) noted that community members who are introverted may be on “equal footing with extroverts” (p. 45) because of the text-based communication that online communities of practice provide. Additionally, Chen, Chen and Tsai (2009) identified

online professional experiences as an efficient method to promote changes in teaching practice and further content knowledge.

Online communities of practice membership. Members will participate to different degrees and not everyone engaged in an online community is an active participant. Koh and Kim (2004) noted that being a member of a community helps people “experience feelings of belonging” (p. 76). Active participants will be “posting, sharing and adapting, applying and improving, reflecting and sharing their reflections, collaborating and assisting others” (Taylor, 2008, p. 185) and it is when members are actively engaged that learning will occur. Communities will be sustained as long as there is member interest and the community continues to “develop the members’ capacities” (Hur & Brush, 2009, p. 280). Koh and Kim (2004) supported the concept of communities being used as a way to develop members when they identified that community members’ needs are fulfilled through believing resources exist in the community to meet those needs.

“Mutuality” (Printy, 2008, p. 191) of membership is important so that members not only benefit from the content within the community, but also provide input on the community. Tseng and Kou (2010) found that the more positive a member’s experience is in the community related to sharing and the integrity of others, the more the relationships will build in the community. It is possible to be a central member of one community while being a peripheral member of another and Gray (2004) determined that learning occurred by lurking as well as sharing. Printy (2008) acknowledged the role that involvement in multiple communities can have and identified that informal learning can

occur in the “overlap” (p. 192) between the communities. Johnson (2001) found that “the sum of community knowledge is greater than the individual” (p. 49).

Online community facilitators. Online community facilitators, called leaders by Koh and Kim (2004), serve a valuable role in online communities of practice - creating enthusiasm to “help members feel greater membership towards the community” (p. 78). Koh and Kim (2004) further noted that the leader may be “officially designated and titled” or “self-proclaimed” (p. 78) yet either way they help build and support community membership. The National Association of Agricultural Educators Communities of Practice facilitators volunteer to serve in that capacity. They are then trained and designated as facilitator by NAAE staff. Johnson (2001) further asserted the value of facilitators through identifying the role they play in reducing member attrition.

Online community diversity. Hur and Brush (2009) determined that members participate in online communities of practice for various yet interrelated reasons: to explore new ideas, share emotions, reduce isolation, gain a sense of camaraderie, and reap the advantages of an online environment. Strong online communities of practice are characterized by having diverse membership, a clear purpose, strong facilitation, nurturing dialogue and a strong relationship among community members (Keown, 2009). Printy (2008) also asserted the value of diversity in a community. Hough, Smithey and Evertson (2004) noted that newcomers to a community play an important role, even if they are participating in minor roles. Community members will share “history, time, places, and experiences” (Koh & Kim, 2004, p. 76) while developing a connection with other members and creating a sense of community. Although a common passion is shared, the diversity is generated by the members’ age, gender, race, knowledge and

experience. The value of the diversity exists only if members “contribute to and avail themselves of” (Palinscar, Magnusson, Marano, Ford, & Brown, 1998, p. 9) the content available within the community.

Online communities of practice and knowledge sharing. Peer support is a key feature of these communities. Therefore, participants need to be open to improvement, trusting and have an area of expertise. Gray (2004) found that the sharing between newcomers and experienced community members was important to generating knowledge. Participation in knowledge sharing was also influenced by self-efficacy, as indicated by Tseng and Kou (2010) who noted “efficacious members in an online community are more capable to demonstrate what expertise or ideas they possess” (p. 1050). Just as social capital can be built through a face-to-face community of practice, Tseng and Kou (2010) determined that online communities can also generate features of social capital including self-efficacy, interpersonal trust, community identity and social awareness.

Online communities of practice and teacher learning. The teaching profession constantly needs to adjust to handle changes. Grossman, Wineburg and Woolworth (2001) stated that “an obligatory appendage to every educational innovation” (p. 942) is the concept of community. Therefore, online communities of practice can help teachers collaboratively gain the new knowledge and skills they need to have as accountability and instructional reforms are implemented.

These communities fit well into the No Child Left Behind guideline that requires “25% of all funds spent on educational technology must be allocated for high quality professional development” (Vavasseur & McGregor, 2008, p. 518). The technology

based connections that online communities of practice create is a key to providing sustained and ongoing professional development. However, in order to be effective, Parr and Ward (2006) identified that there need to be “a shared understanding of the value of the online community” (p. 790) in meeting the needs of the members. The United States Department of Education (2010) identified that online communities of practice can break isolation, provide connections between teachers and universities or other experts in the field, promote ongoing growth, provide just-in-time problem solving and collaborative design of resources.

Benefits of online communities of practice for teachers. Several studies have been conducted exploring the relationship between teacher professional development and learning and online communities of practice (Duncan-Howell, 2010; Keown, 2009; Lock, 2006; Taylor, 2008). Online communities of practice provide “intellectual renewal, a venue for new learning, and a venue for cultivating leadership” (Lock, 2006, p. 668). They also offer a flexible, economical and convenient venue for the delivery of professional development (Keown, 2009; Vavasseur & MacGregor, 2008). Another benefit that communities of practice provide is content that addresses the needs of teachers instead of what school management perceives as important. This creates “freshness” (Duncan-Howell, 2010, p. 326) to content provided by community members. Vavasseur and MacGregor (2008) indicated that collaborative online communities may “provide a useful tool for teachers in relation to increasing teacher self-efficacy” (p. 520).

Little (1986, in Leiberman & Mace, 2010) identified that teachers who “worked together over time” are able to “master new practices” (p. 78). This mastery concept connected to Bandura’s (1997) identification of mastery as one of the components of self-

efficacy. Online communities of practice provide the ability for sustained collaboration, albeit virtually. Leiberman and Mace (2010) noted the value of making content “public” (p. 78) to help improve teaching. The public was identified as “interested educational audiences” (Leiberman & Mace, 2010, p. 78) that content is shared with and content as artifacts as well as teachers’ reflection. The NAAE Communities of Practice provides both artifacts and teacher reflection, thereby opening a teacher to improvement through the public viewing that the online venue provides.

In creating an online community, three areas are noted to help provide a community which assists in teachers’ growth. According to Hough, Smithey, and Evertson (2004), these areas are focused questions, clearly defined roles, and diversity in teacher experience. Johnson (2001) identified that an online community is simply a design and the community of practice which develops within the online community is the tool to help participants learn and grow.

Communities of Practice and Motivation

In communities of practice, motivation has been linked to descriptions of those members who are actively involved in a community. The benefits members attain from an online community of practice will be influenced by their “self-motivating factors” and “self-direction” (Johnson, 2001, p. 49). Knowledge sharing is often an area discussed in connection with online communities. Online communities of practice can be considered a method of professional development and Chen, Chen and Tsai (2009) stated that teachers need to be motivated to participate in such methods. Hou, Sung and Chang (2009) address that motivation has the potential to be a barrier in online communities as teachers might lack the motivation to interact in that venue.

Self-Efficacy Theory

Derived from social cognitive theory, self-efficacy is defined as an individual's belief in his or her ability to "organize and execute the course of action required to manage prospective situations" (Bandura, 1997, p. 2). It consists of a person's beliefs about performing certain actions, evaluation of one's actions, then a potential change in action based on new information or skills gained combined with reflection. A strong sense of self-efficacy provides individuals with the ability to have confidence and believe that they are able to set and achieve challenging goals (Wolf et al., 2009). Bandura (1994) explained that the emotional state one is in about judging their own abilities through physiological and affective states, mastery experiences, verbal persuasion from others and vicarious experiences of success contribute to self-efficacy. Labone (2004) identifies mastery as being established through performance; vicarious experiences as model observation; verbal persuasion as positive talk; and judging as reaction to the task at hand. Since Pajares (1996) described self-efficacy as a "powerful motivation construct" (p. 557), this connection is further addressed at a later point in this literature review.

Teacher Self Efficacy

The phrase "teacher efficacy" is sometimes confused with the effectiveness of a teacher (Shaughnessy, 2004). The commonly accepted definition of teacher efficacy is identified by Tschannen-Moran, Woolfolk Hoy and Hoy (1998) as "the teacher's belief in her and his ability to organize and execute the courses of action required to successfully accomplish a specific task in a particular context" (p. 233). Another interpretation of

teacher self-efficacy comes from Onafowora (2004) who explained teacher self-efficacy as how a teacher uses instruction to motivate students. Woolfolk Hoy (2008) identified that within the same day, a teacher's sense of efficacy can differ and can be influenced by their own teaching methods and goals within a given class context. Vavasseur and MacGregor (2008) found that teacher self-efficacy can have an impact on whether a teacher is involved in professional development and whether he or she implements classroom strategies she or he learns.

Woolfolk Hoy, et al. (2010) explain self-efficacy as a self-perpetuating cycle where "greater efficacy leads to greater effort and persistence, which leads to better performance, which in turn leads to greater efficacy" (p. 5). Tschannen-Moran, et al (1998) describe this cycle as follows:

- A) Teachers experience the results of efficacy which includes the achievement of goals, efforts and persistence related to efficacy.
- B) These consequences result in a performance or action.
- C) Through this action, new sources of efficacy information are provided. These sources include vicarious experiences, mastery experiences and verbal persuasion.
- D) The efficacy information is then cognitively processed either through analyzing a teaching task or assessing personal teaching abilities.
- E) Once the analysis and assessment have been conducted, teacher efficacy is further developed and the cycle continues.

Essentially, this cycle results in teachers having experiences that enhance their efficacy, reflecting on their experiences and analyzing the experience and its impact on

their ability or knowledge of teaching. The impact on efficacy is noted and performance improves. Additional sources are sought to increase efficacy therefore perpetuating the cycle. It is important to note that teacher specific situations are more likely to impact perceived efficacy than differences within the school or organization (Shaughnessy, 2004).

Benefits of Teacher Self-Efficacy

Several positive attributes are associated with teacher self-efficacy. These factors influence how a teacher performs in the classroom as well as how he or she relates to his or her students and colleagues. Shahid and Thompson (2001) conducted a meta-analysis of teacher efficacy studies and summarized that teachers who were highly self-efficacious were more likely to collaborate with peers, identified student success and failure as something they can have an impact on, and were active members of school organizations. Other studies (Onafowora, 2004) found that self-efficacious teachers were less likely to spend classroom time disciplining students and more likely to spend time focusing on academics.

Teacher Efficacy Relationships

Other studies (Bray-Clark & Bates, 2003; Henson, 2001; Woolfolk Hoy, et al., 2010) found teacher efficacy impacted how teachers responded to stress and other changes, influenced the choices teachers made and effort they exerted both in the classroom and in seeking to expand their own professional knowledge, and impacted whether or not teachers implement a new method in their classroom. Shahid and Thompson (2001) found female teachers to be more self-efficacious than males. Henson (2001) identified efficacy as a link between teacher characteristics and student learning.

The potential to impact efficacy beliefs of long term teachers is limited because the belief system they have strengthens with time (Henson, 2001). Therefore, if they are not efficacious, they are likely not to become efficacious. Efficacy also supports novice teachers staying in the classroom instead of leaving the profession (Blackburn & Robinson, 2008). Novice agriculture teachers were found to be least efficacious in student engagement but scored highest in classroom management in studies conducted by Blackburn and Robinson (2008).

Measuring Teacher Self-Efficacy

Measuring teacher self-efficacy has been a changing process. Shahid and Thompson's (2001) meta-analysis of teacher efficacy studies through December 1998 identified "24 different measures for 25 teacher efficacy constructs" (p. 9). Initial efficacy studies used Rotter's locus of control theory. RAND research, used in the 1970's and 1980's, identified two questions for determining efficacy (Onawafora, 2004; Woolfolk Hoy et al, 2010). Gibson and Dembo (1984) then developed a 30-item Teacher Efficacy Scale that was grounded in social cognitive theory.

The turning point for self-efficacy studies appears to be 2001. In a keynote address for the Educational Research Exchange, Henson (2001) stated that self-efficacy studies had reached a point where they were "ready to either move forward or fall to the wayside as a good idea that ultimately had little substance" (p. 5). During this time, professors and graduate students at The Ohio State University were developing the Teachers' Sense of Efficacy Scale (TSES). The purpose in developing the TSES was to develop an efficacy model "that reconciles some of the inconsistencies in early research" (Shaughnessy, 2004, p. 154).

The TSES is based on three of the four sources of self-efficacy beliefs identified by Bandura – mastery, vicarious experience and verbal persuasion (Lapone, 2004). The TSES measured three dimensions of teacher efficacy – classroom management, student engagement, and instructional strategies. When Shaughnessy (2004) questioned Woolfolk about why she was working on developing the sense of efficacy scale, her reply included using Bandura’s instructional efficacy scale as a base and “adding items we thought captured the important task of teaching” (p. 157). Labone (2004) addressed that the TSES provides a view of “teaching tasks beyond the classroom.” (p. 342).

Challenges with measuring teacher efficacy. One of the challenges Woolfolk Hoy, et al. (2010) noted with efficacy scales is teachers “rate themselves above average” (p. 8). Novice teachers are especially prone to this overrating. Other challenges noted included how specific the measurements related to teacher efficacy should be, as well as how to evaluate external factors which could impact teacher efficacy (Tschannen-Moran et al., 2001).

Motivation and Teacher Efficacy

Klassen et al. (2009) asserted that the Teachers’ Sense of Efficacy Scale would benefit cross cultural studies of the motivational beliefs teachers possess and Woolfolk Hoy (2008) stated “the motivations of teachers are as complex and evolving as the challenge of teaching itself” (p. 497). Rotter and Bandura, who both influenced the teachers’ sense of efficacy scale used in my research, have addressed efficacy and contingency theories both of which Deci (1992) identified relate to behavioral goals. An assertion of the relationship between motivation and behavior is supported by Pajares (1996) who stated that there is a “reciprocal nature” (p. 566) between those factors.

There is an assortment of theories that exist to explain the influence of motivation on “choice, persistence, and performance” (Wigfield & Eccles, 2000, p. 68).

One motivation theory which can support the influence of motivation is Kurt Lewin’s field theory based on Gestalt psychology. Essentially, this theory asserts that the relationship between a person and their environment will result in a behavior (Graham & Weiner, 1996). The predominant factor that causes a behavior to occur is a force which Lewin (1951) referred to as “tendency in motion” (p. 39). He further identifies that the movement can be either positive or negative depending on where a person is in their life, what their needs are, and the goal itself. In relationship to needs, the force can be one related to the needs of person themselves or an “induced force” (Lewin, 1951, p. 260) that identifies a need another person sees for the individual. Additional factors including conflict and emotional tension will also influence the outcome (Lewin, 1951).

Why Efficacy Matters

Lewin (1951) noted that needs and goals can change. Whether imposed by an internal or external force, changing goals are something teachers face. Teacher efficacy allows teachers to be more open to new ideas, engage students in inquiry activities and group work, and experiment with new teaching methods to differentiate and meet student needs (Woolfolk Hoy et al, 2010). Teachers who were highly efficacious often had high expectations for their students. Blackburn and Robinson (2008) found that teachers with the same knowledge and skills may have differing levels of success in the classroom based on self-efficacy. Furthermore, Tschannen-Moran and Woolfolk Hoy (2001) noted that teachers with a greater sense of efficacy tend to “exhibit greater enthusiasm for teaching, have greater commitment to teaching, and are more likely to stay in teaching”

(p. 784). Additionally, Klassen et al. (2009) suggested “teachers with high levels of self-efficacy experience greater job satisfaction.” (p. 75).

Gaps in the Literature

Studies have been conducted on motivators for and barriers to online knowledge sharing (Hew & Hara, 2007). Online communities of practice in literacy education (Hew & Hara, 2007; Taylor, 2008), adult learning councils (Gray, 2004), mathematics and social studies (Keown, 2009) have been explored. However, Hur and Brush (2009) noted that there has been a lack of research on online teacher communities of practice, but their growing popularity justifies the need to study them. Gray (2004) implied that professional associations with geographically spread members or those in non-commonly practiced fields could benefit from online communities of practice. Studies related to teachers and communities of practice have been conducted in Taiwan, Canada, Australia, and the United Kingdom but have been limited in the United States. The United States Department of Education (2010) acknowledged that the growth of online communities of practice has been limited because they exist outside of the area of traditional funding and plan to fund online communities of practice to “ensure teachers are connected to data, resources, experts, and peers to prepare and enable connected teaching” (p. 25).

Studies related to teacher self-efficacy, as identified in a meta-analysis by Shahid and Thompson (2001), included exploration of gender, teaching experience, certification method, and job satisfaction. Agricultural educator self-efficacy has studies have been conducted based on state (Blackburn & Robinson, 2008; Whittington, McConnell, & Knobloch, 2006), gender bias (Kelsey, 2007), student teaching experiences (Knobloch, 2006), teacher certification method (Duncan & Ricketts, 2008) and leadership experience

prior to teaching (Wolf et al., 2009). The researcher found no studies related to agricultural educators' sense of efficacy and online communities of practice.

