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## **Catch the Bus: Investigating the Correlations between Teacher Collaborative Action-Taking and Self-Efficacy**

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Catch the Bus:  
Investigating the Correlations between Teacher Collaborative Action-Taking and Self-  
Efficacy

A Dissertation Presented

by

TARA B. BRANDT

Submitted to the Graduate School of the  
University of Massachusetts Amherst in partial fulfillment  
of the requirements for the degree of

DOCTOR OF EDUCATION

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School of Education



Catch the Bus:

Investigating the Correlations between Teacher Collaborative Action-Taking and Self-Efficacy

A Dissertation Presented

By

TARA B. BRANDT

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## ABSTRACT

### CATCH THE BUS:

#### INVESTIGATING THE CORRELATIONS BETWEEN TEACHER COLLABORATIVE ACTION-TAKING AND SELF-EFFICACY

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The purpose of this study was to explore the correlations between particular teacher collaborative actions and teachers' sense of self-efficacy. Additionally, descriptive analyses provided a snapshot of current collaborative action-taking across US schools, and elucidated teachers' present sense of self-efficacy. This study utilized existing data from the 2013 *Teaching and Learning International Survey* (sponsored by the OECD), which was completed by 1,926 lower secondary teachers from just over 120 different American schools. Multivariate correlational analysis confirmed that frequency of US teachers' participation in collaborative actions significantly correlated to higher levels of teacher self-efficacy. Actions with the highest correlations included: taking part in collaborative professional learning, working with other teachers to ensure common standards in evaluations for assessing student progress, engaging in joint activities across different classes, and collaboratively discussing the learning development of specific students. Descriptive analysis suggests that US teachers have an overall positive sense of self efficacy related to their instructional practices, ability to engage students, and

classroom management skills. Differences in self-efficacy and participation in collaborative action-taking are evident by age, experience, and gender. While age and experience bring about greater sense of teacher self-efficacy, they also relate to decreases in participation in collaboration. This study concludes with a discussion regarding the implications of its findings, including recommendations for policy, practice, and future research.



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## CHAPTER 1

### STATEMENT OF PROBLEM AND INTRODUCTION

*If you think you can catch the bus, you'll run for it.*  
– Lee Peng Yee

#### Statement of Problem

Educational research has repeatedly indicated that teachers' beliefs about their profession have profound effects on student achievement. The work of Ashton and Webb (1986), Rosenholtz (1989) and others have established a correlation between the practices and attitudes of teachers and student outcomes. Unfortunately, the barrage of school reforms, pressure from local, state, and federal governments, and greater expectations around an ever-increasing number of responsibilities have all raised concerns from scholars and educator advocacy groups about a possible decline in the level of motivation and levels of commitment to the job. Yarrow (2009) contends that 40% of American K-12 teachers report that they are “disheartened” with their job. A combination of low morale and high stress levels has been partially responsible for high attrition rates across the nation (Perrachione et al., 2008); with our nation’s rural and urban districts carrying the brunt of turnover (Carroll, 2008). Moreover, research has shown that teachers are leaving at-risk schools (i.e. high minority, high poverty, and/or low performing) at significantly higher rates than other less challenging schools (Barnes, Crowe, & Schaefer, 2007). This leaves our country’s highest-need students with our least-qualified teachers (Darling-Hammond, 2013a). In addition, The National Commission on Teaching and America’s Future (NCTAF) estimates that the national cost of public school teacher turnover could be over \$7.3 billion a year (Carroll, 2008). Unfortunately, the profession

seemingly loses its status and appeal to new teachers in urban/rural settings, as public scrutiny (due to accountability measures) emphasizes competition and finger-pointing.

How do we turn the tables on this terrible trend? We absolutely need to improve the teaching experience – particularly if we intend to deliver a world-class education to our current and future generations of students. Both Management and Education research have assessed the relationship between worker attitudes and outcomes in numerous ways, targeting various mindsets. Some of the most promising research on performance hones in on one highly malleable trait: *self-efficacy*.

According to Albert Bandura (1977, 1994), self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations. Essentially, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. McLaughlin and Marsh (1978) specifically define *teacher* self-efficacy as "the extent to which the teacher believes he or she has the capacity to affect student performance" (p. 84).

Research has shown that teachers' sense of efficacy can be directly correlated with improved student performance (Ashton & Webb, 1986; Berman et al., 1977) and increased student motivation (Ashton & Webb, 1986). Relationships have also been established between teacher self-efficacy and teacher longevity (Burley, Hall, Villeme, & Brockmeier, 1991), decreased teacher burnout (Chwalisz, Altmaier, & Russell, 1992; Skaalvik & Skaalvik, 2007), the development of teachers' goals and aspirations (Muijs & Reynolds, 2002), and increased percentage of project goals achieved (Berman et al., 1977). Clearly, teacher self-efficacy is an influential notion. However, there has been a recent dip in the scale of research on teacher self-efficacy, leaving the education field



with some outdated data related to the concept. Some of the most seminal research in the area was conducted during the later 1970's and 1980's, with additional studies popping up sporadically since then.

In order to reap the benefits of our teachers' knowledge and belief to succeed, we must invest in methods proven to increase teacher self-efficacy. A growing movement toward increased and improved teacher collaboration has, in addition to showing promise in the arena of student achievement (Goddard, Goddard, & Tschannen-Moran, 2007), provided some evidence that it also provides a boost to teachers' feelings about their practices and self-efficacy (Brownell, Yeager, Rennells, & Riley, 1997; Duyar, Gumus, & Bellibas, 2013; Shachar & Shmuelewitz, 1997). Teachers work together in a variety of ways that may be considered "collaborative." Gajda and Koliba (2007) stated that quality *teacher collaboration* takes place when teams of teachers work together using "high-quality cycles of inquiry" (p.150) to address instructional issues. The hallmark of high-quality teacher collaboration is when teachers "collectively engage in high-quality dialogue, decision making, action, and evaluation around a shared purpose" (Gajda & Koliba, 2007, p.149). Dufour (2004a) further described the "powerful process" of teacher collaboration requiring that teams:

Must focus their efforts on crucial questions related to learning and generate products that reflect that purpose, such as lists of essential outcomes, different kinds of assessment, analyses of student achievement, and strategies for improving results. Teams must develop norms or protocols to clarify expectations regarding roles, responsibilities, and relationships among team members. Teams must adopt student achievement goals linked with school and district goals. (p.10)

The positive physical, social, and emotional outcomes of teachers' time spent collaboratively serve as verification of the productivity of their efforts. The connection between high-quality collaboration and positive teacher beliefs and productive behaviors is an important one to establish because of how this relationship can impact learning.

### **Introduction**

As early as 1966, the Coleman report (Coleman et al., 1966) persuasively demonstrated that teacher quality is the strongest predictor of student achievement among all other school-level variables. One study indicated that the top third of teachers produced as much as six times the learning growth of the bottom third in one academic year (Sparks, 2005). If we know that teacher self-efficacy is responsible for student achievement, then we need to identify what barriers exist to developing self-efficacy, and which practices and supports enhance it. Numerous waves of educational reforms have sought to increase teacher quality, effectiveness, and accountability through various means – pre-service educator testing, increased requirements for licensure, etc. Most recently, it has been argued that school success relies not only on the individual capabilities of teachers, but on the quality of teamwork that occurs amongst staffs (Sparks, 2013).

It is reasonable that scholars and policy makers have turned their attention to the longstanding—and to many experts, troubling—tradition of teacher isolation; most teachers historically spend a majority of their day alone with their students (Warren, 1975), which certainly decreases the chances of them collaborating to improve student learning. Under the *de facto* system that has existed since schools evolved out of their

one-room model, educators work on private islands, with little time or impetus to consult with their colleagues. It is plain to see how teacher isolation can inhibit the spread of best practices and limit the professional learning experiences of groups of teachers, especially considering the ease by which some teachers continue to work in an environment that does not require personal or group reflection on performance. As Richard Elmore (2000) noted, the American educational system has, to date, encouraged:

a normative environment that views all matters of practice as matters of idiosyncratic taste and preference, rather than subject to serious debate, discourse, or inquiry; a structure of work in which isolation is the norm, and collective work is the exception... (p. 35)

Hargreaves, Shirley, Harris, and Boyle (2010) similarly described teaching as historically the loneliest profession:

You taught by yourself, separated from the other adults. You were lucky if you even got a minute to go to the restroom. Nobody ever saw what you did, and sometimes it seemed that no one really cared—unless your kids became a problem. The principal came by to do his or her annual evaluation, and that was it. The rest of the year, you were on your own. (p.16)

The past decades, however, have witnessed a shift in that paradigm as researchers and theorists have posited that this extreme level of non-consultative autonomy is one of the major hindrances to American students' competitive global status, especially because it perpetuates vast gaps in teacher effectiveness – which are directly linked to student achievement.

Numerous studies have proven that teacher isolation is counterproductive to school reforms and student achievement. Smylie et al. (1996) found that individual teacher autonomy was negatively correlated with student achievement and that, conversely, team-based participation in decisions about resources and team accountability for outcomes were positively associated with improved student outcomes. Other studies have demonstrated that schools where teaming occurs experience fewer disciplinary issues than schools where teams are not in place (Pounder, 1998). Further, many scholars contend that high-quality teaming improves school culture and climate for both students and teachers (DuFour et al., 2008; Schmoker 2005).

Historically, the negative impact of teacher autonomy has quite possibly been compounded by the traditional models for teacher professional development and training, like sporadic one-day workshops, in-service trainings, introduction to research-based instructional practices, and isolated coursework (Lieberman & Miller, 2008). Fortunately, teacher collaboration may be the answer to both the issues of teacher isolation and quality professional development (Dufour, 2004b; Wong, 2003), meanwhile ensuring that students of all backgrounds have an effective teacher directing their educations.

The United States has a long history of emphasizing teacher professional development and training in order to capitalize on and improve the level of instruction in our classrooms; however sustained changes and cutting-edge advances will require additional coordination and commitment from schools and school systems. Miller, Goddard, Goddard, Larsen, and Jacob (2010) summed up the notion of this missing link in their research on the teacher collaboration:

Through teacher training programs, various professional development opportunities, and first hand work with their students, teachers acquire unique knowledge about instructional and classroom management approaches. To maximize opportunities for knowledge diffusion and innovation, they should be intimately involved in collaborating around instructionally related matters that concern improvements in student outcomes. (p. 6)

Since the 1990's, scholars have recognized that more collaborative and purposeful strategies for developing instructional skills are necessary. Berliner and Casanova (1996) specifically cited teacher collaboration – in the form of sharing problems, cooperating towards a solution, and supporting each other throughout the process as a means to “break down the walls of isolation between and among teachers” (p.50). Though this statement sounds like it comes from a paper on collaborative teacher inquiry, it is actually the authors' approach to improving *teacher self-efficacy*. Participatory structures that empower individuals and groups of teachers have been endorsed by education professionals and scholars (Hargreaves, 2003; Lieberman & Miller, 2008; Sparks, 2004a, 2004b). In 2011, the Professional Learning Association - formerly the National Staff Development Council –created the Standards for Professional Learning, which represents an integration of theories, research, and understandings of human learning into a model for increasing teacher effectiveness. They note some of the following as influential collaborative actions for teacher learning:

analyzing student data, case studies, peer observation or visitations, simulations, co-teaching with peers or specialists, action research, peer and expert coaching, observing and analyzing demonstrations of practice, problem-based learning,

inquiry into practice, student observation, study groups, data analysis, constructing and scoring assessments, examining student or educator work, lesson study, video clubs, professional reading, or book studies.” (para. 4)

Clearly, collaborative actions are at the heart of teacher learning and development. Despite the proliferation of research and laudatory expert proclamations of the benefits of teacher collaboration, many schools struggle to understand what, exactly, high-quality collaboration is, what it looks like on a day-to-day basis, and how it can be leveraged into improved culture and, ultimately, improved student success (Gajda & Koliba, 2007).

This dissertation is predicated on the idea that part of the link between teacher collaboration and their performance and experiences in the classroom has to do with the effect that high-quality collaboration has on self-efficacy, which has long been known to affect the job performance of employees both inside (Allinder, 1994; Woolfolk, Rosoff, & Hoy 1990) and outside of education (Walumbwa et al., 2005). As mentioned previously, research correlates teacher self-efficacy with student achievement (Ashton & Webb, 1986; Moore & Esselman, 1992; Ross, 1992) and other positive job-related outcomes, making it incredibly valuable to cultivate. Several social and behavioral theories can help to explain how high quality collaboration changes the way teachers behave.