Conclusion

Communities of practice, although identified by different names such as guilds, have existed since the Middle Ages. With increased globalization and technology, online communities of practice are becoming a way for professionals to share resources and challenges. The United States Department of Education has addressed the potential benefit of online communities of practice for teachers. Self-efficacy has been a construct studied and applied to education since the 1970's. Various studies in agricultural education have explored the concept of teacher sense of efficacy related to other variables. However, no studies were found that linked agriculture teacher self-efficacy to online communities of practice.

Chapter 3: Methodology

Online communities of practice provide teachers with a venue to collaborate and share ideas, materials, and work they have done. This material often supports teacher instructional strategies, classroom management and student engagement, three areas are addressed in the Teachers' Sense of Efficacy Scale designed by Tschannen-Moran and Woolfolk (2001). By exploring the relationship between participation in online communities of practice and teachers' sense of efficacy, connections between teacher practice, ongoing professional development, and educational reform can be identified. This research aligns with Gallucci's (2003) assertion that "knowing more about the ways the communities of practice influence teachers' work enriches our understanding of the relationship between educational policy and classroom practice" (para. 6).

Overview of Methodology

The purpose of this convergent mixed methods study was to assess the perceived self-efficacy of teachers who use the National Association of Agricultural Educators (NAAE) Communities of Practice, an online community for pre-service teachers, secondary educators and university professors in agricultural education. Through this parallel mixed methods design, I explored the research question, "To what extent does the quantitative data on perceived teachers' sense of efficacy support the qualitative data about how teachers are using Communities of Practice to support instructional strategies, classroom management, and student engagement sense of efficacy?" Although several teacher sense of efficacy studies in the field of agricultural education use quantitative methods (Blackburn & Robinson, 2008; Kelsey, 2007; Knobloch, 2006; Whittington, McConnell & Knobloch, 2006), I chose to use a mixed methods approach to gain a richer

understanding of how teachers are using NAAE Communities of Practice to enhance their sense of efficacy.

Rationale of Mixed Methods Research

Mixed methods research combines strategies of quantitative and qualitative research to deepen the understanding of an issue (Creswell, 2009). Creswell and Plano Clark (2011) stated that the use of quantitative and qualitative methods together create a stronger study than either method alone. By using a convergent design, the statistical data in the quantitative component and the interpretive categories that emerged from the qualitative study can be used to triangulate the study and validate the data. This method requires that the researcher be versed in both quantitative and qualitative research (Creswell, 2009). Convergent mixed method design also requires that the researcher is able to manage a large amount of data at the same time and believes that the value placed on both the quantitative and qualitative data is equal (Creswell & Plano Clark, 2011). Although I was aware that the quantitative Teachers' Sense of Efficacy Scale (TSES) modified to include demographics would provide data to show the relationship between perceived sense of efficacy and NAAE Communities of Practice user status level, the complete picture of how Communities of Practice is being used in this manner could not be realized without the qualitative case study. Additionally, when Woolfolk was interviewed by Shaughnessy (2004) about her current work with teacher sense of efficacy, Woolfolk indicated that the study of teacher sense of efficacy "would benefit more from studies that use both qualitative and quantitative methodologies" (p. 155).

Creswell and Plano Clark (2011) identified that convergent mixed methods design uses a pragmatic approach. The pragmatism in this study included the use of multiple

perspectives, in this case NAAE Communities of Practice user levels, to explore the research questions, the combining of different research strategies, and the applied practice of the community. “Consequences of action” (Creswell & Plano Clark, 2011, p. 40) are also characteristics of pragmatism and this study sought to partially identify the Communities of Practice participation consequence of perceiving oneself as self-efficacious. Using a convergent mixed methods design allowed me to research efficiently by collecting both the quantitative (TSES) data and the qualitative case study data at the same time.

Research Design

As a convergent design, quantitative and qualitative data were collected at the same time, underwent separate analysis, and then were merged to compare the results. Demographics and self-perceived teacher efficacy using the Teachers’ Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Hoy (2001) comprised the quantitative data. The dependent variable was perceived teacher sense of efficacy and the independent variable was Communities of Practice user level. Qualitative research utilized a six week case study. The case study involved a researcher designed community artifact observation tool to analyze postings in the NAAE Communities of Practice and identify how agriculture teachers used posting in the Communities of Practice to support efficacy areas. It also involved two members from the neighbor status level and two members from the mentor status level who participated in an open-ended questionnaire and interview. Both quantitative and qualitative data were collected to bring greater insight into the relationship between Communities of Practice use and perceived teacher sense of efficacy.

Quantitative Instrument Design

Approval was granted by Tschannen-Moran to use the long form Teachers' Sense of Efficacy Scale (TSES) and to modify the instrument for online use. The TSES evaluated perceived sense of efficacy in three areas: student engagement, instructional strategies and classroom management. It used a nine-point Likert-type scale where values included:

1 – Nothing

3 – Very Little

5 – Some Influence

7 – Quite a Bit

9 – A Great Deal

Each efficacy area consisted of eight items. Specifically, student engagement consisted of items 1, 2, 4, 6, 9, 12, 14 and 22. Items 7, 10, 11, 17, 18, 20, 23, and 24 addressed instructional practices and items 3, 5, 8, 13, 15, 16, 19, and 21 related to classroom management.

Demographics collected in addition to the TSES scale included years of teaching experience, gender, age, and user status level in the NAAE Communities of Practice. The instrument was prepared and administered using SurveyMonkey and included an informed consent form to agree to before advancing to the survey itself (Appendix A). Since incomplete data could lead to skewed results, the survey was set up so users could not advance to the next screen or submit unless all data was completed.

Qualitative Instrument Design

Three data collection instruments were used in the six-week qualitative case study portion of this research. A researcher designed communities of practice artifact observation tool was used to assess Communities of Practice content. Artifacts observed included questions, documents, bookmarks, and blogs. The artifact observation tool consisted of the date and time of original post, title of post, status level of person making the post as well as of any post participants, type of item, number of times the post was viewed, number of replies, and efficacy area to which the post was related (Appendix B). Efficacy area relationship was determined by comparing the content of the posts with items on the TSES. This tool was used once a week on Thursdays at approximately 9:30 pm Eastern Standard Time to analyze the first ten items visible on the NAAE Communities of Practice home page.

Case study participants received a participant information sheet which included demographics and an open-ended questionnaire which was administered using SurveyMonkey (Appendix C). The purpose of the participant information sheet was to create a profile of each participant and gain background information about their NAAE Communities of Practice use in preparation for interviewing them. The initial page was an informed consent form, which if not agreed to ended data collection. The information sheet contained questions related to years of teaching experience, subjects taught, user status level, role in Communities of Practice, teaching setting (rural, urban, suburban), reasons for using Communities of Practice, and frequency of participation on Communities of Practice.

Each participant was interviewed once using ten semi-structured interview questions (Appendix D). Questions were developed based around Communities of Practice use and statements on the TSES. Key points of the interview were noted in writing and the interview was digitally recorded using both ITalk and LiveScribe.

Quantitative Data Collection Strategies

All neighbor level and mentor level NAAE Communities of Practice users were sent an e-mail on April 4, 2012 which explained the research and provided a link to the survey (Appendix E). On May 4, 2012, a follow-up e-mail was sent to non-respondents who had not opted out of the survey (Appendix E). The final request for participation was sent on May 8, 2012 (Appendix E) and the survey closed at midnight on Thursday, May 10, 2012. All recipients received an auto-generated thank you reply (Appendix E).

Qualitative Data Collection Strategies

On May 3 and May 10, 2012, the NAAE Communities of Practice Artifact Observation Tool was piloted with the content posted. Beginning on the evening of May 17, 2012 and running for the five Thursday evenings following, the first ten items on the Communities of Practice homepage were screen captured in the event they needed to be referenced in future analysis after the Communities of Practice Artifact Observation Tool was completed. Observations were made at roughly the same time each week for the duration of the study to provide a consistent review and to ensure no overlapping of data. The final observation was made on Thursday, June 21, 2012.

Initial case study invitees received an e-mail invitation on May 20, 2012 which included the participant information form, a follow-up on May 24, 2012, and a final request on June 3, 2012 (Appendix F). Replacement pool invitees received an invitation

on June 13, 2012 and subsequent replacement pool invitees were e-mailed as needed (Appendix F).

Once participant information forms were received, I communicated with case study participants to confirm an interview time. Following the interview, participants received a typed transcript which included two questions: 1) After reading this transcript is there anything you feel I omitted? 2) Does this accurately represent your recollection of our interview? To gain an additional perspective of study participants, I reviewed their user profile on Communities of Practice, including the blog posts, documents, and discussions they authored or participated in as well as the private groups, known as places, within Communities of Practice to which the case study participants belonged.

Participants

The National Association of Agricultural Educators Communities of Practice has six user levels. Participants for this study were selected from the mentor and neighbor user levels. Since the focus of the study is on teachers' sense of efficacy, the TopCoP level was eliminated as this level included four NAAE staff and one university professor. The hero level was eliminated as it had just four users, one of whom was I and another who was a National FFA Organization staff member, not a teacher. Once the upper level users were eliminated, I selected to use the middle groups within the remaining user level rankings.

Quantitative Participants

All mentor user level and neighbor user level members were e-mailed a request to participate in the survey. Five e-mails were returned as undeliverable and three people opted out of the survey. Three surveys were partially completed and were eliminated

from the response pool. Nine respondents indicated that they were neither a mentor user nor neighbor user and were also eliminated from the response pool. Forty-seven people responded completely and were either neighbor or mentor level users. Therefore, the quantitative study population consisted of 47 people.

Qualitative Participants

Using the participants who replied to the quantitative study, a simple random sampling of both mentor user level respondents and neighbor user level respondents was used to select four participants for the qualitative case study portion. Although I was looking for two participants from each area, an initial selection of three people was conducted. This was to provide an immediate alternate if someone opted out of participating. A replacement pool of four additional participants was created through random selection and identified as “Replacement 1,” “Replacement 2,” “Replacement 3,” and “Replacement 4” to be used as needed. The demographics of the case study participants are as follows:

Mentor User A. Mentor User A is a female teacher in a single teacher department in a rural setting. She is between 28 and 35 years old and has been teaching for 6 to 10 years. She teaches Agriscience, Animal Science, Environmental Science, Horticulture, Introduction to Agriculture and Plant Science for grades 7 through 12. She is not a NAAE Communities of Practice facilitator but has attended and conducted workshops about Communities of Practice. She checks Communities of Practice daily and adds content 2-3 times per week.

Mentor User B. Mentor User B is a male teacher in a multi-teacher department in a rural setting. He is between 28 and 35 years old and has been teaching for 6 to 10

years. He teaches Agriscience, Animal Science, Environmental Science, Horticulture, Introduction to Agriculture, Plant Science and Ag Business for grades 9 through 12. He is not a NAAE Communities of Practice facilitator nor has he conducted a workshop on Communities of Practice, but he has attended a Communities of Practice workshop. He checks and adds content to Communities of Practice every other week.

Neighbor User A. Neighbor User A is a male teacher in a single teacher department in a rural setting. He is between 20 and 27 years old and has been teaching for 6 to 10 years. He teaches Agricultural Mechanics, Animal Science, Biotechnology, Horticulture, Introduction to Agriculture and Plant Science for grades 7 through 12. He is not a NAAE Communities of Practice facilitator nor has he conducted a workshop on Communities of Practice, but he has attended a Communities of Practice workshop. He checks Communities of Practice every other week and adds content once every two months.

Neighbor User B. Neighbor User B is a female teacher in a single teacher department in a suburban setting. She is between 20 and 27 years old and has been teaching for 6 to 10 years. She teaches Agriscience, Animal Science, Biotechnology, Environmental Science, Horticulture, Introduction to Agriculture, and Plant Science for grade 6 and grades 9 through 12. She is not a NAAE Communities of Practice facilitator nor has she conducted a workshop on Communities of Practice, but she has attended a Communities of Practice workshop. She checks Communities of Practice at least once per week and adds content once a month.

Summary of participants. The case study participants were represented by two male and two female teachers, all of whom had been teaching for 6-10 years. None of

the participants are facilitators on Communities of Practice. All participants have attended a workshop about Communities of Practice and one participant has conducted a workshop. They teach an assortment of agricultural education courses. Communities of Practice participation varies from checking content daily to checking every other week and posting content two-three times per week to posting once every two months.

Role of Researcher

In this study, I was a participant observer. As a middle school agriscience teacher, I have served as the NAAE Communities of Practice Middle School Community facilitator since 2007 and have a hero rating. I did not stop my participation in Communities of Practice during this study. However, being aware that it is important for a participant observer to remove themselves from immersion in a study (DeWalt & Dewalt, 2010), I did reduce my frequency of visits to the community. This allowed me to put the content I was viewing in perspective, a key ability needed by participant observers as identified by DeWalt and DeWalt (2010).

Aware of the potential bias that could result because of my active involvement, another data collection tool I used was a researcher journal. In the journal I recorded my activity on Communities of Practice, decisions I was making on the study related to Communities of Practice, and thoughts I was having regarding the research process. The journal provided an audit trail of decisions I made as well as reflection on my actions. This was important as it allowed me to “assess the impact of his/her own viewpoint on the collection of data” (DeWalt & DeWalt, 2010, p. 111). I purposefully, read content and posted replies after the weekly artifact observation was completed with the thought that posting at that time would not have an impact on the following week’s content.

Quantitative Data Management and Analysis

After the closing date for the Teacher Sense of Efficacy survey, I accessed the replies and exported the data from SurveyMonkey in the Statistical Package for Social Science Software (SPSS) format. Using SPSS Statistics 20 software, demographic totals were identified as were the means and standard deviations of the three construct areas on the Teachers' Sense of Efficacy Scale: student engagement, classroom management and instructional strategies. A one-way analysis of variance (ANOVA) test was run to compare mentor level and neighbor level users perceived efficacy in each of the three areas. Additionally, SPSS was used to analyze the relationships between teaching experience and perceived efficacy. Graphs were prepared to show the relationships between the teaching experience of the respondents and overall perceived efficacy as well as efficacy in each of the three areas.

Quantitative Instrument Validity and Reliability

As a tested instrument utilized by other studies in the agricultural education field, the Teachers' Sense of Efficacy Scale long form is a valid tool. It has been tested for reliability by Tschannen-Moran and Woolfolk Hoy (2001, p. 800) with the results displayed in Table 1.

Table 1

Teacher Sense of Efficacy Reliabilities

	Mean	SD	alpha
TSES	7.1	.94	.94
Engagement	7.3	1.1	.87
Instruction	7.3	1.1	.87
Management	6.7	1.1	.90

Qualitative Data Management and Analysis

To manage and protect identities, each participant was assigned a code. Mentor level users were M and neighbor level users were N. Within each group, members were assigned an A or a B depending on if they were the first or second respondent to the interview request. A file on each participant was kept which contained a printed version of their participant information form including the informed consent, interview transcripts, screen shots of their profile on Communities of Practice, and communications. Multiple levels of data were examined in order to gain a broad picture of overall Communities of Practice use in relationship to self-efficacy, as well as use by status level of the user. Qualitative data analysis was conducted through a coding process.

Coding Artifacts

Observed artifacts were coded based on efficacy area prior to completing the tabulation of occurrences in the artifact observation tool. I highlighted each question on the Teachers' Sense of Efficacy Scale to correlate to the related efficacy area. Efficacy in student engagement was highlighted in yellow. Instructional strategies efficacy was highlighted in blue. Classroom management efficacy was highlighted in pink. This highlighting provided a visual focus for the key concepts identified in each efficacy area. For example one question about student engagement efficacy asked "How much can you do to help your students think critically?" Content in the ten observed artifacts that related to questions in each efficacy area were highlighted in the corresponding color. If content related to multiple areas, highlights with the appropriate color to all areas were

included. If none of the three efficacy areas were noted, then a green check was placed on the artifact with the topic area it addressed noted.

The Teachers' Sense of Efficacy constructs of student engagement, classroom management and instructional strategies identified in the artifact content analysis were quantified by reviewing the colored highlights for each artifact then recording which efficacy area or areas it related to on the artifact observation tool. This content was also analyzed in relationship to user levels making initial posts. Analysis was further used to explore who, in terms of user level, was making contributions, such as replies to an initial post, to the Communities of Practice and what sort of content - documents, bookmarks, blogs, or discussions - they were contributing or viewing.

Coding Interviews

Following verification of accuracy by interview participants, interview transcripts were coded. A code book was used to record the codes and what they represented. The coding involved an initial read through of the interview using the same efficacy construct color scheme noted with the artifact coding. Sentences specifically related to an efficacy construct were highlighted. A second read through resulted in underlining key phrases or ideas that supported the efficacy construct. The key phrases were then listed and interpretive categories which could unite them were identified. These efficacy construct-specific categories included hands-on, FFA, ideas, examples, and organization. FFA is an intra-curricular organization for students enrolled in agricultural education classes.

I noted that there were large portions of the interviews which were not coded following the initial and second readings. Therefore I reread those portions of the interview and discovered their content related to either communities of practice use or

benefits or general concepts of efficacy that were not construct specific. As a result, I created another set of codes that included “I” for improvement, “P” for professional, “S” for social and “U” for use. I again read the interviews marking those codes next to related content within the transcript and bracketing the content. This coding resulted in the categories adaptable resources, answer, network, profession, search, and view.

Peer Review

Peer debriefing was conducted on three occasions to discuss emerging interpretive categories and findings. The first was face-to-face on May 29, 2012 with a neighbor level user who was not a study participant. The second was via phone with a university professor in agricultural education on June 14, 2012. The final peer debriefing was conducted face-to-face on July 10, 2012 with an NAAE staff member.

Qualitative Validity, Accuracy and Trustworthiness

External validity was ensured through the use of random selection of case study participants. The use of member checks for interview transcripts ensured accuracy. Multiple data sources provided triangulation. By consulting with colleagues in the field who were not participants in the study, the peer debriefing helped to enhance credibility and ensure validity.

Merging and Interpreting of Quantitative and Qualitative Strands

The final phase in this mixed methods study was the integrated interpretation of both the quantitative and qualitative data to identify the role of Communities of Practice in supporting instructional strategies, student engagement, and classroom management sense of efficacy. Once quantitative and qualitative data were collected and analyzed, the final research question of “To what extent does the quantitative data on perceived sense

of efficacy support the qualitative case study data about how teachers are using Communities of Practice to support instructional strategies, student engagement, and classroom management self-efficacy?” was addressed. Efficacy categories noted in the qualitative analysis were quantified so a comparison could be made with the quantitative results of perceived teacher sense of efficacy.

Chapter 4: Findings

A total of 47 agriculture teachers participated in a mixed methods study designed to determine the perceived sense of efficacy of teachers who use the National Association of Agricultural Educators (NAAE) Communities of Practice. These quantitative study participants, who were either neighbor or mentor level users, were surveyed to identify their demographics (years teaching experience, NAAE Communities of Practice user level) and perceived sense of efficacy in the constructs of student engagement, instructional strategies and classroom management. Four teachers from the quantitative study were selected to be interviewed as part of a case study which also involved analyzing the content of 60 postings in the community over a six week period. These postings were blogs, bookmarks, discussion posts, or documents. For the qualitative case study participants were interviewed to gain a deeper understanding of how they were using Communities of Practice to support efficacy areas. Additionally, Communities of Practice artifacts were observed and analyzed. Four research questions were used as the basis for the analysis.

Teaching Experience and Communities of Practice Use

Research Question 1 stated “How does length of teaching experience relate to Communities of Practice use?” Data to answer this question were compiled from the demographics portion of a survey e-mailed to National Association of Agricultural Educators (NAAE) Communities of Practice members during Spring 2012. Communities of Practice users in this study were defined as either mentor users or neighbor users based on points earned in seven criteria areas: posting or responding to a discussion; correctly answering discussion questions (as perceived by the person asking the question); creating

new documents; creating new blog posts; creating a new status update; and user’s content was “liked.” Mentor users have earned 101-300 points and neighbor users have earned 11 to 100 points. Table 2 describes participants’ agriculture teaching experience and their Communities of Practice user level.

Table 2

Agriculture Teaching Experience and Communities of Practice User Level

NAAE Communities of Practice User Level	# of Teachers	% of Experience Level
1 through 5 years’ experience		
Mentor User	7	43.8
Neighbor User	9	56.3
Total	16	100.0
6 through 10 years’ experience		
Mentor User	8	53.3
Neighbor User	7	46.7
Total	15	100.0
11 through 15 years’ experience		
Mentor User	2	33.3
Neighbor User	4	66.7
Total	6	100.0
16 through 20 years’ experience		
Mentor User	0	0.0
Neighbor User	4	100.0
Total	4	100.0
> 20 years’ experience		
Mentor User	2	33.3
Neighbor User	4	66.7
Total	6	100.0

No survey respondents were in the 21 to 25 years of teaching experience bracket while the largest number of respondents (16) had taught for five years or less. There

were no teachers with 16 to 20 years' experience in the mentor user category. In both the 11 to 15 year range of teaching experience and the more than 25 years range, neighbors represented two-thirds of the users. The greatest percent of mentor users were noted in the 6-10 year teaching range with 53.3% of the survey respondents. Figure 1 below further illustrates the relationship between years of teaching experience and user level.

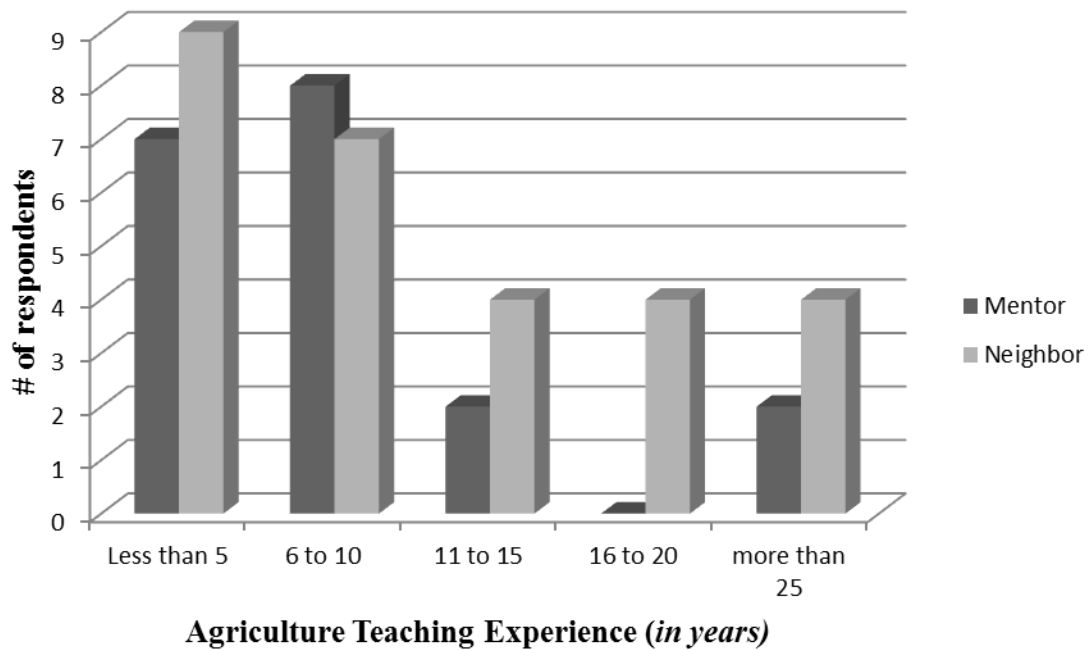


Figure 1. Agriculture Teaching Experience and Communities of Practice User Level

The majority of survey respondents had taught for ten years or less. In both the 11-15 year range of teaching experience and the more than 25 years of teaching experience, the number of respondents who were mentor users was the same with two respondents in each of those experience ranges. In each of the three teaching experience categories above ten years, there were four neighbor users who responded to the survey.

Perceived Sense of Efficacy and Communities of Practice Use

Research Question 2 asked “How does perceived sense of efficacy relate to Communities of Practice use?” This was answered by analyzing responses to the long

form of the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) which consisted of 24 questions. The mean and standard deviation of perceived teacher self-efficacy in each of the three construct areas- student engagement, instructional strategies and classroom management- were determined for neighbor level users, mentor level users, and both users combined. Table 3 summarizes the findings of the perceived sense of efficacy by both neighbor and mentor users.

Table 3

Comparison of Neighbor User and Mentor User Perceived Sense of Efficacy

Efficacy Area	NAAE User Level					
	<u>Neighbor User</u>		<u>Mentor User</u>		<u>Both</u>	
	Mean	S.D.	Mean	S.D	Mean	S.D
Student Engagement	6.33	0.89	6.51	0.89	6.40	0.89
Instructional Strategies	6.99	0.76	7.05	1.09	7.01	0.90
Classroom Management	6.91	0.71	6.95	0.96	6.92	0.81

Note: 1 = Nothing or no influence; 3 = very little; 5 = some influence; 7 = quite a bit; 9 = A great deal of influence

Sense of Efficacy in Student Engagement

For the purposes of this study, student engagement was defined by questions 1, 2, 4, 6, 9, 12, 14 and 22 on the long form Teacher Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001). The overall mean for perceived sense of efficacy in student engagement was 6.40, which falls into the range of teachers perceiving that they can have some influence to quite a bit of influence on student engagement with mentor level Communities of Practice users indicating a slightly higher sense of efficacy in this area (6.51 vs. 6.33 respectively). A one-way Analysis of Variance (ANOVA) of the mean sense of efficacy in student engagement between mentor

level and neighbor level Communities of Practice users (Table 4). With significance of .52 in student engagement, there is no statistically significant difference in how the mentor users and neighbor users perceive their efficacy in student engagement.

Table 4

ANOVA of Neighbor and Mentor User Student Engagement Perceived Sense of Efficacy

		Sum of Squares	df	Mean Square	F	Sig.
Student Engagement * NAAE User Level	Between (Combined) Groups	.334	1	.334	.420	.520
	Within Groups	35.766	45	.795		
	Total	36.100	46			

Note: $\alpha = .05$

Sense of Efficacy in Instructional Strategies

Instructional strategies sense of efficacy is determined by questions 7, 10, 11, 17, 18, 20, 23, and 24 on the Long Form TSES (Tschannen-Moran & Woolfolk Hoy, 2001). On average, both user levels perceived themselves to be able to have quite a bit of influence on instructional strategies, as indicated by the overall mean of 7.01 in that area. As with student engagement, mentor level Communities of Practice users perceive themselves to have a slightly higher sense of efficacy in instructional strategies than neighbor level Communities of Practice users (7.05 and 6.99, respectively). An ANOVA of the mean perceived sense of efficacy in instructional strategies again identifies that there is not a statistically significant difference in neighbor and mentor level NAAE Communities of Practice users (see Table 5). This is indicated by the significance value of .82 in the instructional strategies ANOVA analysis.

Table 5

ANOVA of Neighbor and Mentor User Instructional Strategies Perceived Sense of Efficacy

		Sum of Squares	df	Mean Square	F	Sig.
Instructional Strategies	Between (Combined) Groups	.043	1	.043	.052	.821
* NAAE User Level	Within Groups	37.195	45	.827		
	Total	37.238	46			

Note: $\alpha = .05$

Sense of Efficacy in Classroom Management

Questions 3, 5, 8, 13, 15, 16, 19 and 21 determine classroom management sense of efficacy on the Long Form TSES (Tschannen-Moran & Woolfolk Hoy, 2001). The overall mean of 6.92 in classroom management most indicates that survey respondents perceive they have quite a bit of influence in classroom management efficacy. As with student engagement and instructional strategies, the mean neighbor users perceived sense of efficacy was less than the mean of the mentor users (6.91 and 6.95, respectively). The ANOVA of neighbor and mentor users mean perceived sense of efficacy in classroom management identified a significance of .86 in classroom management. Therefore, as with student engagement and instructional strategies perceived sense of efficacy, there is no statistical difference in significance between neighbor level and mentor level Communities of Practice users' perceived sense of efficacy.

The variance in the classroom management means is not statistically significant as illustrated in Table 6.

Table 6

ANOVA of Neighbor and Mentor User Classroom Management Perceived Sense of Efficacy

		Sum of Squares	df	Mean Square	F	Sig.
Classroom Management * NAAE User Level	Between (Combined) Groups	.021	1	.021	.031	.860
	Within Groups	30.440	45	.676		
	Total	30.461	46			

Note: $\alpha = .05$

In summary, noting the small F values presented in the analysis of each of the three efficacy constructs, it can be concluded that there is not a significant difference in perceived sense of efficacy between neighbor level and mentor level Communities of Practice users.

Using Communities of Practice to Support Efficacy Constructs

The third research question asked “How are agriculture teachers using Communities of Practice to support and develop their self-efficacy?” An analysis of qualitative data explored the self-efficacy areas of instructional strategies, student engagement and classroom management. During a six week time period in late May and June 2012, weekly Thursday night scheduled observations of the NAAE Communities of Practice homepage were used to collect artifacts. The first ten items composed of bookmark, blog, discussion, or document postings, listed on the Communities of Practice homepage were observed. During this same time period, interviews were conducted with the two randomly selected participants from the mentor user Communities of Practice

level and the two randomly selected participants from the neighbor user Communities of Practice level. As the study progressed, one of the limitations discovered was that if users were part of a private place on Communities of Practice, their postings were not visible to me unless I was also in that private place. Postings in private places are only visible to other users who are members of that specific place. A “place” is a location where postings can occur within the community reflecting a specific content or focus area.

Communities of Practice Postings, Views and Replies by User Level

When observing artifacts in communities of practice, posts made by all six user levels were observed. The rationale for this was that posts made by a user level not studied (i.e. TopCoP, Hero, Champion, or Citizen) could have been commented on or viewed by a neighbor or mentor user.

Initial posts on Communities of Practice. Each weekly artifact analysis involved reviewing the first ten items which appeared on the NAAE Communities of Practice homepage and identifying the type of post the initial item was (i.e. bookmark, blog, discussion, or document). When a post is commented on, it returns to the top of the list. Therefore, an initial post could have been made in December 2011 but a comment in May 2012 would return it to the forefront of the listings. Initial post was identified by the earliest date or title on the posting.

Type of post was identified through the icon located next to the posts. Globes represented bookmarks. Speech bubbles indicated discussion. A newspaper depicted a blog and a small document indicated documents. The user level making the post is identifiable by the number of red bars below a user’s name. This ranges from no bars for

a citizen user to six bars for a TopCoP level user. Figure 2 identifies the number of total initial posts made by each NAAE Communities of Practice user level as well as the type of post that was made by each user level.

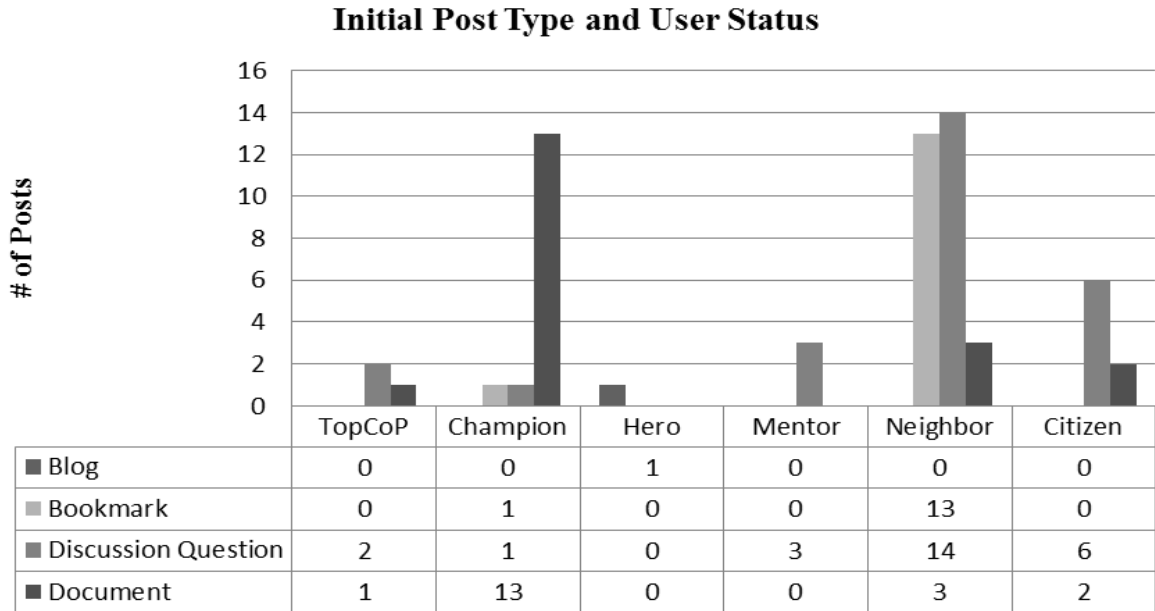


Figure 2. Initial Post Types and User Status Level

During the observation period, neighbor users posted 13 bookmarks to websites and 14 discussion questions seeking answers from other users. This represented more post in those areas than any other user level. Overall, neighbor users posted more content (e.g. combined bookmarks, discussion questions and documents) than any of the other user levels. There were only three initial posts created by mentor users during this time period.

Figure 3 further illustrates the large proportion of initial posts made by neighbor users to Communities of Practice in comparison to other user levels. At 52% of the total, neighbor users made more initial posts than the other five user areas combined. The next largest area was the champion user level which posted 15 total posts representing 25% of the initial posts.