### **Purpose of the Study**

This paper will elaborate specifically on how social learning theory, social cognitive theory, human capital theory and social capital theory, can help us comprehend the impact of teacher collaboration on their self-efficacy. With these new understandings,

education leaders and policymakers stand to improve their ability to make important decisions about schools by understanding how to support teachers' efforts to work together.

Currently, there are a variety of frameworks by which entire schools – and school districts – foster teacher collaborative action-taking. It is important to note that collaborative relationships cannot develop and thrive without support and direction, nor should school leaders expect them to. As Dufour and Eaker argued, “an effective system of teacher collaboration within a professional learning community does not emerge spontaneously or by invitation” (as cited in Gajda & Koliba, 2008, p.134).

Gajda and Koliba's (2008) research concluded that “Consensus exists among school restructuring advocates that teacher collaboration is one of the most essential, if not the most important, requisite for achieving substantive school improvement and critical students learning outcomes” (p. 134). The trend toward greater collaboration, arguably begun by Richard Elmore's seminal report “Building a New Structure for School Leadership” (2000), and extended by scholars such as DuFour (2005), Schmoker (2005), and McLaughlin and Talbert (2001), has resulted in federal, state, regional, and local mandates that require teachers to spend more time together engaged in specific collaborative activities such as developing common assessments, analyzing student data, and observing colleagues' practices. Despite growing emphasis on collaboration in the US (Goddard, et al., 2007; Lieberman & Miller, 2008; Wong, 2003), my thorough exploration of the research shows that few studies have focused on specific teacher interactions and how they may influence teachers' self-efficacy. A better understanding of

how particular collaborative actions relate to teachers' self-efficacy can assist administrators in planning and supporting the efforts and time of staff.

Education is field that is constantly in flux, so school leaders need flexible options to inspire and incite improvement. This study seeks to uncover which types of common collaborative action-taking may be linked to enhanced teacher self-efficacy. By isolating specific and influential collaborative action-taking, this study can potentially erase some of the logistical barriers to school reforms, such as complicated strategies, high amounts of funding, and unrealistic levels of commitment (to programs or outside organizations).

### **Research Questions**

1. In which types of collaborative action-taking do US teachers most frequently engage?
  - **Sub-question:** Does participation vary by demographic factors?
2. How do US teachers currently describe their level of self-efficacy?
  - **Sub-question:** Does teacher self-efficacy vary by demographic factors?
3. What is the relationship between teacher collaborative action-taking and teachers' sense of self-efficacy?
4. Which specific types of teacher collaborative action-taking significantly relate to teachers' sense of self-efficacy?

### **Summary**

This paper investigates and defines both teacher collaboration and teacher self-efficacy in Chapter Two. In addition, that chapter explains the theoretical connections between teacher collaboration and teacher self-efficacy and reviews related research. The



intention of this paper is to determine the correlations between teacher collaborative action-taking (i.e. specific, describable actions that teachers take to collaborate) and teachers' sense of self-efficacy, which can be put to use in the Education field, and quite possibly beyond. Chapter Three describes the methodology for this ex post hoc study, which provided descriptive analysis of teacher collaboration and self-efficacy in the US, and correlated frequency and actions of teacher collaboration to teacher self-efficacy. Detailed notes on the results and a discussion of their implications follow in Chapters Four and Five respectively.

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### Definition and Value of Teacher Self-Efficacy

Since Albert Bandura wrote his seminal work *Social Learning Theory* in 1977, self-efficacy has been a focus of numerous research studies across professions. According to Bandura, expectations play a major role in one's outlook toward success. In essence, efficacy beliefs are personal expectations relating effectiveness. He clarifies that "an efficacy expectation is the conviction that one can successfully execute the behavior required to produce outcomes" (p. 79). By definition, low self-efficacy would indicate little to no confidence in one's ability to succeed at a task. In contrast, high self-efficacy denotes a strong level of certainty towards the success of one's efforts.

Bandura further posited that it is a person's strength in conviction – as determined by self-efficacy - that determines whether he or she will even try to cope with challenging situations. No matter if the outcome is meeting a deadline, managing a classroom, or hitting a sales quota, a person's drive to accomplish the goal impacts behaviors such as perseverance and effort. Furthermore, fear and anxiety associated with low levels of self-efficacy may stifle outputs before work has commenced.

People develop their sense of self-efficacy based on a several sources of data, including their *mastery experiences* (personal accomplishments), vicarious experiences, and verbal persuasion – the last two being strongly linked to social interactions. Over time, mastery of a specific task or repeated successes improves a person's belief in his or her ability to continue to achieve goals. This contributes to a theoretical cycle of successes. Similarly, Bandura (1997) explained that high self-efficacy enables a person to

move past occasional failures and overcome obstacles through sustained effort.

Psychologically, the impact of personal accomplishment allows people to generalize that further success will occur in related situations.

Vicarious experiences serve as a source for many expectations. People learn from books, colleagues, television, etc. how actions lead to consequences. Observing others' successes and failures can shape a person's expectations for his or her own performance at a related endeavor. If one sees others address a challenge without negative effects, fear may decrease and a positive view may prevail. In context, reticence to try a new instructional technique or earn a new degree is diminished.

In social settings, verbal persuasion is often used by colleagues and supervisors to elicit specific performances. Such vocalization is akin to cheerleaders on an athletic field; it can give people just enough psychological willpower to put in some extra effort. However, without a link to first person or even third person success, verbal persuasion may not be as strong as personal accomplishments and vicarious experiences (Bandura, 1977).

### **Through the Lens of Social Learning Theory and Social Cognitive Theory**

Bandura's concept of self-efficacy evolved from the basic tenets of two dovetailing theories: Julian Rotter's (1954) social learning theory and social cognitive theory. A deeper investigation of these theories can solidify how self-efficacy develops through learning – particularly in conjunction with social exchanges, such as those that take place in collaborative teacher teams. In addition, the theories strengthen the argument that a person's efficacy expectations influence behaviors.

Over the years, many theories have attempted to explain why people behave the way they do. Humans certainly don't come out of the womb with an innate knowledge of language or preferences in for how to hold a telephone. These behaviors are derived from interactions with the environment. Social learning theory states that people interact with others and their environment to develop understandings and behavioral expectations (Bandura, 1977). We slowly develop a sense of cause and effect, and this drives our actions. Over time, we begin to shape our own behaviors by setting the stage for our own success and mentally readying ourselves with an appropriate level anticipation.

There are strong links between learning and social interactions, as we pick up many new skills and ideas via models. At the heart of social learning theory is the notion that we are constantly observing the world around us, picking up cues from our environment and the people in it. In other words, we learn through modeling. Others' actions eventually serve as a guide for our own experimentations. We witness positive and negative consequences, which will fuel or damper our damper or desire to behave similarly. In addition, relationships influence our behaviors, as our group associations determine who we regularly observe. So our expectations are regularly affected by those who we spend the most time, like work colleagues and family. Through experience, we select to attend to models that attract our attention. Likewise, we ignore those that don't live up to our criteria or preferences. Therefore, relationships and team or group membership can strongly influence a teacher's beliefs, as his or her closest colleagues serve as important models and pacesetters.

Membership in groups enables people not only to observe behaviors, but to practice them. In social or work groups, this can translate to faster learning, depending on

the structure of interactions. If the situation allows, we can process behaviors and later consider how to best implement them. A sense of safety resultant from group membership and/or the environment allows one to evaluate and plan actions for a greater degree of success. Thus, positive group experiences may reduce fear and anxiety as efficacy increases (Bandura, 1977). In addition, our ability to make inferences enables us to build upon what we have socially learned in order to extend our understanding to abstract and new situations. Consequentially, this new understanding has the potential to become an innovation (Bandura, 1977).

In order to highlight this blend of behavioral and cognitive theories, Bandura (1977) emphasized the interplay between antecedent and consequent determinants and our processing of the two. In other words, precursor events and ideas we have before a situation shape our actions and choices. Meanwhile, our understanding of anticipated consequences – and the experience of past consequences – contributes to our new understandings. It is important to note that through our learning, we *influence* ourselves to act; we predict the outcomes of our behaviors, and this anticipation directs us. People don't simply react to their environment or situation; they use their ability to interpret, and thus cognition ultimately shapes their behaviors.

Bandura's social learning theory eventually evolved and took on several additional nuances to form *social cognitive theory*. With this theory, Bandura (1997) further delves into the idea of human choice and agency. In general, social scientists consider agency to refer to any human's (or other entity for that matter) capacity to act – no matter whether it be an unconscious, involuntary behavior, or an intentional, goal directed activity. In the philosophical realm – particularly Marxism, Hegelianism and

other 19th Century social thought - human agency has actually been considered a collective and historical notion, rather than an individual construct. Bandura argued solely in support of intentional agency - that humans and organizations make choices based on the processing of experiences. On top of his three original sources of information to inform efficacy (mastery experiences, vicarious experiences, and verbal persuasion), Bandura included the concept of affective state (emotion). A person's ever-changing feelings can also influence perception of self.

Social learning and social cognitive theories also explain how we reinforce our behaviors, and how others may do so. This is important to consider in relation to self-efficacy, as reinforcement may moderate our motivation to accomplish our goals. As we achieve valued outcomes, our internal sense of accomplishment serves as a self-reward. Personal efficacy can therefore grow under the right conditions, along with favorable experiences. In a group, social reinforcement is a powerful motivator, particularly if values and expectations of all participants are complementary. This idea closely relates to theories of affiliation and attribution.

### **Clarifications Regarding Types of Efficacy**

In considering *teacher* self-efficacy, it is wise to articulate the difference between the ideas of *teaching efficacy* versus *personal efficacy*. Essentially, *teaching efficacy* describes teachers' beliefs that instruction can actually lead to student outcomes – i.e. teaching leads to measurable learning (Ashton, Buhr, & Crocker, 1984). Before a teacher can evaluate his or her own ability to influence student learning, he or she must believe that teaching truly has an impact. For some, external factors such as student motivation, teaching environment, resources, etc. may subjugate a belief in the effectiveness of

teaching. If one holds such an attitude, then an appraisal of self-efficacy may yield mixed results. In such circumstances, a concentrated effort to change teachers' mindsets would be in order.

Alternatively, a teacher's *personal efficacy* is a concept more or less synonymous with popular definitions of teacher self-efficacy. This refers to teachers' beliefs about their own ability to shape student outcomes. Guskey and Passaro (1993) further defined teacher self-efficacy as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated" (p. 3). Additionally, teacher self-efficacy can be further examined to assess whether teachers believe that specific instructional practices can impact student learning, and if they can personally carry out those methods of instruction. It is understandable that a teacher would doubt his self-efficacy if his philosophy and/or preferences conflict with an academic program or specific instructional strategy, since he doesn't believe that a positive outcome will result from utilizing the resources/strategies at hand. In addition, if he thinks that he cannot successfully deliver instruction in the manner that is expected – let's say small group reading or inquiry-based science – then it is reasonable that he would doubt himself.

Several studies have argued that teacher efficacy and teacher self-efficacy may be independent constructs (Ashton & Webb, 1986; Gibson & Dembo, 1984). "Some teachers may believe, for example, that teaching is a potentially powerful factor in student learning, but that they lack the personal ability to affect their own students. At the same time, others may believe that teaching in general has little influence on students, but that they are exceptions to this rule" (Guskey & Passaro, 1993, p.4). On the other hand,

Guskey and Passaro (1993) found that teachers tended not to distinguish between their own personal efficacy and teaching efficacy in general. Instead, they attributed the difference to be an internal versus external distinction, which relates to *locus of control*.

It would appear that the concept of self-efficacy is highly related to *locus of control theory* (Rotter, 1954, 1966). This theory refers to the extent to which people believe that they can control events that affect them. Julian Rotter (1954, 1966) demarcated two sources of personal control: internal and external. People with an internal locus of control tend to believe that they have power over the events and outcomes in their lives. Those with an external locus believe that their decisions and lives are controlled by outside influences. It is important to note that locus of control is a continuum; no individual typically has a mindset that reflects one extreme or the other. In 1966, Rotter actually developed a scale that measures where a person's beliefs fall along this range.