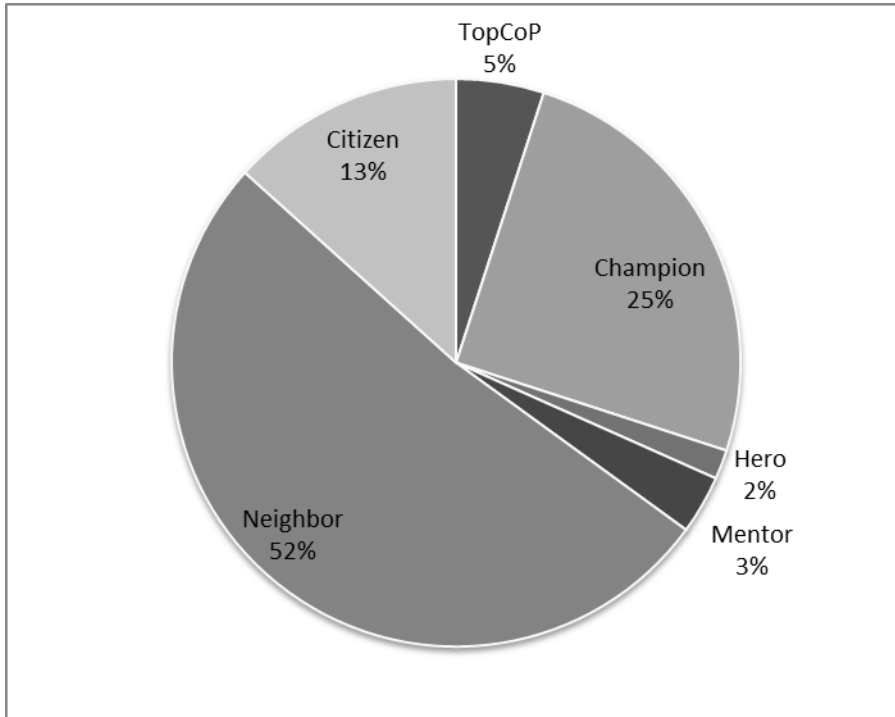


Figure 3. Communities of Practice User Level Making Initial Posts

Reply posts on Communities of Practice. Replies to postings on Communities of Practice were also observed. A reply was identified as any comment that was made on a post. Any user level is able to reply to a post. If a single user (ex. Mary Smith) replied to a post more than once, his/her user level was not recorded multiple times. Figure 4 indicates the user level replying to posts.

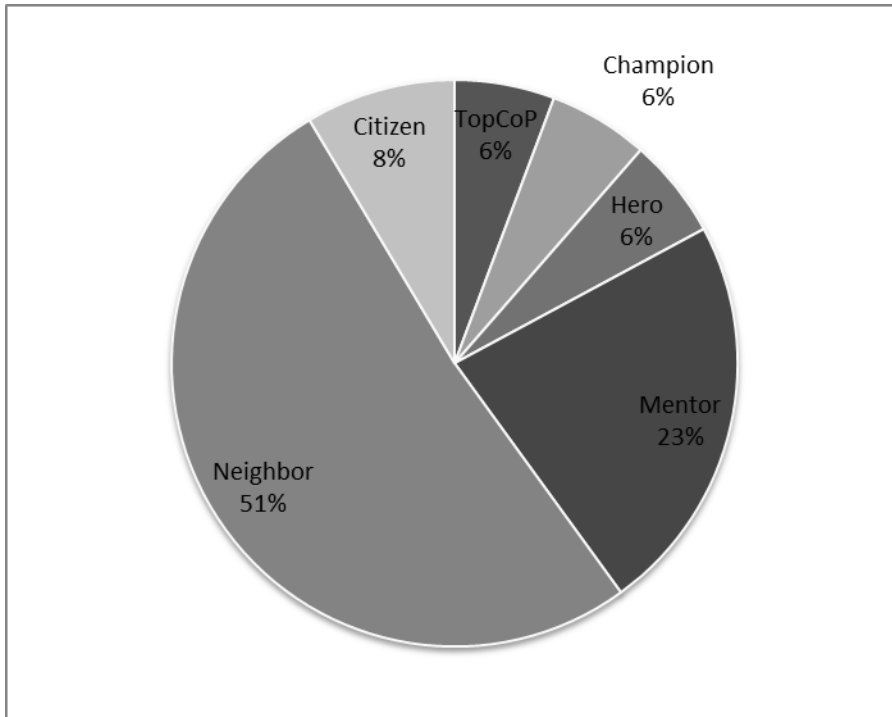


Figure 4. User Levels Replying on Communities of Practice

Just as neighbor users comprised the majority of users making initial posts on Communities of Practice, they also represented the majority of people who replied to posts. They replied to more posts than all of the other user levels combined. Mentor users made up almost one fourth of users replying to posts.

Analysis of interviews. A total of four participants (two mentor users and two neighbor users) were interviewed during the case study. One of the questions asked

during the interviews was “What sort of information do you contribute to Communities of Practice?” Neighbor User A identified that he has replied to his own questions when he “didn’t really get the response he was hoping for” from other members of the community and believed he found a way to address the topic he was asking about.

Neighbor User B expressed that she replied when “there are certain things I feel like I can answer or give ideas to.” Mentor User B noted that he replies to items on Communities of Practice “if it is relevant to my curriculum and I’ve got a good answer.”

Replies vs. views on Communities of Practice. There was a difference in how many people were replying to posts and how many people were viewing posts as evidenced in Table 7. More people were viewing posts than were replying to posts. For example, in the sixth observation, nearly 100 times more people viewed the posts as replied to the posts.

Table 7

Comparison of Average Post Replies and Average Post Views During Each Observation

Observation #	Average Post Replies	Average Post Views
1	0.6	45.2
2	0.1	7.2
3	1.6	192.3
4	0.8	116.6
6	0.44	42.9
Overall Average	0.708	80.84

Note: Observation 5 has no data recorded as the ten posts observed during that week were all bookmarks. Bookmarks do not offer an option for replies or provide a tally of post views.

Although the user level of people replying to posts could be noted, the user levels viewing posts is not evident as just a total number of views is recorded. In all cases, more post views happened per week than post replies. This observation is supported by the “View” interpretive category which emerged from interview statements. Although different phrases may be used to identify viewing items - Mentor User A described “trolling,” Mentor User B identified he has “browsed over some things” and Neighbor User B mentioned that she likes to “look and see”- the essence of Communities of Practice users viewing materials yet not replying is apparent. Neighbor User A expressed that because of viewing content and getting ideas from the community, “I probably take more from it than I give to it.” This taking of ideas is achieved through viewing whereas giving could be achieved through posting and replying.

Support of Efficacy Areas through Communities of Practice Posting

Each type of post - blog, bookmark, discussion, and document - was analyzed for what self-efficacy area, if any it addressed. Some postings were found to address more than one area. More than one area being addressed was substantiated if items on the Teacher Sense of Efficacy Scale for multiple efficacy areas were noted in the post. There was only one blog posting and it focused on professional growth. The following figures identify the type of posting and which self-efficacy areas were addressed during the case study.

Bookmark postings. Fourteen total posts were bookmarks. The largest component of bookmark postings, representing 5 postings total, addressed areas other than self-efficacy areas. These included professional growth, farm risk, program funding and young farmers. Student engagement self-efficacy was the largest single efficacy area

represented in bookmark postings, yet independent of other factors it was only addressed in two bookmark posts. Student engagement self-efficacy was also addressed along with instructional strategies and as a component of all three areas identifiable in some bookmark postings. Classroom management self-efficacy was not individually addressed by any of the bookmark postings. (See Figure 5)

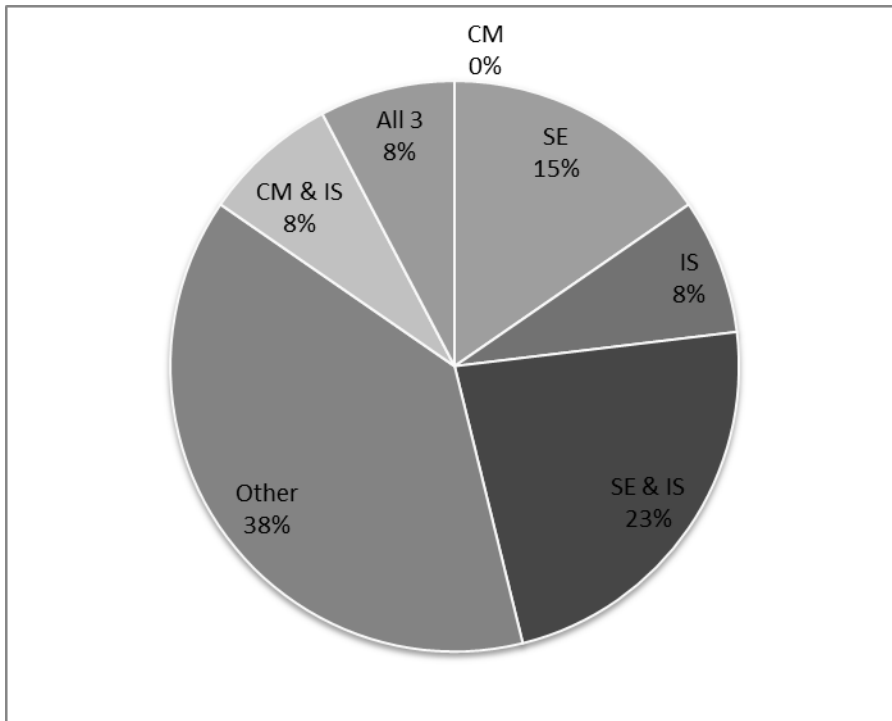


Figure 5. Self-Efficacy Areas Identified in Bookmark Postings. CM = classroom management; IS = instructional strategies; SE = student engagement; SE & IS = student engagement and instructional strategy; CM & IS = classroom management and instructional strategies; All 3 = classroom management, instructional strategies & student engagement

Discussion postings. Twenty-six of the total 60 posts reviewed were discussions, as indicated by the speech bubble next to the posting. The seven posts addressing the combined self-efficacies of student engagement and instructional strategies represented the greatest percentage (26%) of discussion posts. This was followed by instructional strategies self-efficacy independently, as well as other areas which did not include the self-efficacy constructs. Both of these areas had six posts each. Other areas in discussion posts included pictures posted with identification questions, facilities planning and funding, and social media. Classroom management self-efficacy was addressed independently in two of the discussion postings. As with the bookmark postings, posts including both classroom management and instructional strategies self-efficacies were present. (See Figure 6)

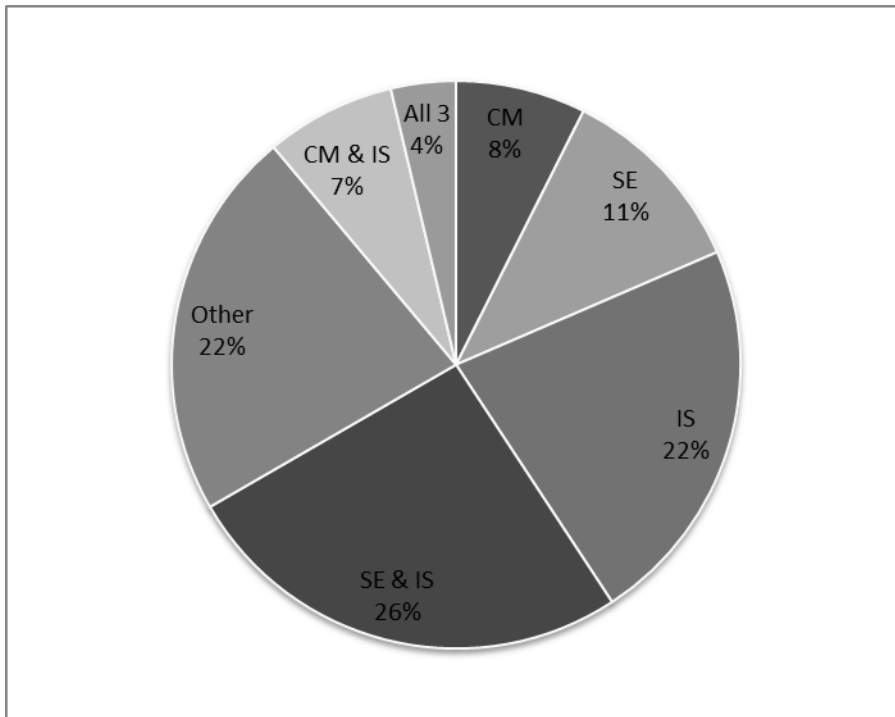


Figure 6. Self-Efficacy Areas Identified in Discussion Postings. CM = classroom management; IS = instructional strategies; SE = student engagement

Document postings. An overwhelming majority of the documents posted (16 out of the 18 total) addressed either instructional strategy self-efficacy independently or instructional strategies coupled with student engagement. Other areas addressed in posted documents included professional organization membership and an introduction to agriculture teachers in South Korea. Classroom management self-efficacy was not addressed at all in document postings. (See Figure 7)

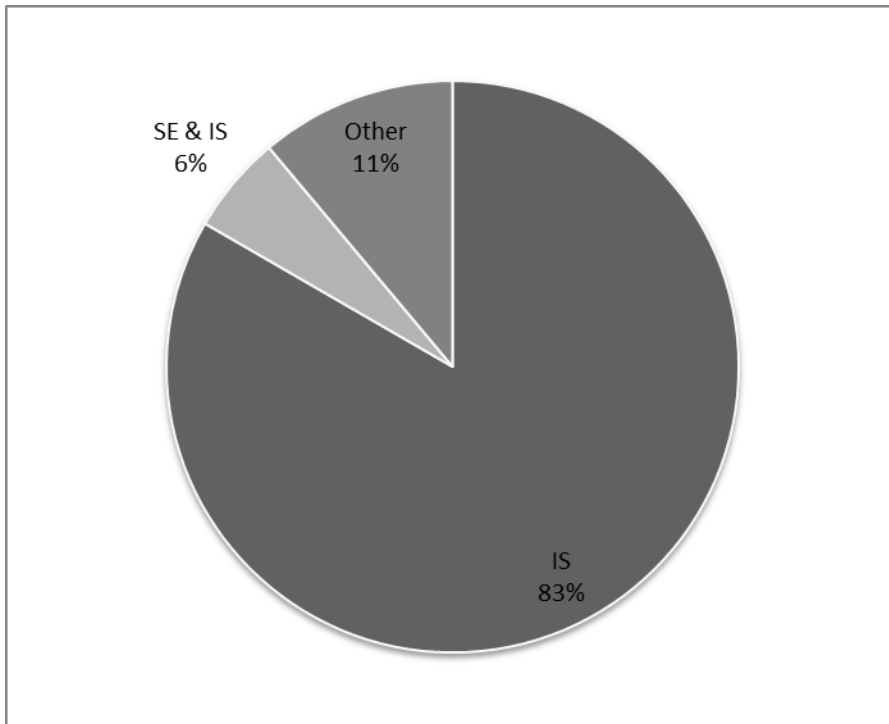


Figure 7. Self-Efficacy Areas Identified in Document Postings. IS = instructional strategies; SE & IS = student engagement and instructional strategy.

Communities of Practice User Level and Self-Efficacy Areas Addressed by Postings

Initial postings on Communities of Practice were also analyzed for the user level making the post and the self-efficacy area the post addressed. (See Figure 8) The greatest percent of neighbor user postings (29%) addressed areas other than the three efficacy constructs. The other areas, which represented nine of the 31 neighbor posts, included social media, facilities, farm risk and funding. The next largest area addressed in neighbor user postings was instructional strategy self-efficacy (19%) as well as student engagement combined with instructional strategies (19%). Both of these areas were represented in six posts. Classroom management self-efficacy content, with one post, represented the smallest percentage of postings at 3%.

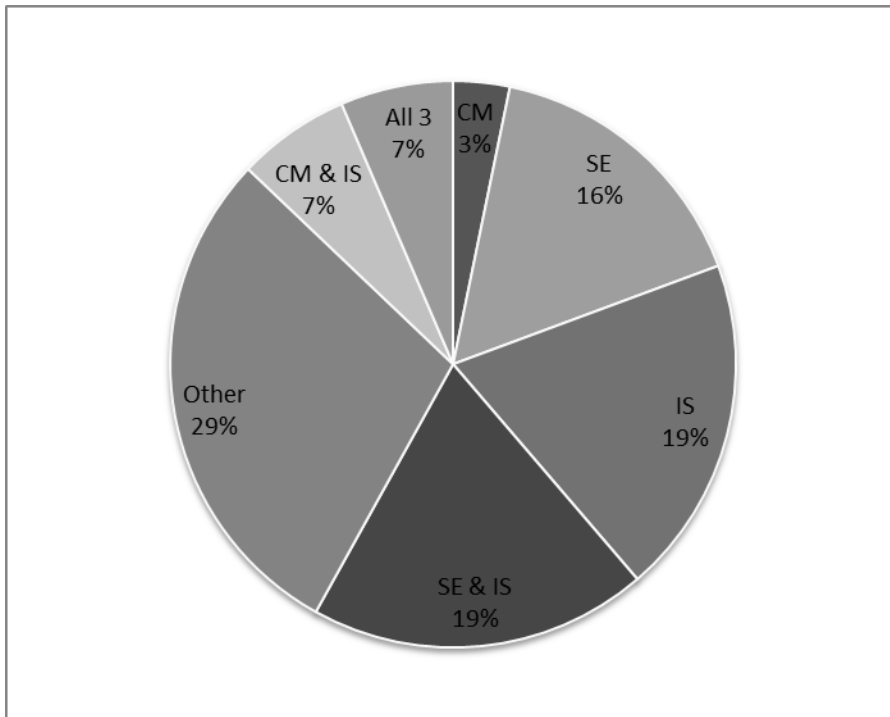


Figure 8. Neighbor Users and Self-Efficacy Areas Addressed in Initial Postings. CM = classroom management; IS = instructional strategies; SE = student engagement

Neighbor User B supported the claim that most of the postings include instructional strategies and/or student engagement self-efficacies through her comment about her own posting where she identified that “If I have a lab or activity that has worked really well with my students, I post that on there.” Her statement “I haven’t had issues with student behavior so it hasn’t helped me there.” supported why there may be limited postings related to classroom management self-efficacy.

All of the mentor user postings involved instructional strategy self-efficacy in some way. However, during the observation time periods, the 60 observed posts had only two mentor postings. Half of the postings involved instructional strategy self-efficacy independently and the other half instructional strategy self-efficacy coupled with student engagement self-efficacy. Classroom management self-efficacy was not addressed at all by mentor users in their initial postings during the observation period.

The lack of classroom management posts by mentor level users is supported by Mentor User B’s reply to the interview questions related to classroom management issues. Mentor User B expressed that classroom management can be a “very individualized thing,” but did not identify that he shared content related to the classroom management self-efficacy area.

When identifying what they post on Communities of Practice, Mentor User A identified content based materials and FFA documents. She expressed she puts them on Communities of Practice because she “enjoy(s) putting those kinds of things together and I know other people don’t.” Documents such as this support the instructional strategies self-efficacy area. Mentor User B discussed posting “things people might need.” Aligning this with his concept of viewing classroom management as an individualized

thing, it might be possible that Mentor User B does not share classroom management content on Communities of Practice because of this belief.

Self-Efficacy and Communities of Practice Content as Identified through Interviews

When analyzing the interview transcripts of both the neighbor and mentor Communities of Practice users, common interpretive categories arose related to Communities of Practice supported self-efficacy constructs and the value of communities of practice as a whole. Table 8 identifies the frequency of interpretative categories related to self-efficacy. Categories related to the construct of student engagement self-efficacy included hands-on and FFA. Ideas and examples were categories noted most frequently with instructional strategies self-efficacy. The main category noted when questioned about classroom management self-efficacy was organization.

Table 8

Frequency Table of Interpretive Categories Noted in Interviews Related to Sense of Efficacy Constructs

<u>Student Engagement</u>	
<i>Interpretive Category</i>	<i>Frequency</i>
Hands-on	9
FFA	6
<u>Instructional Strategies</u>	
<i>Interpretive Category</i>	<i>Frequency</i>
Ideas	25
Examples	7
<u>Classroom Management</u>	
<i>Interpretive Category</i>	<i>Frequency</i>
Organization	5

Student engagement self-efficacy. Interview questions asked related to student engagement self-efficacy garnered responses that generated interpretive categories related to hands-on activity and the agricultural education student organization, FFA. With their ability to provide “meaningful experiences” for student, the “tried and true resources” on Communities of Practice are something Mentor User A identified as an asset of Communities of Practice related to student engagement self-efficacy.

Hands-on activity. Student engagement through hands-on activity was noted by both neighbor users and mentor users as a reason to look for material on Communities of Practice.

NEIGHBOR USER A: There are a lot of different ideas on there of how to present content. You know, not giving them notes and reading materials if I can help it. I think that helps the hands-on learner, you know the kinesthetic learner, a lot better.

MENTOR USER A: I am one of those teachers who struggle with creative hands-on ways to instruct things, so usually I am looking for items to augment the curriculum.

Noting that several people who are fresh out of college know how to do “notes and lectures and quizzes,” Mentor User A identified that Communities of Practice helps to get ideas that “really appeal to the broader audience.” Related to hands-on activities, Neighbor User A also noted that he tried to find ideas on Communities of Practice that will engage his students with projects that are interesting and not expensive.

FFA. Along with classroom instruction and supervised agricultural work experience, FFA is considered to be an integral part of a complete agricultural education program. FFA is an organization for students who take agricultural education classes. Based on the Teachers’ Sense of Efficacy Scale including a question within the student engagement construct that addressed motivation, one interview question asked was

“What areas of communities of practice do you use or posts do you look for to help motivate your students?” FFA was commonly included in replies.

NEIGHBOR USER B: I look for something with FFA, helping students become more active.

MENTOR USER A: FFA, leadership and officer items regularly. There are people across the country with great ideas for chapter activities and officer activities out there.

In the closing interview question where case study participants were asked to share something they felt I hadn't asked, Mentor User A replied “It's the things I have pulled off of there [Communities of Practice] and the advice you receive and the encouragement from other teachers and the neat activities that really help to motivate the students.”

Instructional strategies self-efficacy. Instructional strategies self-efficacy includes concepts such as questioning, differentiation and assessment. Categories related to ideas and examples were apparent in replies to interview questions related to self-efficacy in this area, however, the interviewees' views of Communities of Practice and assessment varied.

Ideas. Neighbor User A admitted that he hadn't given much thought to how he used Communities of Practice to help adjust lessons to different learning styles until I posed the question. After pausing to think, he identified how Communities of Practice helps.

NEIGHBOR USER A: The thing is giving different ways of how to present content. A lot of different ideas on how to present information.

NEIGHBOR USER B: It just gives you more ideas. You know more ideas that may not be for a specific learning style but maybe I can try this or this or this.

MENTOR USER A: You absolutely get ideas for incorporating reading and math and science.

MENTOR USER B: People have different ideas. People have different things that they do.

All of the case study participants identified that Communities of Practice is a place to get ideas to help adjust to different needs students may have.

Examples. Another area related to instructional strategies self-efficacy that emerged as a category was examples.

NEIGHBOR USER B: I like to look and see other people's examples of unit outlines, some labs and ideas and worksheets once and a while.

MENTOR USER B: If I can pull examples off of communities of practice of things that don't necessarily fit my learning style then, all of a sudden you know, here I sit. I don't have to try and think like someone else to make that. I can provide students examples of solid work.

Assessment. Assessment is an area of the instructional strategy self-efficacy for which neither of the neighbor users interviewed appeared to use Communities of Practice. When asked the interview question "Where on Communities of Practice have you found resources to help you with assessment strategies?" Neighbor User B identified that "there are certain things my district wants me to incorporate so I go with that." Mentor User B supported the concept of not utilizing Communities of Practice for assessment when he admitted "I haven't gotten much of that [assessment] on there [Communities of Practice] and haven't even browsed much of that." Conversely, Mentor User A expressed that she finds resources to develop assessment strategies "everywhere" on Communities of Practice and that "even if you have to modify it a little bit, you are not expending energy to come up with the skeleton yourself."

Classroom management self-efficacy. Classroom management self-efficacy interview questions addressed disruptive behavior, rules, routines and related strategies. When asked about using communities of practice to assist with challenging student behaviors, Communities of Practice Neighbor User A immediately made the connection between that and classroom management then expressed “I don’t know that there is really a whole lot of them [posts on Communities of Practice].” Mentor User B admitted “I haven’t gotten much of that on there [Communities of Practice] and haven’t even browsed much of that.” Mentor User B’s statement is supported by the artifact analysis that identified only two of the 60 posts analyzed during this study related specifically to classroom management and an additional five postings combined classroom analysis with the other efficacy constructs.

Organization. Organization helps to contribute to a classroom routine, part of the classroom management self-efficacy construct. When asked questions related to classroom management, case study participants did identify how their own organization was assisted through using Communities of Practice.

NEIGHBOR USER B: – It has given me some classroom management tools as far as organizational tips and things like that. But mostly not the behavior stuff.

MENTOR USER A: You know organization seems like an issue for every ag teacher I know so there is always organizational ideas or how you can manage things. Day to day organization I would say that is the biggest thing that has changed in my classroom because of what I have found on Communities of Practice.

Based on the replies, it seems that student behavior and discipline is not something that users seek out on Communities of Practice. However, organizational strategies which help with classroom routine appeared to be a facet of classroom management self-efficacy where Communities of Practice was consulted.

Additional Interpretive Categories That Emerged From Interviews

Additional interpretive categories related to Communities of Practice emerged from the interviews. These categories were derived from the additional areas which were coded in the interview transcript reading which followed the initial coding for efficacy areas. These codes included “I” for improvement, “P” for professional, “S” for social and “U” for use. The categories included usable resources, search/ find, answer, profession/ professional, and network. Table 9 identifies the frequencies of the categories and the coding areas they relate to.

Table 9

Frequency Table of Additional Interpretive Categories Noted in Interviews

Interpretive Category	Frequency	Coded Area
Usable Resources	36	Use
Answer	7	Use
Search	2	Use
Profession/ Professional	7	Professional
Network	5	Social

Although a code for improvement was created, teacher related improvement appeared just once in a statement where Neighbor A expressed “the biggest thing that keeps me coming back is that I am always trying to improve myself.”

Usable resources. The interpretive category of usable resources emerged and was identified on 36 occasions. Phrases included in this category were reinventing the wheel (2 occurrences), resources (9 mentions), and ideas (25 mentions).

Both neighbor and mentor users identified that a reason they go to Communities of Practice is so they don’t have to reinvent the wheel when creating materials for their classroom.

NEIGHBOR USER A: I think one of the biggest things about being a teacher is of course you don't want to reinvent the wheel and if there is other people that have already done something that you are looking to do, you might as well beg, borrow, and steal it. Communities of practice is a great avenue for that.

MENTOR USER A: I thought before I start reinventing the wheel and start from scratch, I posted something about it and "Hey what do other people have that would work for hands on activities for you know a five day seminar course." It was within a couple of hours that I had a lot of just fantastic ideas and resources and all of them worked and they were great and tested already.

Users acknowledged that they search for and find resources on Communities of Practice.

NEIGHBOR USER B: I use it because it is a nice easy place. It's a great resource.

MENTOR USER A: It was tried and true resources that kids really got into the lesson.

MENTOR USER B: If don't have good resources to be able to teach it [a unit or lesson] or something that I like, I'll go to communities of practice to see if someone has got something posted that I can use or pretty quickly modify and that way I am not spending hours staring at my computer screen trying to find good ways to teach it.

A neighbor user and a mentor user identified that they might find ideas that they don't initially use, but know that they have come from Communities of Practice.

NEIGHBOR USER A: I've looked through some ideas. You know it might give you an idea. Spur something else. You know I could do that and add to it this and that.

MENTOR USER B: I browse things. I don't always remember where I get my ideas but I had probably seen it on Communities of Practice at some point.

Answer. Answer appeared as an interpretive category mainly in regard to users Communities of Practice contributions.

NEIGHBOR USER A: When I see questions that I can answer or I can give feedback or ideas.

NEIGHBOR USER B: Sometimes there are questions about certain things that I feel like I can answer or give ideas to. That's where I contribute.

MENTOR USER B: There is not really anything that I don't touch if it is relevant to my curriculum and I've got a good answer then I'll respond.

In the case of both mentor users, answer also appeared as a reason why they use Communities of Practice.

MENTOR USER A: There's no other place that ag teachers can go to get, it's a one stop shop, you can get questions answered, curriculum and lessons that are helpful and the networking besides.

MENTOR USER B: It's also nice when you really do need something you've got an outlet you can go to where you know people will have answers almost immediately.

Search. Searching for content or concepts they needed was an important feature for the neighbor user case study participants.

NEIGHBOR USER A: You know the best thing is probably the search bar. You can throw something in there and come back with a bunch of ideas.

NEIGHBOR USER B: It's [Communities of Practice] a quick, easy search.

Profession/professional. The interpretive category profession and/or professional emerged in interviewing the mentor users but not when interviewing the neighbor users.

MENTOR USER A: By reading posts other people have about problems it makes you feel like you are not the only one to deal with something like that and also really encourages me to act and behave in a professional manner when dealing with those things.

MENTOR USER A: It's just such a rich source of information that is pertinent to our profession.

MENTOR USER B: Originally, I started using it as an outlet for finding resources. . . Now, it has really become more of a Professional Learning Community. You know a structured professional learning community in my opinion those are a major plus.

Network. Case study participants also identified the use of Communities of Practice as a network tool.

NEIGHBOR USER A: When you don't always have time to network with other teachers, you can network here and then your ideas build on their ideas.

MENTOR USER A: I think it is one of the reasons I have become a better teacher because I have gotten access to a network.

Although not specifically using the term network, Mentor User B alluded to the concept.

MENTOR USER B: It's an interaction tool in a nutshell I guess would be the easiest way to say it.

Putting Quantitative and Qualitative Data Together for Analysis

The final research question joined the quantitative and qualitative components of the study with the question "To what extent does the quantitative data on perceived teacher sense of efficacy support the qualitative case study data about how teachers are using Communities of Practice to support instructional strategies, student engagement and classroom management self-efficacy?" Since the ANOVA analysis identified that there was no significant difference between neighbor and mentor users in the three self-efficacy constructs, analysis in this response to the final research question focused on the mean self-efficacy value of both users combined.

Self-Efficacy Construct Support

When Communities of Practice users were not blogging or sharing bookmarks, the majority of posts on Communities of Practice involved the self-efficacy constructs studied with the quantitative survey. Forty-five posts during the observation period were discussion posts or documents posts, of which thirty-seven addressed at least one of the three efficacy constructs.

Student engagement. Student engagement self-efficacy had the lowest mean (6.4) for both neighbor and mentor users. However, analysis of posts on Communities of Practice revealed that half of the mentor user postings addressed student engagement although it was coupled with instructional strategies. Neighbor users also coupled student engagement with instructional strategies in their posts. The greatest percentage of discussion posts (26%) involved student engagement coupled with instructional strategies. Eighteen of the 60 posts analyzed related to student engagement in some way.

One of the insights gained from viewing the apparent discrepancy between the quantitative evaluation of student engagement where the lowest self-efficacy values were reported and the qualitative analysis where student engagement frequently appeared is that users may be looking to develop this self-efficacy construct. Discussion posts in this area tended to be discussion questions as opposed to statements. This suggested that users were seeking a way to enhance their skills in the student engagement area. Limited posts (5 out of the 60 observed) were made that addressed student engagement independently.

Instructional strategies Instructional strategies self-efficacy had the highest mean (7.01) for both neighbor and mentor users. This efficacy area represented 83% of document postings (15 posts). When viewed either independently or in combination with other efficacy areas, instructional strategies represented 89% of all document posts, 47% of all bookmark posts, and 59% of all discussion postings. All mentor user posts and over half of the neighbor user posts (16 of their 31 collective posts) included instructional strategies concepts.

Lock (2006) and Taylor (2008) expressed that the knowledge base created in Communities of Practice helps provide reflection and keep members up to date on trends. Based on the large proportion of posts related to the instructional strategies efficacy area, it is possible that members are using posts in this area as a way to reflect on an area they feel confident about as well as share what they are doing related to trends in the field of agricultural education. Sturko and Gregson (2009) identified that Communities of Practice provide a safe environment to share lessons and most of the instructional strategies content was lesson sharing. Members appear to be gaining this value from the Communities of Practice.

Classroom management. The mean value for classroom management self-efficacy (6.92) fell in a range where both neighbor and mentor users felt they had quite a bit of influence. However, mentor users did not address classroom management in any of the posts observed from them and neighbor users specifically addressed classroom management in only one of their posts. No bookmarks or documents addressed classroom management independently. Only two of the 27 observed discussion posts solely addressed this efficacy area.

Based on interviews conducted during the case study, half of the participants expressed that classroom management was personal or something they knew how to handle. Locke (2006) and Taylor (2008) expressed members might use Communities of Practice to seek improvement in practice. If users feel they are competent in this area and it is individualized, they may not feel a need to share.

Connections to Literature

Although not directly related to specific self-efficacy constructs, several of the comments case study participants made connected to the literature related to communities of practice or teacher self-efficacy in general.

Communities of Practice Moderator Role

One of the aspects related to communities of practice is the role that the moderator or facilitator plays in a community to help develop both the community and its members (Mitchell, Young & McKenna, 2007). Several of the comments Mentor User B made during his interview related to community strength.

MENTOR USER B: The groups that have very active moderators that are providing structure and taking the topics of conversation and feeding the direction of materials that get posted do very well. Without a strength of moderator, you aren't seeing a strength of resources and materials.

He acknowledged his experience with groups that did not have strong moderators and was able to note the differences between groups that had a strong moderator and those that did not. As a result, Mentor User B noted that he “really like(s) the private groups [places]” because they tend to have a little more structure from the moderator. This difference was also stated by Keown (2009) who acknowledged that strong online Communities of Practice are characterized by strong facilitation and nurturing dialogue.

Mentor User B noted a potential issue with moderator strength.