In the context of locus of control theory, one's beliefs and actions tend to vary between the mindsets. Cherry (2014) stated that:

Those with an internal locus of control:

- Are more likely to take responsibility for their actions
- Tend to be less influenced by the opinions of other people
- Often do better at tasks when they are allowed to work at their own pace
- Usually have a strong sense of self-efficacy
- Tend to work hard to achieve the things they want
- Feel confident in the face of challenges
- Tend to be physically healthier
- Report being happier and more independent



- Often achieve greater success in the workplace

Those with an external locus of control:

- Blame outside forces for their circumstances
- Often credit luck or chance for any successes
- Don't believe that they can change their situation through their own efforts
- Frequently feel hopeless or powerless in the face of difficult situations
- Are more prone to experiencing learned helplessness. (para. 6)

Clearly, one's perceptions of locus of control can influence beliefs and actions that are relevant not only to one's home life, but also to one's work. In education, it is important to address teachers' perceptions of locus of control (i.e. over student motivation, learning, classroom management, etc.), since there are numerous outside factors that contribute to K-12 students' academic success – many of which originate outside of the classroom. Some of these obstacles (like parental neglect or financial hardships) may truly lie outside of a teacher's control, which can create a sense of helplessness and frustration – or worse: hopelessness. If teachers become overwhelmed by external factors, self-efficacy will surely suffer. This is particularly common amongst teachers who work with high-needs students (i.e. special education, low-income, minority, etc.). Teachers who work in areas of high poverty and high diversity report less optimistic feelings about their students' achievements and their relationships within the school community (Woolfolk Hoy, Hoy, & Kurz, 2007). Clearly, environmental influences weigh heavily on teachers, contributing to their sense of teaching and personal efficacy. For teachers to psychologically overcome the impact of negative external

controls, a comprehensive system of professional supports – including positive and productive teacher collaboration – is absolutely necessary.

These intertwining concepts (locus of control and self-efficacy) no doubt cause a good deal of confusion in assessing their impact in the classroom. In Bandura's (1997) later works, he concurred that these certainly were distinct ideas with no empirical relationship with each other, yet they both produced some influence over a person's behaviors. Most notably, Bandura (1997) determined self-efficacy to be a stronger predictor of behavior than locus of control.

### **Teacher Collective Efficacy**

In the context of a school community, a teacher represents an individual unit or member of the organization. Her belief in the power of teaching – and her own effectiveness – naturally combines with those of her colleagues. Goddard and Goddard (2001) defined teacher collective efficacy as “the perceptions of teachers in a school that the faculty as a whole can organize and execute the courses of action required to have a positive effect on students” (p. 809). Further elaborating on its importance, they stated that “perceptions of efficacy serve to influence the behavior of individuals and the normative environment of collectives by providing expectations about the likelihood of success for various pursuits” (p.809).

The idea of teacher collective efficacy signifies the shared perceptions of the entire teaching staff within the school community. “Analogous to self-efficacy, collective efficacy is associated with the tasks, level of effort, persistence, shared thoughts, stress levels, and achievement of groups” (Goddard, Hoy, & Hoy, 2000, p. 482). Surprisingly, collective efficacy is often analyzed independently from teacher self-efficacy. In light of

my focus on collaboration, it seems prudent not to ignore or compartmentalize these types of efficacy – as collaboration must also influence the way teachers feel about their effectiveness as a group. I subscribe to the idea supported by Goddard, Hoy, and Hoy (2000) that teacher collective efficacy probably does not exist separately from teacher self-efficacy; they influence each other.

It is critical to retain the understanding that it is through the individual that any organization has the capacity to operate. While individual teacher self-efficacy may be attributed to differences in student achievement and teachers' feelings about their work, the notion of collective efficacy might help us understand why neighboring schools produce variations in student outcomes.

## **Literature Review on Teacher Self-Efficacy**

Research supporting the idea that self-efficacy affects work outcomes, like performance and student achievement, is plentiful. In fact, the correlation between employee attitude, behavior, and performance is perhaps one of the most firmly established ideas in the field of organizational science (Walumbwa et al., 2004).

The ideas of self- and collective efficacy have been well-covered by educational research and are linked to numerous studies on teaming and collaboration (please refer to *Table 1 - Teacher Self-Efficacy Research Summary* for consolidated details about the research covered in this section). Moreover, collective efficacy, or “the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students” (Goddard, Hoy, & Hoy, 2000, p. 482) is tightly linked with how teachers in a school relate to each other. Similarly, weaker relationships and collective efficacy relate to lower achievement amongst students (Goddard et al., 2000). Teachers’ interpersonal interactions are critical determinants of both collective and individual efficacy, which in turn “shape the normative environment of a school, [exert] a strong influence over teacher behavior and, consequently, student achievement” (Goddard et al., 2000, p. 497).

In order to measure this more closely, Goddard et al. (2000) undertook a study to directly tie teachers’ collective sense of efficacy with student achievement. Using student achievement and demographic data from 47 randomly selected elementary schools in a large suburban Midwestern district, researchers assembled a sample of 7,016 students. Researcher-administered teacher surveys were given to groups of faculty at each of the schools; half of each school’s teachers were given a survey that asked about collective efficacy, trust between teachers, and self-efficacy; the other half received a survey that

measured “institutional integrity.” A total of 452 teachers completed the surveys and more than 99% of the returned forms were usable.

With the independent variable of teacher collective efficacy and the dependent variables of standardized math and reading scores, researchers performed multilevel analyses that began with an estimation of the proportion of variance in those scores that occurred between the schools. This is a critical feature of the study since the proportion of variance between schools in math scores (19%) and reading (15%) was statistically significant. Moreover, the study controlled for other variables such as gender, race, and socioeconomic status; SES, in fact was “operationalized as a dichotomous variable” that was determined by whether or not students received free or reduced-priced lunch.

Researchers found that collective teacher efficacy is a significant predictor of student achievement in both reading and mathematics. In fact, the multilevel analysis demonstrated that an increase in one unit on a school’s scale of teacher collective efficacy resulted in a concomitant average gain of 8.62 in math achievement and an 8.49 average gain in reading achievement; in other words, a one-unit bump in teacher collective efficacy was associated with an increase of more than 40% of a standard deviation in student achievement. Moreover, the study confirmed Bandura’s (1993) contention that teacher collective efficacy has a greater impact on student achievement than does socioeconomic status (SES). Therefore, the negative association between SES and student achievement can be offset by the positive association between achievement and teacher collective and self-efficacy.

Though important, Goddard, et al.’s (2000) report does include a few limitations. Primarily, by narrowing the sample to elementary schools — and only those in one urban

district — the study severely limits the generalizability of its findings. The differences in school culture elementary, middle and high schools can be significant, as can the differences between urban and non-urban districts. Also, the narrow sample of a single district means that certain environmental factors (community, leadership, district-wide curricula etc.) may be at work in these schools in a particular way that would not translate outside the district. Nonetheless, these findings are important because the theoretical elements of collective teacher efficacy that Goddard et al. (2000) identified as variables — “group competence” and “task analysis” — are also critical components of most structures of teacher collaboration, and the theories of both self- and collective efficacy undergird the improvements that result from reforms in professional teacher collaboration.

After this study on teacher collective efficacy and student achievement, Goddard and Goddard (2001) noticed patterns in additional data compiled about teacher self-efficacy in different schools. They hypothesized that there may be a causal relationship between teacher collective efficacy and the individual efficacy of those teachers. Goddard and Goddard (2001) conducted a study of teachers in a large urban district in an effort to uncover this possible relationship. Their results showed that variations in teacher self-efficacy were predicted by measures of group collective efficacy – even more so than student demographics and student achievement.

Goddard and Goddard (2001) reasoned “since social cognitive theory specifies that teachers’ perceptions of self and group capability influence their actions, it follows that these actions will be judged by the group relative to group norms such as those set by collective efficacy beliefs” (p. 810). The researchers argued that group social norms

would shape practices within a school – including responses to teaching weaknesses and successes. They equated this to Bandura’s (1977, 1997) concept of social or verbal persuasion. In addition, they contended that when a school experiences high student achievement – as the result of the collective effort of a group of teachers – that the individuals likewise experience it as their own success. So those powerful *mastery experiences* that Bandura (1977) referred to, serve as a source of collective *and* individual efficacy.

Goddard and Goddard (2001) analyzed data collected from 438 teachers in 47 elementary schools within a single district. They used a survey that gathered responses to items from two scales: one on teacher self-efficacy and another on teacher collective efficacy. They adapted their teacher self-efficacy questions (a total of 5 items) from Gibson and Dembo’s (1984) scale, which was originally created to distinguish between teacher self-efficacy and teacher efficacy. In order to measure collective efficacy, the researchers pulled from Goddard et al.’s (2000) scale to create a 21-item scale.

In order to protect teachers’ anonymity, the researchers did not collect information that might reveal any participant’s identity (e.g. grade level taught, gender). However, they did seek to control school-level variables that might have influenced both teacher and collective efficacy. Some of these variables include: free/reduced-price lunch proportions, minority concentration, prior year’s third grade math achievement scores (7<sup>th</sup> Ed. Metropolitan Achievement Test), and school size.

In order to prove that teacher collective efficacy varied from school to school, Goddard and Goddard began their analysis with an unconditional multilevel model of the variation in teacher efficacy across the schools. Once statistical significance of the

variation was established, they moved on to multilevel modeling to prove that the differences were related to school context and collective efficacy.

Collective efficacy scores for each school were developed by calculating the mean of responses to the 21-item collective efficacy scale. Goddard and Goddard (2001) used a principal axis factor analysis to rate teachers' self-efficacy, resulting in scores from 1.40 (low teacher efficacy) to 6.0 (high teacher efficacy). Using this data, the researchers completed a one-way ANOVA with random effects to determine that teacher efficacy varied based on school characteristics. Mean SES, mean prior mathematics achievement, and collective efficacy were found to be significant predictors of variation among schools in teacher efficacy. School size and minority concentration were statistically unrelated to teacher efficacy.

However with further explication, school characteristics proved to account for only about 25% of variance in teacher efficacy. Meanwhile, teacher collective efficacy was determined to account for approximately 75% of the variation. So school collective efficacy clearly predicted teachers' responses to items relating to their own teaching self-efficacy.

School context influences how teachers feel about their own effectiveness and Goddard and Goddard's (2001) study strongly supports the notion that factors relating to the work of the teachers as a group or community have a much greater impact on individual teachers' perceptions – rather than uncontrollable environmental variables (e.g. SES and size of school).

This study was statistically sound, with some minor limitations. For example, no teacher-level data was collected, so the significance of any variance in staffing



demographics could not be assessed. Also, only elementary schools were included in the study, so results for other types of schools (K-8, middle school, high school, etc.) were not available for consideration. In addition, elementary schools are oftentimes neighborhood schools, which make them slightly more homogenous than larger secondary level schools. Finally, all the schools were part of an urban district, so findings may differ in rural or suburban settings. Future research to address these limitations would enable broader generalizability of the findings.

Goddard and Goddard's (2001) study is critical, as their results indicate that: where teachers tend to think highly of the collective capability of the faculty, they may sense an expectation for successful teaching and hence work to be successful themselves. Conversely, where collective efficacy is low, it is less likely that teachers will be pressed by their colleagues to persist in the face of failure or that they will change their teaching when students do not learn. (pp. 815-816).

Relevant to this study is the notion that productive and focused collaboration on teacher teams is a promising way that teachers can develop a sense of confidence in their work together – and individually – as their experiences together have the potential to shape their willingness to persevere in their work.

Another particularly salient study was conducted by a team of American and Italian researchers who examined how teachers' beliefs about their own abilities affected their sense of job satisfaction and students' performance. Caprara, Barbaranelli, Steca, and Malone (2006) recruited more than 2,000 teachers from 102 Italian junior high schools, which represented 75% of a previously stratified random sample of the country's

schools. The Italian school system is of specific interest to this study because in that educational system, Caprara et al. found that:

students' achievements largely rest on the action of multiple teachers who deliver their teaching across grades and classes...[and] the personal efficacy of each teacher largely depends on her or his capacity to contribute to collective endeavors either in integrating one's own capabilities with other colleagues' capabilities... (p. 476)

Collaboration, then, is likely of similar importance to Italian schools as it is to American ones.

During the 1999-2000 school year, Caprara et al. (2006), collected data about students' academic achievement, and subsequently a 90-item questionnaire was delivered to survey 2,184 teachers about their beliefs and attitudes about their jobs. At the end of the 2000-2001 school year, student achievement data was collected once again. The authors hypothesized that teachers' aggregated self-efficacy beliefs would significantly impact student learning, and moreover, that those beliefs would impact job satisfaction, which is known to exert a positive influence on student achievement. Notably, they also considered the idea that teachers' attitudes and student achievement might be a two-way street — that student performance, in other words, impacts how teachers feel about themselves and their work in addition to teachers' attitudes influencing student achievement.

Because the study involved so many schools across Italy, researchers assessed the possibility of variance between individual schools by using the Intraclass Correlation Coefficient (ICC), which is a commonly used statistic to provide a measure of the degree

of group homogeneity in hierarchical data, and found that all study variables had a less-than small grouping effect between schools. They performed an aggregated analysis on the data, and determined that, among other results, teachers do not effectively judge their own sense of personal efficacy without referring to the performance of their colleagues; they use other teachers' performance as a reference to evaluate their own efficacy. The findings also confirmed other studies which indicated that teachers' interpersonal relationships with other school members "strongly influences their level of satisfaction with job conditions and likely, the morale of the whole school..." (Caprara et al., 2006, p.485).

Because this study was performed outside the United States, we cannot necessarily say the findings are fully applicable in an American context. Moreover, since it collected information about teacher self-efficacy and job satisfaction only once, the research does not effectively measure the size of the effect that student achievement has on those factors. Nonetheless, the notion that teachers' ideas about their job are inextricably connected to their relationships with colleagues helps to explain why collaboration and self-efficacy are so often intertwined.

Numerous studies have sought to consider the role of self and collective efficacy as separate and unrelated concepts. More recently, Skaalvik and Skaalvik (2007) analyzed connections between teacher self and collective efficacy, meanwhile correlating these concepts to various outcomes, including motivating students, burn-out and coping with changes and challenges. As global economic competition puts the spotlight on career preparation, these facets of the educational work environment are proving to be more and more important.

Skaalvik and Skaalvik (2007) conducted their study in Norway, fielding 246 teachers as participants from 12 elementary and middle schools (the American equivalents of 1<sup>st</sup> to 10<sup>th</sup> grade). The schools were randomly selected from two cities in a large rural region. The teachers completed a questionnaire that was a unique amalgam of several previously published surveys, plus the researchers' own scale of teacher self-efficacy.

In consideration of expectations of Norwegian Schools, Skaalvik and Skaalvik (2007) developed a survey instrument consisting of six subscales: Instruction, Adapting Education to Individual Students' Needs, Motivating Students, Keeping Discipline, Cooperating With Colleagues and Parents, and Coping With Changes and Challenges. They created a 24-item scale, with 4 items measuring each of the six dimensions. Responses to this scale represent the researchers' independent variable: teacher self-efficacy.

Skaalvik and Skaalvik (2007) sought to relate self-efficacy to four dependent variables: Perceived Collective Teacher Efficacy, External Control, Strain Factors, and Teacher Burnout. Each of these was measured with specific scales or interviews. The researchers ran numerous series of regressions to test for correlations amongst the six dimensions of teacher self efficacy and between both independent and dependent variables. Correlations among the six dimensions were fairly high; supporting the view that self efficacy is a multi-faceted construct. Likewise, relationships among other variables were clarified.

Skaalvik and Skaalvik (2007) determined that teachers perceived collective efficacy, external control, and teacher self efficacy as distinctly different constructs.

However, with no competing paradigms being assessed, I am curious how these discrepancies might otherwise have been perceived by participants. To consider external control (which is akin to *teacher efficacy*) unrelated to teacher self-efficacy seems counterintuitive to me. The researchers found that teacher burnout had a strong inverse relationship to teacher self efficacy. They also found a positive correlation between teacher self efficacy and perceived collective teacher efficacy.

Of all the relationships analyzed, Skaalvik and Skaalvik (2007) reported that their most significant finding was the inverse correlation between teacher self efficacy and teacher burnout. They elucidated that this concurs with Bandura's (1997) statements on the conceptions of environmental roadblocks. Perceived impediments have the power to breed anxiety and fear, and can be compounded by the numerous sources of stress that teachers experience. Unmet expectations and feelings of inadequacy may eventually lead to overwhelming emotional fatigue, leaving one simple solution: resignation. Turnover rates for American teachers are alarmingly elevated in high need schools (Barnes, Crowe, & Schaefer, 2007) and cost the nation billions of dollars (Carroll, 2008). The results of this study suggest that a greater emphasis on understanding and supporting teacher self-efficacy may be one useful means to address teacher turnover and matriculation.

The positive relationship between collective efficacy and teacher self-efficacy is of great interest to me. Skaalvik and Skaalvik (2007) posited that goal attainment was the link here, attributing individual feelings of personal efficacy to the collective endeavors of a group. Collaboration may lead to an increased focus on joint goals, and I will address related theories later in this paper. The researchers also speculated that the positive relationship may be between these types of efficacy could be the effect of vicarious

experiences. “Observing colleagues managing different aspects of teaching may increase individual teachers’ self-efficacy, particularly when teachers work in teams and have opportunities to observe each other” (Skaalvik & Skaalvik, 2007, p. 621). This has positive implications for establishing professional development and training opportunities within the context of the work environment; efforts to increase teachers’ collective expertise through in-house experiences may have a strong impact on the individual teachers’ feelings about their own ability.

One limitation of this study is the fact that it was done in a country whose culture and teaching practices may greatly differ from that of the United States. Since perceptions related to role expectations were the focus, it is obvious that American teachers might interpret and respond different to the survey items. The researchers noted that Norway’s educational emphasis has shifted over to individualized education for students and high levels of cooperation with other teachers and parents. American teachers’ answers to similar inquiries may not yield the similar results, as differentiated instruction and meaningful collaboration are not yet the norm in many school systems. An equivalent analysis in American schools would require a reassessment of Skaalvik and Skaalvik’s (2007) six dimensions of teacher self efficacy.

The four studies examined here provide clear details about the definition and nature of teacher self-efficacy. They also provide strong evidence to support the notion that teacher collective and self-efficacy are strongly correlated to student achievement (and other related, positive outcomes). Table 1 provides a concise summary of these studies. In the next section, this paper moves on to the second major construct, examining the definition and value of teacher collaboration.

**Table 1: Summary of Teacher Self-Efficacy Research**

<b>Author(s)/ Year/ Title</b>	<b>Research Question(s)/ Purpose/ Hypothesis</b>	<b>Primary Methodology</b>	<b>Sample/ Participants/ Setting</b>	<b>Key Findings</b>
Goddard et al. 2000 Collective Teacher Efficacy: Its Meaning, Measure, and Impact on Student Achievement	Collective teacher efficacy is positively associated with differences between schools in student-level achievement.	Quantitative analysis of teacher surveys and student achievement data	47 randomly selected elementary schools in a large suburban Midwestern district, 7,016 students and 452 teachers	Collective teacher efficacy is a significant predictor of student achievement in both reading and mathematics.
Goddard & Goddard 2001 A Multilevel Analysis of the Relationship Between Teacher and Collective Efficacy in Urban Schools	Specifically, how is collective efficacy related to teacher efficacy?	Quantitative analysis of teacher surveys and school related data (students' free or reduced-price lunch status, gender, minority status, and academic achievement measured by a mandatory state assessment administered to 4th grade students)	438 teachers in 47 elementary schools within a single urban school district	Collective teacher efficacy predicts variation in teacher efficacy above and beyond the variance explained by a number of school contextual factors including socioeconomic status and student achievement.

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Caprara et al. 2007 Teachers' Self- Efficacy Beliefs as Determinants of Job Satisfaction and Students' Academic Achievement: A Study at the School Level	Amongst Six Hypotheses: 1) Teachers' self- efficacy beliefs contribute significantly to students' final academic achievement. 2) Teachers' self- efficacy beliefs positively influence teachers' job satisfaction as evaluated at the same time. 3) Teachers' self- efficacy beliefs play a moderating role with regard to the contribution of satisfaction to students' academic achievement. Specifically, job satisfaction does not contribute to students' academic achievement unless accompanied by high perceived self-efficacy.	Quantitative analysis of teacher surveys and students' average final grades	2,184 teachers from 102 Italian junior high schools	1) There is a reciprocal influence between teacher's self- efficacy beliefs and student's academic achievement 2) Teachers with high levels of self-efficacy beliefs are more likely to be able to create the conditions and to promote the interpersonal networks that nourish and sustain their work satisfaction.
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Skaalvik & Skaalvik 2006 Dimensions of Teacher Self- Efficacy and Relations with Strain Factors, Perceived Collective Teacher Efficacy, and Teacher Burnout	1) Develop and factor analyze a scale of teacher self-efficacy 2) Test whether individual teacher self-efficacy can be distinguished from perceived collective teacher efficacy and external control 3) Examine relations between teachers' perception of strain factors in school , external control, perceived collective teacher efficacy, teacher self-efficacy, and level of teacher burnout	Quantitative analysis of teacher surveys	246 teachers from 12 Norwegian elementary and middle schools	1) Teacher self- efficacy is a multidimensional construct. 2) There is a strong correlation between teacher self-efficacy and teacher burnout. 3) Perceived external control and teacher self- efficacy are practically unrelated constructs. 4) Teacher self- efficacy strongly related to perceived collective teacher efficacy.
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### **Definition and Value of Teacher Collaboration**

Given the importance of teacher self-efficacy, it is wise to cultivate it by whichever means we can. Self-efficacy is rooted in social learning theory and social cognitive theory – both of which emphasize how interpersonal relationships and interactions influence a person’s development of self-efficacy. It is therefore reasonable to hypothesize that teacher collaboration, which is grounded in the social and professional relationships of teachers, influences teachers’ self-efficacy, which in turn impacts student achievement.

According to the Merriam-Webster Dictionary, to *collaborate* means to “to work with another person or group in order to achieve or do something,” “to work jointly with others or together especially in an intellectual endeavor,” and “to cooperate.” In a review of the literature, it seems that no attempt to define and describe collaboration is completely exhaustive, as collaborative action-taking occurs across nearly all realms of society. Gajda (2004) stated that “Collaboration appears to signify just about any relationship between two entities...” and that numerous terms have been used to indicate collaboration, including: “joint ventures, consolidations, networks, partnerships, coalitions, collaboratives, alliances, consortiums, associations, conglomerates, councils, task forces, and groups” (p.68). The ubiquitous nature of collaboration, along with its liberal characterization, allows for extensive interpretation of the concept. This makes further clarification and delineation of the term essential for the purpose of this paper.

In the realm of education, *teacher collaboration* refers to planned and coordinated activities related to content knowledge, student learning and/or instruction. In other words, collaboration is teachers learning together and sharing for the sake of

instructional and/or organizational improvements. It is important to note that collaboration – no matter the participants or context – should be considered a means, rather than an ends. A focus on its process and intent illustrates the power of collaborative action-taking.

Theorists analyzing organizational behavior tout collaboration for its ability to produce a greater outcome than the sum of individual workers' outcomes. Successful group efforts have a potentially magnifying influence on work output; working together may quantitatively and/or qualitatively increase work productivity. In the business field, Rosabeth Moss Kantor (1994) succinctly termed a company's ability to establish and maintain fruitful collaborative groups as its *collaborative advantage*. Her research on the formation of business alliances revealed three fundamental aspects necessary for collaborative success:

- They must yield benefits for the partners, but they are more than just a deal. They are living systems that evolve progressively in the possibilities. Beyond the immediate reasons they have for entering into a relationship, the connection offers parties an option on the future, opening new doors and unforeseen opportunities.
  - Alliances that both partners ultimately deem successful involve *collaboration* (creating new value together) rather than mere *exchange* (getting something back for what you put in). Partners value skills each brings to the alliance.
  - They cannot be “controlled” by formal systems but require a dense web of interpersonal connections and internal infrastructures that enhance learning.
- (p.97)

Collaboration to enhance work outcomes has been studied across fields – from business to medicine to manufacturing. Teacher collaboration has garnered similar attention. Scholars and practitioners have long identified that there are varying degrees to the quality of teacher collaboration – depending on the conditions and purpose – or lack thereof. Richard DuFour (2003), an educator and writer about professional learning communities, explained that:

Although school and district leaders acknowledge the benefits of a collaborative culture, they often have different ideas about what constitutes collaboration. Many equate collaboration with congeniality. They point to the camaraderie of the group — the secret Santa exchanges, recognition of birthdays, Friday afternoon social gatherings — as evidence of a collaborative culture. (p.63)

Widespread agreement with this sentiment, especially among practitioners, has inspired collaboration researchers and writers, like Lave, Wenger, Dufour, Eaker, and Warren Little, to develop and connect specific, concrete theories about what makes collaboration effective. This enables us to ponder the question: What kinds of interactions represent high-leverage collaboration?