MENTOR USER B: When you look at the groups that have been very strongly moderated vs. the groups that haven't had that, examining those differences and kind of seeing the process.

The comments expressed by Mentor User B align with thoughts of both Taylor (2008) and Hur and Brush (2009) who stated that when members are actively engaged learning will occur and member capacity will develop. Moderators or facilitators as they

are called on the NAAE Communities of Practice can play an important role in helping members and the community develop.

Communities of Practice Breaking Isolation

The use of communities of practice to break isolation, as expressed by the United States Department of Education (2010), was seen not only through the networking category identified by the case study participants, but also through this statement from Mentor User A.

MENTOR USER A: “It’s nice to know how other people have handled it [problem or challenge in the classroom]”

Communities of Practice and Teachers’ Sense of Efficacy

Tseng and Kou (2010) noted that online communities can generate self-efficacy. A characteristic of self-efficacy is teacher improvement. Neighbor User A’s explanation of why he uses Communities of Practice supports this statement.

NEIGHBOR USER A: I am always trying to improve myself.

Vavasseur and MacGregor (2008) expressed that self-efficacy can impact whether or not teachers are involved in professional development. This concept was further noted by Henson (2001) who stated that teacher efficacy can impact whether or not teachers are seeking to expand their professional knowledge. The profession/ professional interpretive category that emerged from the interviews and the fact that the NAAE Communities of Practice is a tool that is linked under the professional development section of the NAAE website indicated that the relatively high self-efficacy ratings participants gave themselves can substantiate this claim.

Furthermore in the perpetuation of self-efficacy described by Tschannen-Moran, et. al (2008), self-efficacious teachers seek additional sources to increase their efficacy.

Communities of Practice users are searching for sources to improve their efficacy, as noted by the majority of posts (46 out of the 60 observed) related to efficacy constructs.

Communities of Practice and Diversity

Keown (2009) expressed that strong communities of practice have diverse membership. Although the NAAE Communities of Practice is for agricultural educators, the diversity of membership comes from the age and experience of the members. Teachers using the community ranged from less than five years to more than 25 years and ranged from 20 to 27 years old to older than 58. Gray (2004) stated that sharing between newcomers and experienced users was important to generating knowledge. The observation made while analyzing the posts and respondents which noted that the newest members on the community, citizens, were getting replies from some of the more experienced users, champions, and vice versa support this statement.

Summary

Mentor and novice users are participating in the NAAE Communities of Practice to support self-efficacy constructs. Although other content is discussed, the majority of posts observed related to the three constructs studied using the Teachers' Sense of Efficacy Scale - instructional strategies, student engagement and classroom management. The diversity of membership helps to support the knowledge sharing. Members use the community for a sense of networking and to improve their teaching.

Chapter 5: Conclusions and Implications

Teachers' sense of efficacy assists educators in developing and executing plans to handle events in their classroom and the school setting. Online communities of practice provide a virtual community for teachers to share ideas and gather feedback from colleagues in the same field even if they are not geographically near each other. At a time when online communities of practice as a means to support teacher development appear to be growing in popularity, a review of the literature revealed a lack of prior studies linking teacher self-efficacy and communities of practice. This study was designed to investigate links between use of the National Association of Agricultural Educators Communities of Practice and agriculture teacher self-efficacy.

The study purposes were to evaluate how NAAE Communities of Practice neighbor level and mentor level users perceived their sense of efficacy in student engagement, instructional strategies, and classroom management constructs and to identify how Communities of Practice users are supporting their self-efficacy through the community. Chapter 5 focuses on the conclusions and implications resulting from the mixed methods study conducted and provides detailed recommendations for future studies. Additionally, this chapter includes my personal comments on the change process and my personal leadership experiences during the study as well as implications for it in the future.

Teaching Experience and Communities of Practice Use

Analysis of the demographic survey answered research question 1: "How does length of teaching experience relate to Communities of Practice use?" A greater number of teachers with 10 years or less of teaching experience responded to the survey (N=31),

than those with 11 or more years (N=16). Teachers with 10 years or less represented 66% of quantitative survey respondents. The teaching experience level of the entire Communities of Practice population is not available through any source, so I was unable to ascertain if this was reflective of the community as a whole.

The large proportion of respondents in the 10 years or less of teaching demographic suggests that teachers newer to the profession are more likely to consult the community to search for ideas or pose questions to the community membership. This also could suggest that teachers with less teaching experience are more likely to use technology to support their practice. NAAE Communities of Practice began in 2007; therefore it has been in existence for five years. It is possible that teachers with more than ten years teaching experience have not gotten as much exposure to Communities of Practice. Exposure could come from hearing other teachers discuss using the community or attending workshops where Communities of Practice is presented. If teachers work in a single teacher department or rural area where they are isolated, it is possible that teachers with longer terms of teaching experience are not getting exposure to the community either because their network of colleagues has also not been exposed so therefore no dialogue is occurring about the Communities of Practice. Although Communities of Practice is online, if educators are not consulting the National Association of Agricultural Educators website, the existence of it may not be known to more veteran teachers.

Another possible explanation for the larger representation of teachers with ten years or less experience using the community could be that their teacher education program incorporated the use of the community during pre-service teacher training. The

fact that the largest number of respondents (N = 16) had less than five years teaching experience could imply that pre-service teachers are gaining exposure to Communities of Practice in their studies and continuing to use the tool upon graduation. Exploring this suggestion further by searching the Communities of Practice places for the phrase “University” returned places for student or pre-service teachers at The University of Idaho, Pennsylvania State University, and South Dakota State University. An additional search with the phrase “pre-service” returned the place called “Pre-service teachers.”

A majority of the respondents (N=28) were neighbor level users. With more neighbor users than mentor users on Communities of Practice as a whole, this response rate is reflective of the community. With the exception of teachers with 6-10 years of experience, all teaching experience levels had more neighbor users than mentor users.

The case study evidence of post views exceeding post replies could explain why there are more neighbor users than mentor users. Neighbor users have earned 11-100 points on Communities of Practice and mentor users have amassed 101-300 points. Points are not earned for viewing items on Communities of Practice. Points are earned by posting or responding to a discussion; correctly answering discussion questions (as perceived by the person asking the question); creating new documents; creating new blog posts; creating a new status update; or having content you posted as a user “liked.” As identified in the findings, often content was getting 100 times more views than it was getting actual replies. If users are viewing content but not replying to it or not using the option of clicking “like” by the post, the person who has posted the content will not earn points towards advancement to the next user level.

In completing the Case Study Participant Information form, Mentor A stated that she viewed Communities of Practice daily and added content two to three times per week. Mentor B identified that he was on Communities of Practice about every other week viewing posts and adding content. Neighbor A stated that he looked at the community every other week and added content every two months. Neighbor B was viewing the community at least once a week but adding content once a month. The lower frequency of content adding behaviors of the neighbor level users when compared to the mentor users supports the concept that if you are viewing content but not actively contributing, you will not earn points to advance to the next user level within Communities of Practice.

Recommendations for Future Studies

Gray (2004) noted the importance of sharing between newcomers to the teaching profession and those with experience. Evidence indicates that online communities of practice help reduce the sense of isolation for teachers (Scribner, 2003). It is also known that many agricultural educators teach in single-teacher departments so logically, sharing between educators of different experience levels can occur through an online community of practice. However, data from this study indicates fewer veteran teachers participate in the NAAE Communities of Practice. A future study on barriers to Communities of Practice use should be conducted to determine if there is a common barrier that could be overcome through professional development or other means. This study could include National Association of Agricultural Educators members who are not using Communities of Practice and a Likert style survey of reasons for why they are not using the

community. Once reasons for not using the community are determined, an action plan could be established to provide resources and support to help overcome those barriers.

A longitudinal case study should also be conducted to see if there is a change in teachers' Communities of Practice use from their early teaching career to later experience and if so, why. With pre-service teacher education programs incorporating NAAE Communities of Practice use, graduates of those programs would make ideal participants for the study. Every two years, participants should be surveyed and participate in short interviews that identify their frequency of and rationale for Communities of Practice Use. Questions on this survey should address if users are searching for specific content and if so do they stop using the community once the content is found; if their community use over time decreased and why; as well as address attrition from the profession of participants in the study. This study could help provide a greater understanding of why teachers with more than eleven years of experience were not as prevalent in response to the current study.

Perceived Sense of Efficacy and Communities of Practice Use

Data analysis from the quantitative Teachers' Sense of Efficacy Scale answered research question 2 "How does perceived sense of efficacy relate to Communities of Practice use?" Based on a one-way analysis of variance no significant difference existed between mentor or neighbor users and their perceived sense of efficacy. For student engagement self-efficacy, both neighbor and mentor user replies fell in the "some influence" to "quite a bit" range with mentor users being slightly closer to "quite a bit." Classroom management self-efficacy was just below that "quite a bit" score of 7 with mentor users again rating themselves slightly higher than neighbor users. The highest

self-efficacy construct mean for both user levels was instructional strategies where both were at the “quite a bit” level. Mentor users rated themselves higher in this area than neighbor users.

From the data, we can conclude that teachers tend to believe that they can have influence over all three of the self-efficacy constructs. However, none of the user levels identified that they have a “great deal” of influence. This response may be a result of the fact that TSES scores are self-reported and teachers may not want to rate themselves too high. This suggests that teachers may have a reticence to overrate themselves. This reluctance may come from humility or current feedback or public perceptions of educators. Teachers may have completed the survey at a time when they had just finished a positive day or class. As a result, the positive feelings could have carried over in response to the survey.

When responding to the TSES, neither user level indicated “very little” influence. In an era where merit pay and teacher accountability is being discussed, it is possible that teachers do not want to rate themselves too poorly in the event others might see this personally perceived rating and use it as evidence in decision making. Another possibility is that teachers who were not feeling self-efficacious opted not to take the survey.

Recommendations for Future Studies

Vavasseur and MacGregor (2008) indicated that collaborative online communities have the potential to increase teachers’ self-efficacy. This study looked only at teachers who were Communities of Practice users at a given point in time. Since study participants already rated themselves fairly high on the Teachers’ Sense of Efficacy Scale

(TSES), the possibility exists for two future studies to gain a greater understanding of online communities use on teachers' self-efficacy. A comparative quantitative study using the TSES should be conducted that involves Communities of Practice users and non-Communities of Practice users. Both groups of participants should complete the TSES at the start of the school year and then at the end of the year. The results of such a study would be able to identify if online communities do have an impact on perceived self-efficacy. If evidence from the study supports this, then strategies to engage more teachers in Communities of Practice could be pursued.

Another study should focus on individuals other than the teacher themselves to serve as raters of efficacy. At a minimum of three specified points during the school year, both the teacher and an outside rater should complete an efficacy evaluation in each of the three construct areas – student engagement, classroom management and instructional strategies. It would be important that the teacher and rater complete the evaluation at the same time since context can influence the response. Results would help to further identify if teachers are accurate in their self-appraisal of efficacy constructs, rating themselves lower than outside raters or providing a higher rating of their abilities.

Using Communities of Practice to Support Efficacy Constructs

A qualitative case study employing information forms, interviews, and Communities of Practice artifact analysis provided data to answer research question 3, which stated “How are agriculture teachers using Communities of Practice to support and develop their self-efficacy?” A majority of the initial posts (30 out of 60 observed) during the observation period were made by neighbor users. Mentor users only made two of the 60 of visible initial posts. It is important to note that participants may have been posting in a

private place available on the Communities of Practice site which is not visible to all Communities of Practice members. Mentor users indicated in their interviews that they actively engaged in the Curriculum for Agricultural Science Education place on Communities of Practice. As a result, additional content which might have supported the three efficacy construct areas – student engagement, instructional strategies, and classroom management – were not available to be studied.

Student Engagement Self-Efficacy

Artifact observation indicated that posts addressed the student engagement self-efficacy construct both independently and coupled with other efficacy constructs through bookmarks, documents, and discussions. For neighbor users, once ruling out content classified as other, student engagement coupled with instructional strategies represented the most (6 of 31 posts) efficacy based posts and student engagement alone (5 out of 31) the second most prevalent area. The two prevalent interpretive categories that emerged from the interview data related to the student engagement self-efficacy area were hands-on activity and FFA, the agricultural student youth organization formerly known as the Future Farmers of America.

The prevalence of posts relating to student engagement strategies suggests neighbor and mentor level users are not just viewing content on Communities of Practice in this area but also contributing content. Most of this content, 11 of the 17 student engagement related posts, was discussions. This suggests that participants were either asking a question about a concept that related to student engagement or sharing something with Communities of Practice that they had experienced in this regard.

The emergent category of hands on suggests that teacher were seeking ways to find tactile means to engage. They might be doing this to find ways to engage their students beyond solely relying on lecture or text. The FFA category implies that agricultural educators are using Communities of Practice to explore not just the classroom component of agricultural education but also the student organization FFA, which is an integral part of a complete agricultural education and involves competitions and community service outside of the scope of class. This use supports the concept that teaching has tasks that extend beyond the classroom (Labone, 2004; Shaughnessy, 2004). Since it was earlier noted that the majority of study participants, 31 out of 47, were Communities of Practice users with ten years or less of teaching experience, it is possible that these users are seeking to gain strategies to help them incorporate FFA into their overall agricultural education experience for their students. As indicated through the interviews, users might be seeking ideas for how to encourage members to get actively involved or how to encourage their officers to apply leadership skills.

Recommendations for future studies in student engagement. Since a majority of student engagement based postings were discussions, a qualitative analysis of all discussion posts made during a specified time period should be conducted. This analysis would serve to identify if the discussion posts were commentary or a question. This would help determine if members are using Communities of Practice as a means to share successes with student engagement strategies or to seek input from their peers. Additionally, strategies for student engagement could be identified to determine if hands-on was a category that appeared just in the sample used in this case study or is a prevalent content others are seeking in regard to student engagement.

Another student engagement related category was FFA. A qualitative study should be conducted to review how Communities of Practice is utilized to support and develop each of the three components of agricultural education – classroom instruction, FFA and supervised agricultural experience. This would help gain a richer understand of how Communities of Practice postings support the myriad of areas agricultural education encompasses and provide an overview of what areas either the most questions were being asked or the most content provided. The result of a qualitative study of this nature could help identify possible areas to deliver professional development in at regional and national conferences.

Instructional Strategies Self-Efficacy

In the two visible posts by mentor users, instructional strategies were addressed both alone and in conjunction with student engagement. Instructional strategies alone (6 posts) and instructional strategies coupled with student engagement (6 posts) were the largest self-efficacy area noted in neighbor user posts. Sixteen out of 18 document posts addressed instructional strategies. Instructional strategies appeared alone or in combination in 16 out of 27 discussion posts. Almost half of the bookmark posts also involved instructional strategies alone or combined with the other efficacy areas. The analysis of interview data revealed two emergent interpretive categories in the instructional strategies area: ideas and examples.

This suggests that based on their own confidence in their instructional strategies, mentor users are sharing those resources with others on Communities of Practice. This may be because they feel they have something to offer in this area. With 83% of all document postings related to instructional strategies, teachers are using this method to

convey instructional strategies more often than the other post areas. Since questions on the TSES related to instructional strategies include the concept of adapting lessons, it is logical that a means of sharing instructional strategies would be to post documents used when teaching. While examples appeared as a category in interviews no examples of student work were seen on Communities of Practice during the time that posts on the site were being observed. One possible explanation is that teachers shared examples in private places or at times other than when the research was conducted.

Recommendations for future studies in instructional strategies. Based on the involvement mentor users said they had in private places on Communities of Practice coupled with the interpretive category of examples being identified through interview analysis but not substantiated through Communities of Practice artifact observations, a study where access to private places in NAAE's Communities of Practice is granted to explore how they function as compared to and in conjunction with the Communities of Practice as a whole is warranted. This study might help identify where Communities of Practice users are seeking specific content and why materials are being shared in private places and not available to all community members. Possible reasons might include curriculum certification, copyright issues, state needs or other aspects. This would help to identify why instructional strategy interpretive categories noted in interviews are not visible. Depending on the rationale for privacy of the place, the study might provide rationale for the place to be opened or promoted to a larger membership.

Classroom Management Self-Efficacy

Mentor users did not post items related to classroom management and just one out of 31 neighbor user posts related solely to this area. No documents were posted about

classroom management. Both bookmark posts related to classroom management coupled it with at least one of the other self-efficacy construct. The greatest number of posts related to classroom management self-efficacy either alone (2) or with the other constructs (3) were presented as discussions. This suggests that Communities of Practice users are not using the community as a forum to address classroom management issues and if they are, it is most likely that classroom management will be addressed in conjunction with another efficacy area. This may be because both neighbor and mentor level users identified themselves as having “quite a bit” of classroom management sense of efficacy and through interviews this seemed to be a fairly personal concept. It is a logical suggestion that if classroom management is viewed as a personal issue a user is not likely to share it in a public community.

An analysis of interview replies identified organization was the main category that emerged in response to questions related to the classroom management area. This suggests that Communities of Practice is being used as a tool to share organization strategies, but not specific student behavioral issues. This might be because behavioral issues are seen as a personal issue a teacher needs to handle on their own and not share with others whereas organization is perceived as a less personal subject where one could seek support.