High-quality teacher collaboration includes exchanges during formal teams, committees and other groups (e.g. grade-level classroom teachers). This work is associated with both content-specific groups (e.g. a high school math department) and cross-disciplinary teams (e.g. all the teachers on a seventh grade team). Collaboration may also occur in conjunction with planned professional time, as is the case of student data meetings, curriculum mapping, staff meetings, etc. Friend and Cook (1992) listed the defining characteristics of successful educator collaboration as follows:

1. Collaboration is voluntary;
2. Collaboration requires parity among participants;
3. Collaboration is based on mutual goals;
4. Collaboration depends on shared responsibility for participation and decision making;
5. Individuals who collaborate share their resources; and
6. Individuals who collaborate share accountability for outcomes. (pp. 26 – 28)

No matter the venue, subject, or participants one criterion is often shared in defining teacher collaboration: shared purpose or goals. “The *sin qua non* of collaboration is shared purpose.” (Gajda & Koliba, 2007; Koliba & Woodland, 2009; Woodland & Hutton, 2012). Be it explicit or implicit, purpose drives efforts and gives meaning to the work of a group of teachers. When teachers get together to tackle a problem, learn, share, or plan, this is collaboration. This idea of purposeful work together is substantiated by Etienne Wenger’s research on *communities of practice*, which are evidenced across all types of organizations and professional fields, including business, organizational design, government, education, professional associations, development projects, and civic life. According to Wenger (2013), “communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (para. 2). Oftentimes, teacher collaboration takes the form of communities of practice (CoPs), without necessarily taking on the title CoP or some other fashionable acronym. What makes communities of practice unique in education is that they open up a

formerly closed system, as participants develop new understandings and practices from research, their communities, and the expertise and experiences of colleagues.

In addition to opening up one's professional toolbox to others, improvements to instruction need to be regularly assessed for effectiveness. Refinement of practice utilizing a cycle of inquiry can maximize collaborative actions to yield more significant outcomes, which is essential for driving and sustaining school improvement (Gajda & Koliba, 2007). When groups convene for a shared purpose, the collaborative edge is gained by those that follow a cycle of collective dialogue, decision making, action, and evaluation. Gajda and Koliba's (2007, 2008) research on the evaluation of collaborative dynamics promotes systematic self-assessment by the groups. Collaborative units can use the *Teacher Collaboration Assessment Rubric* (TCAR) created by Gajda and Koliba (2008) to monitor the appropriate use of the four domains of the inquiry cycle and ensure that efforts are strategically focused (see Appendix B for details on the TCAR). According to Gajda and Koliba (2008), proper implementation of these four domains "necessitates groups of educators setting goals for instruction, the public sharing of practices, the observation and examination of collaborative behavior, feedback on team performance, and accountability and responsibility to others" (p. 149). The updated and research-validated *Teacher Collaborative Assessment Survey* (TCAS) put forth by Woodland, Lee and Randall (2013) supports the implementation of thoughtful collaborative practices adhering to the process of dialogue, decision-making, action, and evaluation in order to realize positive educational outcomes. Productive teacher collaboration isn't simply a matter of working together; it's a targeted venture towards teacher learning and instructional improvement.

This distinction of shared purpose and self-evaluation separates operative teacher collaboration from simple social exchanges. The effects of working with colleagues towards a common purpose undoubtedly have social and emotional ramifications, which may extend beyond the scope of the group and/or impact its core: the individual. Clearly, the impact that collaboration has on individuals shapes their behaviors, beliefs, content knowledge, and/or instructional practices. An analysis of current understandings regarding teachers' development of self-efficacy and social learning can elucidate why and how this happens.

## **Theories Connecting Collaboration to Self-Efficacy Outcomes**

As a social and professional endeavor, teacher collaboration has the potential to increase teacher self-efficacy in a variety of ways. Notably, teachers collaborate to learn from and with each other, and concurrently “begin to see the ways that group members can contribute to and enrich one another’s development and growth” (Lieberman & Miller, 2008, p.15). This section of the paper establishes a theoretical framework for the relationship between the two concepts, and solidifies the notion that collaboration has proven successful for improving student achievement due to its influence teachers’ self-efficacy.

### **Social Capital Theory**

Economists use the term capital to refer to assets that add up to represent net worth. Typically, one imagines stocks, property, and bank accounts as the context for discussion about capital. However, for hundreds of years, capital has also been used to describe profitable characteristics and abilities of people. 18<sup>th</sup> century economist Adam Smith first wrote about the concept of *human capital* in an attempt to explain the power of a productive workforce. In his seminal work *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), Smith defined human capital as:

the acquired and useful abilities of all the inhabitants or members of the society. The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise that of the society to which he belongs. The improved



dexterity of a workman may be considered in the same light as a machine or instrument of trade which facilitates and abridges labor, and which, though it costs a certain expense, repays that expense with a profit. (p. 227)

Smith recognized that individual laborers brought value to a collective endeavor, and further wrote about how this relates to division of labor. Talents and skills come from education, experience, and training. Thus, human capital is procured and accumulated through strategic interactions with one's environment. This includes social interactions, whose amount and nature may further determine a person's potential.

Dating back to the 1890's, the idea of *social capital* was pondered by sociologists and economists such as Alex de Tocqueville, L.J Hanifan, and John Dewey. By the 1960's and 1970's, the concept of social capital gained interest, as researchers sought to analyze the impact of interactions and networks on personal (and corporate) prosperity. The most common definition of social capital is the collective value of the institutions, relationships, and cultural norms that fuse to regulate the quality and quantity of social interactions (in a group, community, etc.). By *capital*, this theory recognizes the profitability of shared information and opportunities gleaned from both horizontal and vertical relationships amongst individuals.

Researchers Leana and Pil (2006, 2009) found a positive relationship between social capital and student achievement. In fact, both reading and math achievement of students improved based on the level of social capital reported by teachers. Pil and Leana (2009) measured human capital of individual teachers as a composite of: teachers' highest education attainment, years' experience, and math aptitude. Meanwhile, they

measured self-reported social capital according to the number, frequency and closeness of ties with their colleagues/teammates. They found that social capital actually had a greater impact than individuals' human capital on student achievement. Working on a team with close horizontal ties actually moderates the relationship between teacher ability and student performance. In effect, social capital has the power to amplify the instructional quality of even the most skilled teachers.

Hargreaves and Fullan (2012) stated succinctly that “individuals get confidence, learning, and feedback from having the right kind of people and the right kinds of interactions and relationships around them” (p 4). In other words, individual teachers' skill sets are developed through strategic participation in groups with a common goal. Collaboration in schools results in *capital* assets such as shared workload, common assessments, enhanced content knowledge, and more. Such collaborative work allows teachers to connect to peers with purpose and make their own education a priority (Fullan, 2001). Thus a strong emphasis on group learning and growth cultivates the capability of the workforce.

More recently, Hargreaves and Fullan (2012) wrote about a concept they call *professional capital*, an offshoot based on social capital theory. In the teaching profession, the authors consider professional capital to be “the systematic development and integration of three kinds of capital – human, social, and decisional” (p. xv). Professional capital refers to a level of commitment, preparation, and knowledge that allows teachers to make sound judgments about their own practices and competencies. It emphasizes the value of collective responsibility, rather than individual autonomy. While it is possible to cultivate a single teacher's human and social capital, these are enhanced

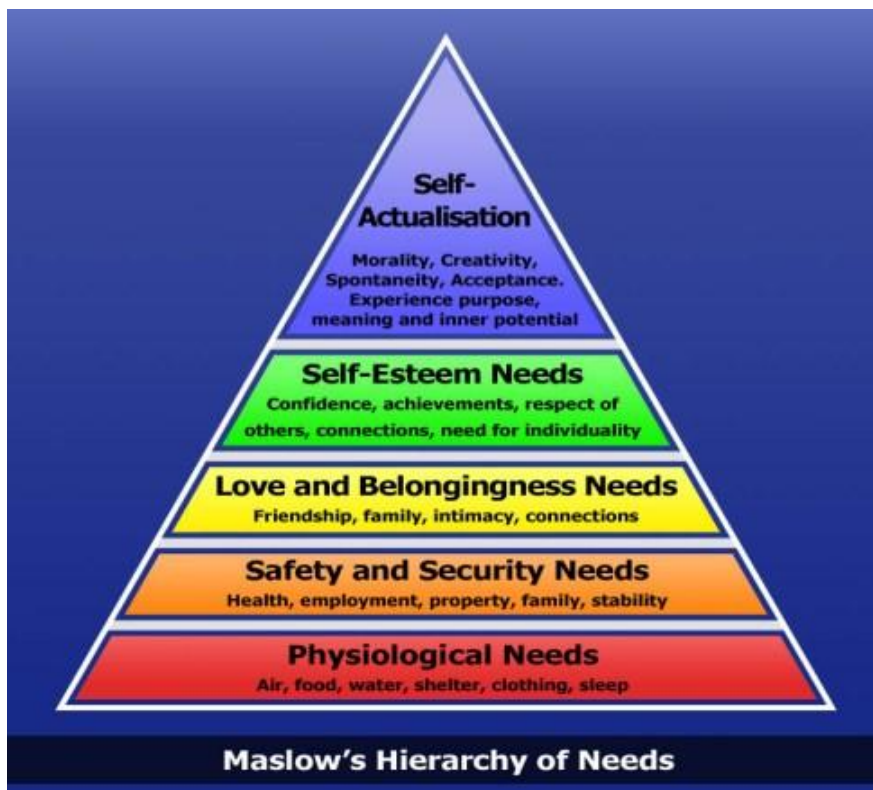
by participating in group efforts. Plainly stated, no one can simply acquire professional capital. Hargreaves and Fullan (2012) literally consider professional capital an investment; gains represent the results of cooperative labors.

In their work on professional capital, Hargreaves and Fullan (2012) incorporate the idea of decisional capital, which is essentially the ability and opportunity to make use of one's expertise as part of a decision-making team or within the confines of a classroom. This concept is very similar to common definitions of self-efficacy. Like self-efficacy, a person's decisional capital is determined by his recognized capacity to perform. However, decisional capital is more strongly aligned with collective endeavors, as the opportunity to exercise a majority of important decision comes from membership in a group with a common purpose – and substantial leverage. Decisional capital reflects a commitment to learning from and with others. Units with high professional capital also show strong group efficacy, as members are not afraid to take chances and learn from mistakes – so long as progress is made towards goals.

### **Maslow's Hierarchy of Needs**

Though not specifically attached to research in education, other popular ideas from social and developmental psychology help to explain how collaboration at work might decrease teachers' anxiety and increase their self-efficacy. Probably the most famous of these is Maslow's *hierarchy of needs*. Dating back to 1943, psychologist Abraham Maslow proposed that humans' psychological development occurs in stages – based on sources of motivation. Successful progress through each stage enables a person to build their personality from meeting the most basic human needs to a truly complex understanding of self. Failure at any particular level may stymie one's potential.

Maslow's hierarchy is of particular importance to my research here, because of the sequence and relationship of his proposed stages. Maslow (1943) used the terms *Physiological*, *Safety*, *Belongingness and Love*, *Esteem*, and *Self-Actualization* to describe the order that humans' needs fulfillment generally move through. Note that the foundational stages are primarily physical before evolving into psychological ones (see *Figure 1* below).



**Figure 1:** *Maslow's Hierarchy of Needs*

Understandably, a person tends to prioritize needs related to his physical well-being out of self-preservation. The base of the pyramid represents those elements needed for human survival – water, food, shelter, etc. Then, the realm expands beyond this into safety needs, which translate in today's society to personal security, health and well-being, and even financial security. Once these are fulfilled, Maslow moves on to the emotional/cognitive needs, including *Love and Belongingness*, followed by *Self-Esteem*.

It is these two stages that are of particular interest to this research, as the benefits of personal relationships ultimately make way for confidence in one's actions. According to Maslow (1943), the need to be accepted and participate as part of a group crosses over into various realms of our lives: work, family, sports, religion, etc. Failure to meet this need leads to loneliness and anxiety – among other negative consequences – making the development of self-respect, confidence, and self-esteem unlikely. This brings us back to Bandura's work on self-efficacy, since this trait is an amalgam of those personal beliefs.