Recommendations for future studies on classroom management. With the limited number of postings related to classroom management on Communities of Practice, a study should be conducted to determine where agriculture teachers are seeking support and advice on classroom management. This study might identify options for support including colleagues in same district, a teacher mentor, an administrator, not

seeking support, etc. The results of the study might identify if classroom management is a more locally based issue to address and seek feedback on as well as if this is an area teachers are seeking to develop at all. Additionally, existing studies in regard to classroom management could then be compared to agricultural educator classroom management and perceived efficacy in the area.

Putting Quantitative and Qualitative Data Together

Research question 4 was answered by analysis of both quantitative and qualitative components of the study. Question 4 asked “To what extent does the quantitative data on perceived teacher sense of efficacy support the qualitative case study data about how teachers are using Communities of Practice to support instructional strategies, student engagement and classroom management self-efficacy?” Overall, when Communities of Practice users were not blogging or sharing bookmarks, the majority of posts on Communities of Practice involved the self-efficacy constructs studied within the quantitative survey. Only 14 of the 60 total posts addressed an area other than student engagement, instructional strategies or classroom management.

The large proportion of posts related specifically to self-efficacy constructs could be attributed to the fact that Communities of Practice is hosted by the National Association for Agricultural Educators and therefore, the individuals posting are educators who are interested in finding ways to engage their students, seeking instructional strategies or determining methods of classroom management. It is also likely that since a professional organization hosts the community that users might feel that content not related to students or instruction is not relevant content to post. Another reason content may have addressed the efficacy areas is because agriculture teachers

might not have colleagues in their school familiar with the content and engagement challenges (for example getting students involved in FFA) they might face or expertise they might seek as an agricultural educator so they are seeking input from individuals in more similar situations.

Student Engagement

Although the mean participant rating (6.4) in student engagement self-efficacy was the lowest of the three construct areas, student engagement comprised a large portion of the content addressed for both mentor and neighbor users on Communities of Practice. Six of 13 bookmarks linked to content that included student engagement concepts and 11 of 27 discussion posts were related to student engagement alone or in combination with other constructs. However, the only document posting related to student engagement was in combination with instructional strategies.

Although student engagement self-efficacy had the lowest mean, it was still within a range where teachers believe they have some influence to quite a bit of influence. This suggests that as a result of perceiving themselves as having influence in this area, Communities of Practice users are willing to post content related to the student engagement construct. The large portion of bookmark posts that related to student engagement suggests teachers are seeking to share resources they have seen about engaging students. This might be because as a result of rating themselves lowest in this area, they are aware of the need to improve and willing to share what they find with others. Discussion posts can be questions to the profession seeking an answer. The large proportion of student engagement related posts in the discussion area suggests that teachers are seeking input from their colleagues to strengthen this efficacy area. This

could be as a result of challenges they have faced with student engagement or a desire to share strategies that might have worked for them.

Instructional Strategies

Instructional strategies self-efficacy was the area teachers gave themselves the highest rating in (mean 7.01). This area was addressed in all mentor user posts and nearly half of the neighbor user posts during the observation period. This construct was seen either alone or with at least one other construct in in a majority of the content in discussion, document and bookmark posts. This suggests that perceived sense of instructional strategies self-efficacy, which fell in the quite a bit of influence range, gave teachers the confidence to post content related to instructional strategies. Grossman, Wineburg and Woolworth (2001) stated that educational innovations are related to community. With a perceived strength in instructional strategies, teachers might have been more willing to sharing their content with the community. A possible desire to continue to improve might have resulted in teachers browsing to learn about the innovations of others and then feeling encouraged to post content of their own.

Recommendations for future studies

This study involved a 6-week observation period of posts and replies on NAAE Communities of Practice and focused on two user groups (neighbors and mentors) in the case study. A study of a longer duration should be conducted. This study might focus on start of the school year, mid-year and end of year observations using an artifact observation tool similar to the one I constructed. This would help determine if timing of the observation influenced the efficacy constructs observed. By determining if content from a certain efficacy area is more frequently posted or sought during specific times of

year, community facilitators might be better able to moderate their community to address the needs noted.

Additionally, a quantitative study should be conducted to explore why users are posting. The results of my findings lead me to hypothesize potential reasons however a study which explores why users post might help better explain the rationale for the large number of posts related to the constructs of teachers' sense of efficacy, as well as address if a teacher's motivation influences their posting.

Additional Interpretive Categories That Emerged

In addition to the interpretive categories that emerged within the self-efficacy construct areas, other categories emerged through interviews of the case study participants. The three interpretive categories which emerged in this regard, based on frequency of observation use, were profession/professional, and social. All of these interpretive categories validate reasons suggested in the literature review for using online communities of practice: gaining new knowledge and skill (Grossman, Wineburg & Woolworth, 2001); social connections provide support (Brooks, 2010); ongoing, convenient professional development (Vavasseur & McGregor, 2008; Keown, 2009); and just in time problem solving (USDE, 2010). This suggests online communities of practice can help teachers find tools to support their craft when and where it is convenient to them. As a result, teachers will be able to engage in the cycle of self-efficacy development at times convenient to them.

Recommendations for Future Studies

A mixed methods study using the additional interpretive categories identified is proposed to explore how teachers are using communities of practice to network, gain new

knowledge and skill, engage in professional development, and collaboratively design resources. This proposed study would help to compare and contrast the agricultural education community use with the benefits already identified in the education literature. This study could also be designed as a comparison on communities of practice that are provided by varied professional organizations for teachers to ascertain whether or not differences exist in communities of practice use between different professions.

A study addressing the use of social media tools such as Facebook, Twitter, and Pinterest, to help compare how teachers are using these Web 2.0 media to support the aforementioned concepts in addition to or instead of professional organization provided communities of practice is also suggested. Leiberman and Mace (2010) argued that “the teaching profession needs to open doors literally and metaphorically to share the wisdom of practice online” (p. 86) and note tools including Facebook, MySpace and Twitter as an avenue to accomplish this. A study such as this, addressing the myriad of Web 2.0 tools and how teachers are using them to share and collaborate might help provide validation for the attainment of professional development credit through use of such media.

Recommendations for Practice

Findings of this study have indicated that agricultural educators are using Communities of Practice to support self-efficacy constructs. Additionally, it has been noted that Communities of Practice is a tool to share resources and network with others. Agricultural educators using Communities of Practice should continue to do so. Professional development opportunities and teacher education programs should include effective use of Communities of Practice within their programming. Given that interviewees in the study highly value of strongly moderated groups, the National

Association of Agricultural Educators should look to further develop its facilitator training program. This might provide some of the structure and leadership alluded to that exist in the private Communities of Practice places. Further development of the facilitator training program could help provide facilitators with a greater meaning of the value of their role and strategies to effectively serve in this important capacity.

Professional development opportunities provided by NAAE might help to connect members who are not currently Communities of Practice users to the resources available on the community. This connection would serve to help further diversify Communities of Practice users. The importance of diversity in communities of practice membership has been identified (Johnson, 2010; Printy, 2008). Teacher education programs which include the effective use of communities of practice would provide future practitioners with knowledge of a resource they can consult to share successes and challenges with colleagues in a similar setting and in real time. This training would also help teachers entering the profession know where and how to seek materials to support their practice.

Change Through Online Communities of Practice Use

Statements made by both neighbor and mentor users noted the impact that Communities of Practice has on change or doing things differently with either how they approached their teaching or how they used teaching materials.

MENTOR USER A: At first it [Communities of Practice] was a real novelty and a unique thing but in my, I guess stable, it's a workhorse. It is something I really depend on. It is something that changes the way that I teach almost daily or weekly.

MENTOR USER B: You are examining those differences and kind of seeing the process.

NEIGHBOR USER A: The thing is giving different ways of how to present content and helping me change what I do.

Additionally, interviewed mentor users acknowledged the role Communities of Practice has in their professional growth and development. A virtual community that can be accessed by teachers when needed helps to support two professional development areas Fullan (2007) noted as important to change: sustainability and continuity. Members contributing to the community, as all the case study participants indicated they did, help to ensure sustainability. Members joining the community aid in providing community continuity.

Furthermore, online communities of practice can help overcome the challenge of limited amounts of teacher change that Smith and Gillespie (2007) identified exists with traditional professional development models of short term workshops or training sessions. One example of sustained support in creating teacher change was noted through mentor users' comments related to private places on Communities of Practice for the Curriculum for Agricultural Science Education (CASE). These places are for participants in nine-day face to face training sessions with the CASE curriculum to continue to collaborate once they have returned to their respective schools. The sustained relationships within Communities of Practice can help create the change that Smith and Gillespie (2007) suggest traditional workshops and training cannot. These Community of Practice places build on the idea that change occurs when people are "learning in context" (Fullan, 2007, p. 59). Additionally, Lieberman and Mace (2010) identified that working in a community of colleagues provides the opportunity to help support changes. Communities of Practice provides a community of colleagues.

In order for educational change to occur, “change in practice” must happen and comes from “1) the possible use of new or revised materials . . .2) the possible use of new teaching approaches . . .3) the possible alteration of beliefs” (Fullan, 2007, p. 30). Based on the “use” category which emerged during the study of NAAE Communities of Practice, two of the three components of change in practice as described by Fullan (2007) were observed. Teachers commented on how they were using materials or ideas from Communities of Practice in their own practice. However, nothing in the interviews or content analyzed on Communities of Practice addressed the third dimension of change related to changing beliefs.

Change Process and Communities of Practice

Fullan (2007) described change as a process that involves: I - The start of the change; II – use of whatever the change is; III – institutionalization of the change. Utilizing Communities of Practice to support change in teacher self-efficacy constructs is a process which not all agricultural educators participate in. However, all case study participants have been members of Communities of Practice since 2008. This suggests that if institutionalizing an online community of practice as a means to support collective dialogue and resource sharing was the change the National Association of Agricultural Educators executive board hoped to achieve, they have successfully reached the third phase of the process with these users. Other users who have more recently joined the Communities of Practice might still be in Phase II where they are working on implementing the use of the community to support their teaching practice. It is possible that some of these users are people who are getting counted as views on posts even if they are not actively contributing posts or comments themselves.

Change Events During the Study

During the course of my study, two change events happened. One event was the change of two of the participants' user levels as a result of their participation on Communities of Practice between the start and end of the study. One mentor user was active in a private CASE community and progressed to a champion user level. Another user progressed from a neighbor user level to a mentor user level. Both user level changes occurred following the interviews and Communities of Practice artifact observation but prior to the completion of the final data analysis. For the purpose of this study, they remained identified with the user level at the start of the research.

Another change event was identified in my communications with J. Fritsch, Communications and Marketing Coordinator for the National Association of Agricultural Educators as the study developed. The NAAE Communities of Practice underwent a major revision. Ms. Fritsch stated this change was to “create a sense of buy-in and excitement as people see their activities helping them gain status in the community” (J. Fritsch, personal communication, March 29, 2012). Future research is needed to determine if the recent (March 2012) change in the community produced the intended result Ms. Fritsch expressed. During the case study, the format change was noted by one mentor who stated, “I have not really had time to get acclimated to the new format well.”

Summary of Change

As noted through the interviews, Communities of Practice members are using the tools, found in the form of documents, discussions, blogs, and bookmarks, in the community to change their teaching practice. Private places within Communities of Practice are also providing a venue for continued discussion and support following

professional development experiences with the Curriculum for Agricultural Science Education. In regard to the change process and using Communities of Practice to implement change in practice, different community members may be at different stages of the process.

Personal Leadership Implications and Lessons

I view myself as a teacher leader and am aware that leadership roles within the National Association of Agricultural Educator Communities of Practice differ from leadership roles within a school setting. One of the reasons for this difference is that within the community facilitators volunteer to serve in assisting with sub-places, in my case Middle School and National Board Certification. Facilitation is a leadership role and can be carried out to as large or as small of an extent as the facilitator wishes. Since one is in volunteer service to help the profession, the national level staff appreciates your efforts. Conversely, I have found that as a teacher leader within the school who is willing to vocalize potential solutions from a practitioner's standpoint, there is less appreciation from upper level leadership.

I believe it is important to serve as a teacher leader is to build relationships both with colleagues in my building as well as with colleagues in agricultural education and career and technical education who are from other districts or states. Therefore, I see myself exhibiting relational leadership which is described as Donaldson (2007) as "fostering mutual openness... sufficient for the players to influence and be willingly influenced by one another" (p. 10). This relational leadership concept is a valuable asset not only in my own school district where I need to develop partnerships with colleagues to help students succeed, but also in the National Association of Agricultural Educators

Community of Practice which provides a venue for sharing of instructional material and other resources to help adapt one's practice. I have found that the mutual openness described by Donaldson has allowed me to share honestly on Communities of Practice experiences I have, including addressing my own shortcomings of knowledge when someone posts in the community I facilitate and I don't have the answer. In addition to the concept of relational leadership, I believe my activity in Communities of Practice is derived partly from my desire to constantly be innovating and improving my practice.

One of the challenges I faced during this study is that I am aware that I try to avoid conflict. Conflict causes me discomfort. With a study that addresses online communities of practice and teachers sense of efficacy, I was conflicted about the need to address motivation in my literature review when much of the literature I was finding in that area related to student motivation. However, I was brought back to Fullan's (2001) statement "The absence of conflict can be a sign of decay" (p. 74). For me, this translated to mean that working through my conflicting opinions would help me grow. I had to keep discussing the idea aloud to several sources to finally be able to gain a greater understanding of the role motivation played, as well as design a different search strategy to find literature related to motivation and the topics that were the focus of my study.

By conducting this study, it provided me the opportunity to evaluate the strength of my leadership within the two places I facilitate on Communities of Practice. I had always considered that I was doing a fairly decent job in this role as I answered questions in a timely fashion once they were posted. As one interviewed mentor user and Mitchell, Young and McKenna (2007) noted, moderator strength can impact the development of the community, the content shared and relationships built. Duncan-Howell (2010)

identified a benefit of communities of practice is to provide content that addresses the needs of teachers and has a “freshness” (p. 326) to it. These ideas caused me to reflect on my role as facilitator. I realized that although I may be addressing the needs of teachers who post questions, I am not providing freshness by regularly providing new ideas, suggestions for readings to support the profession, or other content that markets the community as a place to share ideas. Additionally, I don’t believe that I am facilitating activities that would serve to build relationships. Fullan (2001) stated that “effective leaders constantly foster purposeful interaction” (p. 5), so I need to be mindful of this as I move forward with my facilitation within Communities of Practice. This awareness has led me to realize that I need to seek out resources that provide me with strategies to help build relationships in online communities.

As a teacher leader, it is also my responsibility to increase the leadership capacity of others. This awareness I have of my responsibility to help others develop their leadership is substantiated by the statement “Leaders developing other leaders is at the heart of sustainability” (Fullan, 2007, p. 59). To help ensure sustainability of the Communities of Practice, it is my obligation to cultivate newer members of the community, whether they are experienced teachers or novices to the profession. Additionally, Cox (2005) stated the importance of members sharing what it means for them to be part of the community. Although I and the study participants realize the benefit of NAAE Communities of Practice it is important to share not just the content based knowledge that Communities of Practice provides, but to develop an action plan to articulate what it means as part of professional growth and networking.

The action plan I envision involves working with the National Association of Agricultural Educators (NAAE) to develop a series of interviews and short stories that can be used to promote the professional growth and networking opportunities Communities of Practice provides. The stories or video clips could be included in their weekly Monday Morning Monitor bulletin that is emailed to the entire NAAE membership. The first individuals to share their story could be the participants who were interviewed for this study. If a testimony was provided once a month relating to the benefits of Communities of Practice, four months of content could be generated. Locke (2006) noted that online communities of practice provide “intellectual renewal, a venue for new learning, and a venue for cultivating leadership” (p. 668). If I work in conjunction with NAAE staff to create and activate the monthly testimonies in the Monday Morning Monitor, the values of online communities of practice identified by Locke can be shared to a wider audience than just those participating in the community now.

Additionally, although a facilitator training program has existed since the inception of the NAAE Communities of Practice in 2007, I could (and should) apply my strengths of input and strategic in combination with the knowledge gained in this study to work with NAAE and revitalize their facilitator training, thereby adding the freshness Duncan-Howell (2010) mentioned not only to the communities I facilitate, but also to Communities of Practice as a whole. Partnering with NAAE in this area, would not be proposed to them until I have conducted some additional research into strategies to effective communities of practice facilitation.

Personal Leadership Summary

During this study, I most frequently applied the idea of relational leadership to foster relationships with Communities of Practice, as well as specifically with the case study participants. I was challenged to think about how I facilitate the areas I am responsible for and think about what I can do differently to develop better relationships within them. Additionally, I was inspired to begin working to improve Communities of Practice facilitator training.

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Appendix A

Teachers' Sense of Efficacy Scale with Demographics

Teacher Sense of Efficacy and NAAE Communities of Practice User Status Exit this survey

Informed Consent

Please read the following informed consent statement. If you agree, you will be taken to the start of the survey. If you decline, the survey will end for you.

***1. Introduction**
This study attempts to collect information about perceived teacher sense of efficacy and NAAE Communities of Practice use. The information gained will be used to identify relationships between CoP user level and teacher sense of efficacy.

Procedures
The questionnaire consists of 24 Likert scale questions and four demographic questions and will take approximately 20 minutes or less. Questions are designed to determine your perceived sense of efficacy as it relates to instructional strategies, classroom management, and student engagement. This questionnaire is being conducted with an online SurveyMonkey-created survey.

Risks/Discomforts
Participation in this study involves minimal risk. I have worked out a variety of ways to minimize this risk, including providing anonymity in your response and using password protected files and computers.

Benefits
There may or may not be any direct benefit to you from these procedures. The investigator, however, may learn more about how the use of NAAE Communities of Practice (CoP) relates to teacher sense of efficacy which can contribute to the agricultural education base of knowledge, plus possible enhancements on CoP.

Confidentiality
All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator will view them. The data collected will be stored in the HIPPA-compliant, SurveyMonkey-secure database until it has been deleted by the primary investigator.

Compensation
There is no direct compensation.

Participation
Participation in this research study is completely voluntary. You have the right to withdraw at anytime or refuse to participate entirely without affecting your relationship with the researcher.

Questions about the Research
If you have any questions or concerns please contact Robin McLean at (609) 970-1541 or mclean.robin.c@gmail.com.


If you have any questions about your rights as a research subject, you may contact the Associate Provost for Research at:

Rowan University Institutional Review Board for the Protection of Human Subjects
Office of Research
201 Mullica Hill Road
Glassboro, NJ 08028-1701
Tel: 856-256-5150

Copy of Consent: Please print a copy of this consent for your personal files.

Yes, I have read and understand the above consent form. I agree of my own free will to participate in this study.

No. I choose not to participate in this study.



Demographics

*1. Please check the box that best identifies your gender.

- Male
- Female

*2. How old are you?

- 20-27
- 28-35
- 36-42
- 43-50
- 51-58
- older than 58
- prefer not to answer

*3. How many years have you been teaching agricultural education?

- less than 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25
- more than 25

*4. What is your National Association of Agricultural Educators Communities of Practice user level?

Please note, if you are unsure of your status, you can visit your profile at <http://communities.naae.org/welcome>

- Mentor
- Neighbor
- Neither of those



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Perceived Teacher Sense of Efficacy

Please indicate your opinion about each of the statements below in relationship to your current teaching situation.
 Permission was granted for use of this survey by Dr. Tschannen-Moran.

* 1. Perceived Teacher Sense of Efficacy

	1 Nothing	2	3 Very Little	4	5 Some Influence	6	7 Quite a Bit	8	9 A Great Deal
1. How much can you do to get through to the most difficult students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How much can you do to help your students think critically?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How much can you do to control disruptive behavior in the classroom?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How much can you do to motivate students who show low interest in school work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. To what extent can you make your expectations clear about student behavior?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. How much can you do to get students to believe they can do well in school work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. How well can you respond to difficult questions from your students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. How well can you establish routines to keep activities running smoothly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. How much can you do to help your students value learning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. How much can you gauge student comprehension of what you have taught?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. To what extent can you craft good questions for your students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. How much can you do to foster student creativity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. How much can you do to get children to follow classroom rules?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. How much can you do to improve the understanding of a student who is falling?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. How much can you do to calm a student who is disruptive or noisy?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. How well can you establish a classroom management system with each group of students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. How much can you do to adjust your lessons to the proper level for individual students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. How much can you use a variety of assessment strategies?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. How well can you keep a few problem students from ruining an entire lesson?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. To what extent can you provide an alternative explanation or example when students are confused?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. How well can you respond to defiant students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. How much can you assist families in helping their children do well in school?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. How well can you implement alternative strategies in your classroom?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. How well can you provide appropriate challenges for very capable students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Prev Done

Appendix B

Communities of Practice Artifact Observation Tool

Collection #: _____ Date: _____ Time: _____

Item # _____

Title: _____

Original post maker: _____ User Status Level:

Post Date and Time: _____

of participants: _____

Participant user levels: _____

of views: _____

Type of item: _____

Content related to:

- Classroom management
- Student Engagement
- Instructional Strategies
- Other (describe)

Note: This component was duplicated 10 times to represent the 10 items observed.

Appendix C

Case Study Participant Information Sheet

Case Study Participant Information Form NAAE CoP and Teacher Sense of Efficacy

Exit this survey

Informed Consent

If you agree to participate in this study, please print a copy of this informed consent page for your records.

*1. Introduction

This study attempts to collect information about perceived teacher sense of efficacy and NAAE Communities of Practice use. The information gained will be used to identify relationships between CoP user level and teacher sense of efficacy.

Procedures

The case study will consist of an open-ended online questionnaire via SurveyMonkey, a Skype (or similar media) interview, and participation in a private CoP community (if desired) to support this study. Questions are designed to determine your perceived sense of efficacy as it relates to instructional strategies, classroom management, and student engagement.

Risks/Discomforts

Participation in this study involves minimal risk. I have worked out a variety of ways to minimize this risk, including providing anonymity in your response and using password protecting files and computers.

Benefits

There may or may not be any direct benefit to you from these procedures. The investigator, however, may learn more about how the use of NAAE Communities of Practice (CoP) relates to teacher sense of efficacy which can contribute to the agricultural education base of knowledge, plus possible enhancements on CoP.

Confidentiality

All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator will view them. The data collected will be stored on a secure laptop and a locked file until it has been deleted by the primary investigator.

Compensation

There is no direct compensation.

Participation

Participation in this research study is completely voluntary. You have the right to withdraw at anytime or refuse to participate entirely without affecting your relationship with the researcher.

Questions about the Research

If you have any questions or concerns please contact Robin McLean at (609) 970-1541 or mclean.robin.c@gmail.com or her faculty advisor Maria Sudeck at (856) 256-4736 or sudeck@rowan.edu

Yes, I have read and understand the above consent form. I agree of my own free will to participate in this study.

No, I am not interested in participating in this study.

Next

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Participant Demographics

*2. Please check the box that best identifies your gender.

- Male
- Female

*3. How old are you?

- 20-27
- 28-35
- 36-42
- 43-50
- 51-58
- older than 58
- prefer not to answer

*4. How many years have you been teaching agricultural education?

- less than 5 years
- 6-10
- 11-15
- 16-20
- 21-25
- more than 25
- I do not teach

*5. What is your current National Association of Agricultural Educators Communities of Practice user status level?

- Mentor
- Neighbor
- Neither of these

*6. What setting do you teach in?

- Rural
- Suburban
- Urban

*7. Are you in a single teacher department?

- Yes
- No

Prev Next

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***8. Please indicate the main agricultural subject areas you teach. You may check more than one.**

- Agriscience
- Agricultural Mechanics
- Animal Science
- Biotechnology
- Environmental Science
- Horticulture
- Introduction to Agriculture
- Plant Science

Other (please specify)

***9. What grade level do you teach? (Check all that apply)**

- 6
- 7
- 8
- 9
- 10
- 11
- 12

***10. Are you a facilitator on CoP?**

- Yes (if yes, please indicate community)
- No

Community Facilitated

*11. Have you attended a workshop about CoP?

- Yes
- No

*12. Have you conducted a workshop about CoP?

- Yes
- No

*13. Which best describes how often you are reading items on CoP?

- daily
- 2-3 times per week
- at least once per week
- every other week
- once a month
- once every two months
- can't remember last time I was on

*14. Which best describes how often you are contributing a item (status update, blog, comment, discussion item, lessons, etc) to CoP?

- daily
- 2-3 times per week
- at least once per week
- every other week
- once a month
- once every two months
- can't remember last time I was on

Prev

Next

Communities of Practice Use Short Answer

Please take a few moments to reply to the questions that follow regarding your communities of practice use.

15. Why do you use CoP?

16. What sort of information do you contribute to CoP?

17. What sort of instructional materials have you gotten from CoP?

18. What, if any, student management issues have you used CoP to help you with?

Prev

Done

Appendix D
Semi-structured Interview Questions

1. Why do you use CoP?
2. What sort of information do you contribute to CoP? (*prompts include – blogs, discussion questions, replies to questions, teaching resources such as worksheets*)
3. What makes you return to CoP? (or what keeps you from using CoP)?
4. What sort of instructional materials have you gotten from CoP?
5. How has CoP helped you adjust lessons to different learning styles?
6. How has CoP contributed to you handling challenging issues with student behavior?
7. What areas of CoP have helped you to motivate your students?
8. Where have you found resources on CoP to help you develop assessment strategies?
9. What tools have you found on CoP to help you with classroom management issues?
10. What tools have you found on CoP to help you with student engagement?
11. Is there anything that you want to share about how you use communities of practice that you feel that I haven't asked yet?

Appendix E

Survey Participant Contact

Initial Contact

Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Participation Desired in Teacher Sense of Efficacy and NAAE Communities of Practice Survey
Body: Dear NAAE Communities of Practice Member:

I hope this e-mail finds you well. I realize this is a busy time of year in the agricultural education community, but am hoping you have time available to complete a short survey.

I am currently a doctoral student at Rowan University, Glassboro, NJ and studying the perceived sense of efficacy communities of practice users have in relationship to their student engagement, instructional, and classroom management strategies. I am writing to ask you complete a short survey. It will take at most 20 minutes to share your expertise by completing this electronic questionnaire; click on the link directly below to begin.

<https://www.surveymonkey.com/s.aspx>

If you would like to know more about the questionnaire or how I will use your responses, feel free to contact me.

Confidentiality is of great concern to me. Only summary results will be reported. Your individual responses will be confidential and will not be identified in any manner. Should you choose not to participate in this study, please click on the link at the very bottom of this page to prevent follow-up messages. Individuals who do not complete the electronic questionnaire by Friday, May 4, will receive a reminder message.

Please note: If you do not wish to receive further emails from me regarding this study, please click the link below, and you will be automatically removed from my mailing list.
<https://www.surveymonkey.com/optout.aspx>

You may refuse to participate or withdraw at any time without affecting your relationship with me, and without consequence or loss of benefits. The Institutional Review Board (IRB) for the protection of human participants at Rowan University has approved this research.

Robin McLean
Agriscience Teacher/ FFA Advisor
Northern Burlington County Regional Middle School
Doctoral Student, Rowan University
Cell: 609-970-1541
E-mail: mclean.robin.c@gmail.com

Follow-up Contact

Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Follow up on the Teacher Sense of Efficacy Survey sent last week
Body: Dear NAAE Communities of Practice Member:

I am writing to follow-up on the e-mail you received from me last week regarding a study I am conducting regarding National Association of Agricultural Educators Communities of Practice User Status levels and perceived Teacher Sense of Efficacy. It will take at most 20 minutes to share your expertise by completing this electronic questionnaire; click on the link directly below to begin.

<https://www.surveymonkey.com/s.aspx>

If you are having trouble accessing the link, please let me know.

Please note: If you do not wish to take the survey or receive further emails from me regarding this study, please click the link below, and you will be automatically removed from my mailing list.
<https://www.surveymonkey.com/optout.aspx>

Thank you in advance for your time and good luck as the school year winds to a close.

Robin McLean
Agriscience Teacher/ FFA Advisor
Northern Burlington County Regional Middle School
Doctoral Student, Rowan University
Cell: 609-970-1541
E-mail: mclean.robin.c@gmail.com

Final Contact

Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Teacher Sense of Efficacy and Communities of Practice - Last Request
Body: Dear NAAE Communities of Practice Member:

If you have not taken the chance to take the National Association of Agricultural Educators Communities of Practice User Status levels and perceived Teacher Sense of Efficacy survey (<https://www.surveymonkey.com/s.aspx>), please take a moment to do so. The survey will be closing this Friday.

If you are having trouble accessing the link, please let me know. If you would like additional information about my research, feel free to email me.

Thank you in advance for your time and good luck as the school year winds to a close.

Please note: If you do not wish to take the survey or receive further emails from me regarding this study, please click the link below, and you will be automatically removed from my mailing list.
<https://www.surveymonkey.com/optout.aspx>

Robin McLean
Agriscience Teacher/ FFA Advisor
Northern Burlington County Regional Middle School
Doctoral Student, Rowan University
Cell: 609-970-1541
E-mail: mclean.robin.c@gmail.com

Participant Thank You

Below is a preview of your message based on the first recipient in your list

To: [REDACTED]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Thank you for your time
Body: Thank you for your time in taking the survey (<https://www.surveymonkey.com/s.aspx>) related to teacher sense of efficacy and NAAE Communities of Practice.

If you are interested in the results of the study, please feel free to send me your contact information.

Sincerely,
Robin McLean
Agriscience Teacher/ FFA Advisor
Doctoral Student, Rowan University

<https://www.surveymonkey.com/optout.aspx>

Appendix F

Case Study Participant Communication

Initial Invitation

Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Case Study Participant Request for NAAE CoP Research
Body: Dear Agricultural Education Colleague:

I hope this e-mail finds you well. As an agricultural science teacher myself, I realize how valuable our time is. Recently you completed a survey regarding your NAAE CoP User Status level along with your perceived sense of efficacy. I am hoping that you would be willing to participate in the second phase of the study that I am conducting as I work towards my doctoral degree at Rowan University, Glassboro, NJ.

The second component will involve a questionnaire with demographic questions as well as open ended questions related to your communities of practice use habits. This will take roughly 25 minutes. Additionally, I will be conducting a telephone or skype interview within the next three weeks of no longer than 30 minutes with participants.

If you are willing to participate, please visit the data collection form at <https://www.surveymonkey.com/s.aspx>

Please know that confidentiality is of great concern to me. Only summary results will be reported. Your individual responses will be confidential and will not be identified in any manner. You may refuse to participate or withdraw at any time without affecting your relationship with me, and without consequence or loss of benefits. The Institutional Review Board (IRB) for the protection of human participants at Rowan University has approved this research.

If you do not respond to this email by Thursday, May 24 will receive a reminder message. Additionally, you may opt out of this study by visiting <https://www.surveymonkey.com/optout.aspx>)

Robin McLean
Agriscience Teacher/ FFA Advisor
Northern Burlington County Regional Middle School
Doctoral Student, Rowan University
Cell: 609-970-1541
E-mail: mclean.robin.c@gmail.com

Follow-up Invitation

Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Following up on Case Study Participant Survey
Body: Earlier this week, I sent a survey to you regarding your possible participation in a case study I am working on related to NAAE Communities of Practice and Teacher Sense of Efficacy.

Please take the chance to complete the survey. <https://www.surveymonkey.com/s.aspx>

If you are not interested or too busy, which I can understand as the school year comes to a close, please opt out by clicking <https://www.surveymonkey.com/optout.aspx> This will allow me to move forward in the participant selection process.

Thanks for your participation!

Robin McLean
Agriscience Teacher/ FFA Advisor
Northern Burlington County Regional Middle School
Doctoral Candidate
Rowan University

Final Invitation to First Round

Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Last Chance to be involved with brief interview on Communities of Practice Use
Body: Prior to Memorial Day I sent a survey to you regarding your possible participation in a case study I am working on related to NAAE Communities of Practice and Teacher Sense of Efficacy.

Please take the chance to complete the survey. <https://www.surveymonkey.com/s.aspx>

If you are not interested or too busy, which I can understand as the school year comes to a close, please opt out by clicking <https://www.surveymonkey.com/optout.aspx> This will allow me to move forward in the participant selection process.

Thanks for your participation!

Robin McLean
Agriscience Teacher/ FFA Advisor
Northern Burlington County Regional Middle School
Doctoral Candidate
Rowan University

Replacement Pool Invitation

To: [Email]
From: "mclean.robin.c@gmail.com via surveymonkey.com" <member@surveymonkey.com>

Subject: Request for interview Re: NAAE CoP Use
Body: Dear Agricultural Education Colleague:

I hope this e-mail finds you well. As an agricultural science teacher myself, I realize how valuable our time is. Recently you completed a survey regarding your NAAE CoP User Status level along with your perceived sense of efficacy. I am hoping that you would be willing to participate in the second phase of the study that I am conducting as I work towards my doctoral degree at Rowan University, Glassboro, NJ.

The second component will involve a questionnaire with demographic questions as well as open ended questions related to your communities of practice use habits. This will take roughly 15 minutes. Additionally, I will be conducting a telephone or skype interview within the next two weeks of no longer than 20 minutes with participants.

If you are willing to participate, please visit the data collection form at <https://www.surveymonkey.com/s.aspx>

Please know that confidentiality is of great concern to me. Only summary results will be reported. Your individual responses will be confidential and will not be identified in any manner. You may refuse to participate or withdraw at any time without affecting your relationship with me, and without consequence or loss of benefits. The Institutional Review Board (IRB) for the protection of human participants at Rowan University has approved this research.

You may opt out of this study by visiting <https://www.surveymonkey.com/optout.aspx>)

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