It is important to note that Maslow's hierarchy is not considered a linear sequence, with clean transitions from one phase to the next. In addition, he distinguishes that the *Self-Esteem* stage can be developed with two levels of quality. Through misperceptions and other motivational deficiencies, Maslow described a lower, more superficial level of self-esteem that a person might develop – one that emphasizes respect from others, fame, glory, etc. As compared to a higher form of self-esteem that can be understood as *self-respect* or self-efficacy. This stems from a desire for personal strength, self confidence, mastery, and independence – all of which can only be accomplished through experience. In the context of teaching, productive and satisfying collaborative relationships may facilitate the transition from a strong sense of belonging to self-esteem and self-efficacy, and later to self-actualization.

Maslow (1943) contended that fulfillment of the four base need layers (*Physiological, Safety, Belongingness and Love, and Self-Esteem*) is necessary for a person to develop a stable and productive personality. This foundation enables a person to act with a greater sense of self-reflection. The *Self-Actualization* stage sits atop the pyramid, symbolizing a point in personal growth in which a person seeks to maximize his

potential. For a teacher, movement into the *Self-Actualization* stage likely translates into a greater sense of purpose and the desire to master skills and understandings – those *mastery experiences* Bandura explained as being a source of self-efficacy beliefs.

Teacher collaboration has the potential to serve many purposes. It bolsters shared “funds of knowledge” (Palincsar et al., 1998, p.17), enhances personal and collective goal-setting practices, and fulfills basic psychosocial needs. All of which contribute to teacher collective efficacy and teacher self-efficacy.

### **Empirical Studies Relating Teacher Collaboration to Teacher Self-Efficacy**

The idea that teacher collaboration may impact teachers’ job performance, job satisfaction, and self-efficacy is not brand new. Several strong studies have sought to connect the concepts of collaboration and self-efficacy.

Moolenaar, Slegers, and Daly (2012) conducted research aimed at providing the educational community with a critical link in the chain of logic between high-quality teacher collaboration and student academic outcomes; they examined teacher collective efficacy as a possible mechanism for explaining the suggested relationship between teacher collaboration and student achievement. Their study complements my intent to scrutinize the indirect relationship of collaboration to positive work outcomes in the education field; collaboration brings about efficacy, which then influences behaviors.

Relying heavily on social network theory, which postulates that “social relationships provide access to resources that can be exchanged, narrowed, and leveraged to facilitate achieving goals” (Moolenaar et al., 2012, p. 252), the researchers designed a survey instrument to gauge information about social networks and collective efficacy. The survey was piloted in five Dutch elementary schools and then was distributed to the

faculties of 53 elementary schools in a single district in the winter of 2006. The response rate was high (96.8%) and the gender distribution was reflective of the total population of Dutch teachers. A school-level achievement score was calculated using a nationally-standardized math and language test taken by all Dutch sixth graders, and demographic data was collected from both students and teachers. Social network analysis (SNA) was also used to determine schools' the density and connectivity between teams of teachers in the schools. Unique to this study is that researchers examined groups of teachers as both instrumental networks (teams aimed primarily at achieving organizational goals) and expressive networks (social relationships that transfer resources with affective components such as friendship, social support, advice about personal matters, etc.). The distinction between the two types of networks is critical for a full understanding of the theory of teacher collaboration; while instrumental networks are what schools can officially put in place to facilitate collective efficacy and transfer of critical organizational knowledge, expressive networks, while more time-consuming to grow because of the level of interpersonal trust that is required, "tend to be more stable and often stronger over time" (Granovetter, 1973, as cited in Moolenaar et al, 2012, p. 252).

Social network analysis was used to map teachers' expressive and instrumental networks in each school. Researchers then used a four-step procedure of regression analysis to gauge the indirect effects of teachers' social networks on student achievement. First, teacher demographic information was isolated and analyzed against network structure and student achievement scores. Second, researchers examined correlations between all other study variables (student SES, collective efficacy scores, network density and centralization, and student achievement). Third, the level of density of

teachers' expressive or "advice" networks (meaning those groups of colleagues to whom teachers regularly turn for support and advice) were measured against collective efficacy scores. Finally, the influence of collective efficacy scores on student achievement was calculated.

Not surprisingly, the strength of teachers' expressive networks was found to be strongly and positively connected with teachers' sense of collective efficacy. Moreover, a positive correlation was also found between teachers' collective efficacy and students' language achievement. Math scores, however, did not experience an effect (either positive or negative) that was measurable; rather, socioeconomic status was the strongest predictor of math scores.

This study represents a critical step forward in proving that teachers' teaming structures (imbedded in both instrumental networks and expressive networks) can have a positive impact on student learning. Though the results are limited to language achievement, they are significant nonetheless. Until similar results are found in the United States, though, it is difficult to generalize the work of these researchers to an American context. Moreover, the student body of the single Dutch district used in the study is slightly more homogenous than Dutch schools overall, making it difficult to generalize even to other schools or districts in that country. Moreover, there is difficulty associated with separating instrumental from expressive networks; Moolenaar et al. (2012) struggled with the issue of multicollinearity arising from the similarity between the two types of examined networks. Despite those drawbacks, though, this study is notable, especially for schools at the emerging stage of the collaborative process who are struggling to create instrumental networks that improve student outcomes, because it



emphasizes the need to attend not only to the structures for teaming in place at a school, but the need to develop the expressive or “advice” networks within those structures.

As teachers participate in group endeavors, it is clear that their personal efficacy is directly tied to characteristics of the group. Shortly after Bandura’s research on social learning and social cognitive theories, a study from the University of Florida explored the relationship between group norms and teacher self-efficacy. Though this paper is slightly older, its purpose and findings are highly relevant to the underpinnings of my research.

Ashton, Buhr and Crocker (1984) chose to research teachers’ sense of self-efficacy following studies that strongly linked the concept to student achievement and goal setting. They were curious to better understand if teachers judge their own effectiveness in isolation or in comparison to their peers. They considered this critical to distinguish, as it would inform policymakers’ and administrators’ efforts to increase individual teachers’ self-efficacy.

In order to field responses to both constructs, the authors constructed two different surveys, which were randomly distributed to 65 classroom teachers enrolled in graduate classes at the University of Florida. Both surveys requested responses to 25 challenging teaching vignettes (e.g. conducting difficult parent conferences, meeting complicated teaching objectives, handling students’ misbehaviors, etc.). Teachers who received the self-referencing format were asked to describe how effective they would feel in each scenario, using a scale from ineffective (1) through to extremely effective (7). Others completed a norm referenced version, by which they had the same vignettes, but were instructed to gauge their effectiveness in a comparative format. This ranged from

“less effective than most teachers” (1) through to “much more effective than most teachers” (7).

In addition to the surveys, all teachers completed the Marlowe-Crowne Scale of Social Desirability, which is a 33 item true/false questionnaire. The researchers recognized that because the vignette measure was a self-report instrument, it was possible for the data to be skewed due to social desirability bias. Social desirability bias is the tendency of respondents to answer questions in a manner that will be viewed favorably by others. The Marlowe-Crowne Scale was designed to measure social desirability independent of personality type. In other words, it assesses whether respondents are responding truthfully or are misrepresenting themselves in order to manage their self-presentation. Ashton et al. (1984) reasoned that teachers were more likely to inflate their self-image in the self-referent survey versus the norm-referenced version. They could later use the Marlowe-Crowne to test this theory.

All participants also responded to two items from a previously published self-efficacy assessment done by the Rand Corporation (Berman, 1977). The Rand items are considered strongly representative of the two efficacy mindsets: general *teaching efficacy* and *teaching self-efficacy*. Participants were asked to respond in a Likert scale to the following statements: 1) “When it comes right down to it, a teacher really can’t do much because most of a student’s motivation and performance depends on his or her home environment.” and 2) “If I really try hard, I can get through to even the most difficult or unmotivated students.”

Upon completion, the researchers calculated means for both the self-referent and norm-referenced measures, which turned out to be not significantly different. They also

assessed the two surveys for internal consistency, both of which were high. Ashton et al. (1984) looked for correlations amongst the responses. They found that the norm-referenced measure was significantly correlated to the Rand self-efficacy items, while the self-referenced was not. In addition, they determined that the Marlowe-Crowne significantly correlated with the self-referenced vignettes, but not with the norm-referenced vignettes.

Ashton et al. (1984) concluded that because the self-referent results correlated to social bias and not the Rand self-efficacy measure, teachers must not use their perceptions of self to formulate a concept of their self-efficacy. On the other hand, the high correlation between the norm-referenced measure and the Rand items (but not the social desirability scale), proved just the opposite; teachers evaluate their own performance effectiveness based on what they know and understand about how other teachers perform.

This research implies that opportunities for teachers to share, observe, and discuss instructional performance is crucial to the development of their own self-efficacy. Such opportunities have the power to shape a teacher's view about expectations and best practices. Thus conditions to productively cooperate and collaborate are essential. Instructional leaders can capitalize on this by arranging peer observations and facilitating group reflection on effective teaching pedagogy – amongst other activities.

While this study yielded important findings, it is greatly limited due to its format and age. The researchers developed the vignettes for their instruments based on scenarios and outlooks that were typical of the 1980's – not 2014. Much has changed regarding educational standards (including the introduction of standardized testing for

accountability and the adoption of the Common Core Standards by 45 states). The American school enrollment demographics have also shifted greatly, with public schools now serving a diverse population that includes larger numbers of minorities, English language learners, and low-income students (Maxwell, 2014). Also, there is no record of the teachers' instructional level (elementary, high school, etc.), which may certainly influence the responses and general reactions to each vignette. This study has a structure that could potentially be replicated and extended, should an updated data set be desired.

Diana Pounder's (1999) research on collaborative teaching structures analyzed the impact of teacher teaming as a means to enhance working groups. She sought to assess multiple facets of teacher work groups on the premise that emphasizing teacher involvement strategies in schools may improve the professionalism of individuals. She posited that teaming efforts "allows educators to capitalize on their collective knowledge, expertise, and effort" (p. 319). Similarly to Ashton et al. (1984), the crux of her argument revolved around new-found skills and confidence gained from working with peers.

Pounder (1999) contended that as individuals, teachers working in isolation were actually less autonomous than their peers working on teams. Rather than being weighed down by a responsibility to others, the teaming actually empowers groups of teachers to take control of their work. There is an interdependence that exists between the individuals and the group – and it is necessary for "achieving the broad goals of educating students and creating a school community" (p. 319). Their collective knowledge and coordination contributes to effectively spearheading endeavors that the team chooses. Oftentimes, this

translates not only to instructional matters, but also to decision-making across the school community (i.e. policies, routines, etc.).

In her investigation on work group enhancement, Pounder (1999) pooled data from two middle schools (Grades 7, 8, and 9) in a moderately-sized, urban/suburban school district. The study was done in two phases, with the first entailing site observations and interviews, while the second collected data through a survey. Pounder's findings regarding correlations amongst work-related variables were statistically analyzed solely using the survey data yielded during the second phase.

Approximately 30 teachers from each of the two schools completed Pounder's survey. It is notable that the schools were similar regarding size, student population, and district resources. The major difference was the structure of teacher teams at one, while the other school used a traditional individual job design. Grade-level, interdisciplinary faculty teams were in their second year of implementation, and focused on coordinating instruction for student learning. Pounder's (1999) survey was an amalgam of items on numerous topics, with the independent variable being job characteristics and the dependent variable as work-related measures pertaining to experiences and feelings about the work.

Pounder relied on the work of Hackman and Oldman's (1980) effective Work Group Model as a framework for the survey items on job characteristics. Specific characteristics adapted from their model included:

1. Dealing with others at work (students, parents, other faculty or staff),
2. Skill variety required in your job (number of different skills required to perform the work),

3. Task identity (contribution to a student's annual educational experience, learning, behavior),
4. Task significance (how important is your work, how likely are results to significantly affect the lives or well-being of others, work interdependence),
5. Work discretion or autonomy (in choice of curriculum or materials, instructional methods, scheduling and use of instructional time, student grading decisions),
6. Feedback from the work itself (about classroom teaching performance, general work performance outside the classroom, impact on students while in your class, impact on students outside your class), and
7. Feedback from others (administrators or coworkers) about how you are doing in your work. (p. 330)

Meanwhile, dependent variables including enhancement in the following areas:

1. Teachers' work-related communication and problem solving with others;
2. Teachers' discretion (as a team) in scheduling students and instructional time, although teachers may experience a reduction in individual autonomy;
3. Teachers' feedback about their work;
4. Teachers' sense of collective responsibility for student learning and other student outcomes;
5. Teachers' interdependence and work coordination with others;
6. Teachers' knowledge of other curricular areas and instructional strategies;

7. Teachers' knowledge of students and contribution to their total educational experience;
8. Teachers' sense of satisfaction, efficacy, professional commitment, and similar work-related outcomes; and
9. Student outcomes, including affective states and learning achievement. (p. 324)

The job characteristic variables had items using behavioral descriptors with numerical points assigned along the scale (e.g. *very little* to *very much*, *very inaccurate* to *very accurate*). The other work-related variables were primarily measured on a 7-point Likert scale. Statistics were tabulated with an analysis of covariance (ANCOVA), with Cronbach's alpha computed for all variables to measure item reliability.

Pounder's (1999) analysis of the data showed that teamed teachers reported greater group effectiveness, greater professional commitment, higher internal work motivation, and higher teacher efficacy – amongst other variables describing their attitude about the profession. Some other interesting correlations for teacher teams include increased student knowledge, a feeling of more understanding of student's educational characteristics and personal lives, and increased parent communication. This suggests that coordinated and supported teacher collaboration on teams has a positive impact on many facets of a teacher's work experience. It may be an effective strategy for making improvements to instruction within schools.

This study did not include data on student achievement, however there was an additional survey completed by students. Student surveys measured students' satisfaction with various aspects of their individual schools. These surveys used a 5-point Likert scale

(e.g. *very satisfied* to *very dissatisfied*) to assess student satisfaction with the following school dimensions: (a) teachers; (b) fellow students; (c) schoolwork; (d) student activities; (e) student discipline; (f) decision-making opportunities; (g) school buildings, supplies, and upkeep; and (h) communication.

Examination of student survey data indicated that students from the team-taught school reported significantly more satisfaction with their relationships and interactions with fellow students in their school and safety and student discipline in their school. Though these results cannot be tied to achievement, it is clear that the influence of collaborative teaming permeates the classroom through the teachers.

While the results of this study are promising, it was very small in scale. In addition, the method narrowed in specifically on middle school teacher teams. This limits the generalizability of the findings, as formal teaming is less common at elementary and high school levels. Furthermore, *interdisciplinary* teaming is often not practical at other levels, in which departments are shaped around subject areas or else teachers serve as generalists. Regular team time is also difficult to establish, depending on contractual stipulations, budgets, and staffing.

The team school in this study had only implemented the structure for one year, which may not have been long enough to yield more substantial results. It would be useful to collect data over time to evaluate the long-term benefits of this type of collaboration.

In 2013, Duyar, Gumus, and Bellibas published their research correlating principal's leadership practices and professional collaboration with teachers' self-efficacy and job satisfaction. In this Turkish study, the authors used data gathered from the



OECD's Teaching and Learning International Survey (TALIS) to investigate possible relationships amongst these variables and came to some strong conclusions.

Duyar et al. (2013) administered this causal comparative study including 2,967 teachers and 178 schools/principals. The researchers sought to better understand if administrative practices and collaboration relate to teachers' feelings about their work. They reasoned that establishing this relationship had significant implications for policymaking and teacher training across the globe – particularly as a means for improving the teacher workforce. Participants from 24 countries across the globe completed the TALIS in 2008, however the researchers chose to narrow their focus solely on responses from Turkey.

As teacher-level independent variables, Duyar et al. (2013) chose responses to items on the TALIS that represented to levels of collaboration. They reported data about teacher *exchanges* - discussions on teaching materials, discussion on the development of individual students, attendance at team conferences, etc. - as lower level representations of collaborative endeavors. As an indicator of higher level teacher *collaboration*, they chose responses to items reflecting deeper levels of professional commitment and cooperation. Their second independent variable was principal's leadership practices, which involved responses to items broken down into two categories: *instructional leadership* and *administrative leadership*. Instructional leadership indices were created from data on three dimensions, including framing and communicating the school's goals and curricular development, promoting instructional improvements and professional development, and direct supervision on instruction in the school. Administrative leadership indices were defined by items relating to two other dimensions: accountability

role of the principal and bureaucratic rule following. Also included in this school-level data were responses to control items about average class size, school type and school size.

Teacher self-efficacy and teacher job satisfaction served as dependent variables, and both represented personal level data. A continuous index variable was created from teachers' responses to five questions that attended to teachers' feelings about themselves as a teacher at their current school.

Using linear modeling, Duyar et al. (2013) computed bivariate coefficients between teacher-level and school-level variables, yielding values that were significant. They found that teacher's self-efficacy was moderately correlated to their job satisfaction, making this relationship an interesting concept to investigate in future research. As job satisfaction can be directly linked to job performance in education, establishing a causal (or other) relationship with self-efficacy could enhance our understanding of how to develop a more productive teaching and learning environment.

Duyar et al. (2013) also found that there was a significant correlation between teacher collaboration and both job satisfaction and self-efficacy. In fact, the researchers discovered that it was the strongest predictor (amongst all variables) of teachers' feelings about their work. This suggests that collaborative experiences have a significant impact on teachers' work attitudes. Therefore, policymakers, administrators, and administrative training programs should view professional collaboration as a powerful structural vehicle for improving teachers' feelings about their work. Duyar et al. (2013) contended that "the more teachers collaborate, the more they are able to converse knowledgeably about theories, methods, and processes of teaching and learning" (p. 712). This idea is

similarly supported by recent research in Italy and the United States (Caprara et al., 2006; Tschannen-Moran & Woolfolk Hoy, 2001).

In 2014, TALIS will release a second phase of survey data, which may enhance the findings of this research by allowing for longitudinal analysis of the variables. The current study is limited to a single snapshot in time, so establishing that these variables hold up over time will lend credibility to its results and possibly contribute to the larger umbrella of organizational behavior. It is important to note that Duyar et al. (2013) solely focused on the results from Turkey, ignoring responses from other countries. This does limit the generalizability of their analysis. In addition, the researchers acknowledge that principal leadership and collaboration may have interacted with each other, as collaborative systems and group guidance are often monitored – or even initiated - by the school's leader. Further evaluation of the concepts separately would clarify the strengths and origins of the study's correlations.

This paper has touched upon a core body of literature relating teacher collaboration to teacher self-efficacy, all of which are summarized below in Table 2 – *Summary of Empirical Studies Relating Teacher Collaboration to Teacher Self-Efficacy*. This paper proposes to build upon this store of knowledge by honing in on data from American schools for an updated analysis of how these two concepts correlate.

**Table 2:** *Summary of Empirical Studies Relating Teacher Collaboration to Teacher Self-Efficacy*

<b>Author(s)/ Year/ Title</b>	<b>Research Question(s)/ Purpose/ Hypothesis</b>	<b>Primary Methodology</b>	<b>Sample/ Participants / Setting</b>	<b>Key Findings</b>
Moolenaar et al. 2012  Teaming up: Linking collaboration networks, collective efficacy and student achievement	Examine the relationship between teacher networks and student achievement and the mediating role of teachers' collective efficacy beliefs	Quantitative analysis of teacher surveys and student achievement data	775 teachers and principals from 53 elementary schools (averaging 213 students per school) in a single Dutch school district	Well-connected teacher networks were associated with strong teacher collective efficacy, which in turn supported student achievement.
Ashton et al. 1984  Teachers' sense of efficacy: A self- or norm-referenced construct?	Are teachers' senses of self-efficacy self-referenced or norm-referenced?	Quantitative analysis of teacher surveys	65 randomly chosen classroom teachers participating in graduate courses at the University of Florida (Gainesville)	Teachers' sense of self-efficacy appears to be a norm-referenced construct; Teachers appear to evaluate their effectiveness in terms of their performance in comparison to the performance of other teachers.

Pounder 1999	Test for differences between teamed and non-teamed teachers on work characteristics and work-related variables	Originally a two-phase mixed - method study; Only quantitative data analysis incorporated here – teacher and student surveys	Approximately 30 teachers from 2 middle schools (Grades 7, 8, & 9) from a moderately-sized, urban/suburban school district; 51 students in the team school and 87 students in the non-team school	Teamed teachers reported significantly greater (a) skill variety in their work, (b) knowledge of students, (c) growth satisfaction, (d) general satisfaction, (e) professional commitment, (f) work group helpfulness and effectiveness than did their non-teaming counterparts, (g) internal work motivation, and (h) teacher efficacy
Duyar et al. 2013	1) Does teacher collaboration significantly explain the variation in teacher self-efficacy and teacher job satisfaction within and across schools? 2) Do the managerial and instructional leadership practices of school principals significantly explain the variation in teacher self-efficacy and teacher job satisfaction within and across schools?	Quantitative analysis (Two-level HLM) of surveys from the Teaching and Learning International Survey (TALIS)	2, 967 Turkish teachers and 178 schools/principals	1) Teacher collaboration in schools improves both teacher self-efficacy and job satisfaction. 2) Administrative leadership significantly influenced teacher work attitudes.

## Summary of Findings

*Teacher collaboration* is a blanket term that many researchers, writers, and practitioners use to refer to a variety of cooperative endeavors in schools. What brings most researchers together is the idea that productive collaboration in schools is purposeful and informative – not merely a matter of social exchanges. Participation on formal teacher teams has repeatedly been proven to improve student achievement (Pil & Leana, 2009; Pounder, 1999), and may also influence teachers' feelings of professional commitment and motivation (Pounder, 1999).

Collaborating teachers share collective knowledge, which not only enhances their own understanding of content, but also can incite changes to instruction or other school endeavors (Pounder, 1999). Teachers who work together cooperatively have the opportunity not only to share and learn, but also to problem-solve and plan. Shared learning and problem-solving morph together during collaborative time, creating a group output that certainly exceeds the value of isolated efforts.

Though numerous formal structures exist for collaboration, this study does not set out to scrutinize one particular method. However, while reviewing the literature, two of the most common types of collaborative actions appear to be teaming and professional learning communities. Teaming provides teachers with close and frequent contact with their colleagues, as they plan and teach alongside one another. Meanwhile, professional learning communities provide a flexible framework for bringing teachers together to collaborate on a number of professional topics and initiatives. Both of these forms of collaboration are quite general, and can represent a variety of actions and participants. This leaves collaboration open to interpretation – unless otherwise detailed.

Mastery experiences and success motivate teachers to take on new challenges with less fear and anxiety (Bandura, 1997). Pil and Leana (2009) stated this succinctly: “Frequent interaction with others at work helps employees gather information quickly thereby reducing ambiguity and uncertainty in the environment” (p. 1104). Collaboration thus improves on individual’s human capital, meanwhile offering the opportunity to accumulate social capital, which is directly correlated to student achievement (Leana & Pil, 2006). A platform of collaboration for innovation/effective instruction can potentially sustain itself with support and guidance.

When teachers collaborate with goals in mind, this enhances their overall cooperation towards an endeavor (Latham, 2004) and decreases competition. Group goals can also lead to higher individual performance (Wegge & Haslam, 2005), as teachers use the performance of their peers to set the bar for themselves. In fact, research shows that they form their ideas of self-efficacy in reference to norms established by their colleagues (Ashton et al., 1984; Caprara et al., 2006).

From a psychological standpoint, the basic need for group belonging is necessary for people to develop a strong sense of self (Maslow, 1943). Collaboration in schools enables teachers to progress through levels of need fulfillment required to be confident in their actions and decisions, which is directly related to their sense of self-efficacy.

Teacher collective efficacy and self-efficacy are reported to have a strong – and complex – relationship (Goddard & Goddard, 2001; Skaalvik & Skaalvik, 2006). So the efficacy of the individual teacher relies on that of the group – and vice versa. Certainly, the manner, purpose, and success of teachers’ experiences working in groups can shape both of these types of efficacy. In this highly competitive global economy, it is critical to

further delve into the collaborative processes – and their relationship with teachers’ self-efficacy – in order to move entire schools and districts forward.

Promising research done in Turkey (Duyar et al., 2013) has already solidified the relationship between teacher collaboration and teacher self-efficacy. An up-to-date study here in the United States would inform American school leaders about reliable methods for tapping into the potential of their staffs.



## **CHAPTER 3**

### **METHODOLOGY AND RESEARCH DESIGN**

#### **Introduction**

The knowledge gained from this review of literature clearly points to a strong connection between teacher collaboration and teacher self-efficacy. The following analysis was used to explore the current practices of teacher collaboration and the general sense of teacher self-efficacy expressed across the sample. The purpose of this study was to investigate correlations across the concepts of teacher collaboration and teacher self-efficacy in order to yield information that translates into fresh and effective practices. Most specifically, the data analysis teased out both concepts in a manner that has not yet been tackled by researchers (i.e. narrowed down by specific collaborative actions). In addition, this study quite represents one of the most up-to-date explorations of teacher collaboration and self-efficacy in the United States.

#### **Research Questions:**

1. In which types of collaborative action-taking do US teachers most frequently engage?
  - **Sub-question:** Does participation vary by demographic factors?
2. How do US teachers currently describe their level of self-efficacy?
  - **Sub-question:** Does teacher self-efficacy vary by demographic factors?
3. What is the relationship between teacher collaborative action-taking and teachers' sense of self-efficacy?
4. Which specific types of teacher collaborative action-taking relate most strongly with teachers' sense of self-efficacy?

## **Research Methodology and Procedures**

### **Research Context**

Numerous data sets representing information about teaching and learning conditions exist across the United States – and the globe. This study used a current, existing data set for analysis – rather than fielding an original data set, which would most likely be limited by geographic and cost factors. Previous research included in this literature review offered a promising source for relevant data.

Duyar et al. (2013) gained important understandings from their analysis of the 2008 Teaching and Learning International Survey (TALIS), which is sponsored by the Organisation for Economic Co-operation and Development (OECD). The OECD recognized that effective teaching and teachers are vital to producing high-performing students. In order to prepare teachers to face the challenges of 21<sup>st</sup> century education standards, OECD created the TALIS. According to the OECD:

TALIS asks teachers and schools about their working conditions and the learning environments. It covers important themes such as initial teacher education and professional development; what sort of appraisal and feedback teachers get; the school climate; school leadership; and teachers' instructional beliefs and pedagogical practices.

TALIS provides cross-country analysis that helps countries identify others facing similar challenges and learn about their policies.

(Organisation for Economic Co-operation and Development, n.d.)

In 2008, the first TALIS was launched by surveying teachers and principals in 24 countries across the globe. The focus was on lower secondary schooling. With the

implementation of the 2013 survey, TALIS has expanded to include 34 countries, and now includes primary and upper secondary schools. Some countries have selected schools to participate in both the 2012 Programme for International Student Assessment (PISA) and the 2013 TALIS, which widens the scope of potential research foci.

This study analyzed data from items on the 2013 TALIS *Teacher Questionnaire* to better understand which collaborative actions have a greater correlation to teachers' self-efficacy. The results could be used to inform school leaders (such as principals) as to how they can build capacity for teacher collaboration. The 2013 TALIS sample includes approximately 200 *mainstream* schools from each of the 34 participating countries. On average, 20 educators and one leader were chosen to complete the questionnaires (separate versions exist for principals and teachers). Perceptions of collaboration and self-efficacy may be influenced by external cultural variables, so this research paper isolated American schools – with the potential to expand into international analysis in the future. Two sample questions on collaboration action-taking and self-efficacy are included under *Appendix A*.

This paper sought to correlate multiple variables, evaluating their strength and the direction of their relationships. Strong relationships between independent (collaborative action-taking) and dependent (self-efficacy) variables have the potential to inform school leaders as they make decisions regarding staffing, scheduling, professional development and more.

This paper was primarily concerned in evaluating the impact of particular specific collaborative actions that teacher take (“collaborative action-taking”), rather than any particular nomenclature or overarching idea, such as professional learning communities

or teaming. An understanding of those actions would be most beneficial for school leaders who are looking to augment current structures by incorporating new actions into their collaborative repertoire - or else cutting back on those deemed less influential. Knowledge of specific collaborative action-taking behaviors (vs. overarching frameworks) might be of particular use to institutions whose student achievement levels and climate have hit a plateau; in order to improve instruction, principals and supervisors may use new understandings to develop and establish programs to support high quality collaboration among of their faculty. Teachers may also benefit from empirical data related to collaboration, as this type of work is increasingly incorporated on teacher and school evaluation tools, which require stake-holder buy-in for proper implementation.

## **Design**

This quantitative study entailed an ex post facto or *after-the-fact* design, as the data has already been generated, so the independent variable (teacher collaborative action-taking) could not be presently manipulated. This “naturalistic methodology” (Duyar et al, 2013, p. 705) was deemed appropriate as no experimental variable or pre-determined program was introduced at the time of the data collection. There was no target in mind during the survey; its intent was to describe the current state of teacher practices, attitudes, and behaviors. Thus, this study purely utilizes secondary data analysis.

The examination began by exploring (through descriptive statistical analyses) participation in particular actions of teacher collaboration and teachers’ sense of self-efficacy. Next, this study moved on to determine the relationship between frequency of teacher collaboration and teacher self-efficacy. Having done a thorough review of the

literature, this paper assumed that increased opportunities to engage in collaboration will positively relate to higher levels of teacher self-efficacy. Finally, specific manners of collaborative action-taking – and their influence on teacher self- efficacy – were scrutinized.

The research plan utilized a multivariate correlational statistics design in order to analyze the naturally occurring variations in the independent variable. According to Gall, Gall and Borg (2003), basic correlational techniques are used to” measure the degree of relationship between two variables”. (p 339). However, for this study incorporated data representing *more than two* variables (demographics, collaborative actions, etc.), thus multivariate correlational statistics were necessary. This study utilized multiple linear regression analysis, which is appropriate for correlations that a combination of two or more predictor variables. Gall, Gall and Borg (2003) noted that the flexibility of this procedure has popularized its use because:

It can be used to analyze data from any of the major quantitative research designs: causal-comparative, correlational, and experimental. It can handle interval, ordinal, or categorical data. And it provides estimates both of the magnitude and statistical significance of relationships between variables. (p. 340)

## **Hypotheses**

As determined by the literature reviewed within this paper (Duyar et al, 2013; Pounder, 1999), there is a correlation between teacher collaboration and teacher self-efficacy. Considering the nature of self-efficacy, which is developed through experience, expectations, and interactions, it is reasonable to posit that the frequency of participation in collaborative action-taking has an influence on the strength of teacher self-efficacy.

Those who are able to collaborate more often (i.e. engage in more collaborative action-taking) may develop a greater sense of self-efficacy.

This study assumed that not all collaboration is created equal, and some actions may yield stronger and/or different results in teacher self-efficacy. Based on the review of literature and related theory, this paper hypothesized that collaborative action-taking that incorporates direct modeling and mastery experiences – rather than vicarious experiences or verbal persuasion (like that gained from meetings and discussions) – will relate to higher levels of teacher self-efficacy. While Bandura (1977) noted that vicarious experiences and verbal persuasion influence self-efficacy, group sharing of this sort does not require commitment from any party; an advice network can only yield positive outcomes if participants are willing to take an idea back to the classroom – and this is not always the case. In addition, observation and personal mastery are not practically incorporated in group dialogues. Bandura (1997) considered personal mastery to be the most influential source of efficacy information, since the performer obtains direct evidence of success. Observation of competent models can also be powerful. Tschannen-Moran and McMaster (2009) explained:

“when an observer watches a successful teaching exchange, he or she is more likely to see the teaching task as manageable...Competent models transmit knowledge and teach observers effective skills and strategies for managing task demands through their behavior and by revealing their thinking about the task at hand” (p. 230).

Therefore, this paper posited that collaboration which enables direct modeling and shared experiences will have a significantly greater impact on overall teacher self-

efficacy. These are exemplified by items *a-c* (“Teach jointly...”, “Observe other teachers’ classes...”, and “Engage in joint activities...”), *f* (“Work with other teachers in my school to ensure common standards...”), and *h* (“Take part in collaborative professional learning”) from *Question 33*. Theoretically, this paper did not assume that collaboration in the form of discussions or meetings may impact teacher self-efficacy in drastically different ways. Research has not yet specified which collaborative actions are most frequently utilized, nor have any studies linked particular actions to teacher self-efficacy, so this paper will venture into uncharted territory (in the arena of teacher self-efficacy).

As a result, the nine hypotheses for this multivariate correlational research design are as follows:

**Research Question 1:**

In which types of collaborative action-taking do US teachers most frequently engage?

- **Sub-question:** Does participation vary by demographic factors?

No hypothesis (descriptive research question).

**Research Question 2:**

How do teachers currently describe their level of self-efficacy?

- **Sub-question:** Does teacher self-efficacy vary by demographic factors?

No hypothesis (descriptive research question).

**Research Question 3:**

What is the relationship between teacher collaborative action-taking and teachers’ sense of self-efficacy?

(H1) Higher frequency of teacher collaborative action-taking will positively relate to greater teacher self-efficacy.

**Research Question 4:**

Which specific types of teacher collaborative action-taking significantly relate to teachers' sense of self-efficacy?

(H2) Item 33a ("Teach jointly as a team in the same class") will positively relate to teacher self-efficacy.

(H3) Item 33b ("Observe other teachers' classes and provide feedback") will positively relate to teacher self-efficacy.

(H4) Item 33c ("Engage in joint activities across different classes and age groups (e.g. projects)") will positively relate to teacher self-efficacy.

(H5) Item 33d ("Exchange teaching materials with colleagues") will have no significant relationship with teacher self-efficacy.

(H6) Item 33e ("Engage in discussions about the learning development of specific students") will have no significant relationship with teacher self-efficacy.

(H7) Item 33f ("Work with other teachers in my school to ensure common standards in evaluations for assessing student progress") will positively relate to teacher self-efficacy.

(H8) Item 33g ("Attend team conferences") will have no significant relationship with teacher self-efficacy.

(H9) Item 33h ("Take part in collaborative professional learning") will positively relate to teacher self-efficacy.



## Sample

As noted previously, only responses from teachers in American schools were analyzed. This data set included a total of 1926 individual teachers from just over 120 different American schools. While some countries included teacher participants from primary grade schools, the survey completion in the United States represents only lower secondary teachers (those working in grades 7, 8, and 9). The sample was 65.9% female and 34.1% male.

Demographic data regarding teaching experience and age indicates that the average age of survey-takers was approximately 42 years-old. Teachers reported a mean experience level of nearly 14 years teaching, with close to 8.5 years teaching at their currently assigned school.

A vast majority (97.9%) of the sample population reported completing the equivalence of a Bachelor's or Master's Degree. Similarly, a majority of respondents (96.1%) indicated completion of a teacher preparation program ("teacher training programme").

## Variables and Instrumentation

OECD released the data for the 2013 round of TALIS surveys in June, 2014. This data was available for download to run statistical analysis using the *Statistical Package for the Social Sciences* (SPSS) and other data programs.

**The independent variable.** To represent the independent variable (teacher collaborative action-taking), TALIS Question 33 offered eight items for comparison regarding specific actions of teacher collaboration for evaluation (see Figure 2). These items are rated on a frequency scale, which can be further analyzed to uncover the impact

of the frequency of collaboration, along with which types of collaborative actions teachers most frequently take part in (addressing the first research sub-question).

SPSS was used to create a composite, continuous variable based on all eight parts of the question to signify overall participation in collaboration. The program assigned values of 1-6 for the responses, as noted in Figure 2, with 1 representing the least amount of collaboration (*Never*) and 6 representing the greatest amount of participation (*Once a week or more*). In addition, it was possible to isolate individual items within Question 33 to address the Research Questions 2 and 4.

33. On average, how often do you do the following in this school?		Please mark one choice in each row.					
		Never	Once a year or less	2-4 times a year	5-10 times a year	1-3 times a month	Once a week or more
TT2G33A	a) Teach jointly as a team in the same class ..	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33B	b) Observe other teachers' classes and provide feedback .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33C	c) Engage in joint activities across different classes and age groups (e.g. projects) .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33D	d) Exchange teaching materials with colleagues .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33E	e) Engage in discussions about the learning development of specific students .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33F	f) Work with other teachers in my school to ensure common standards in evaluations for assessing student progress .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33G	g) Attend team conferences .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33H	h) Take part in collaborative professional learning .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>

**Figure 2:** 2013 TALIS - Teacher Questionnaire, Question 33

Question 33's eight items represent a range of activities that may be more or less straight-forward, depending on the reader's level of experience with the education

profession. Further examination was necessary to establish a clear interpretation of the items for the purposes of this research. Further examination and explication of the items was accomplished through further analysis of literature, as well as brief interviews with 7<sup>th</sup> and 8<sup>th</sup> grade teachers local to the researcher (See *Appendix C* for details).

Item 33a had some variance when described by teachers through the interview process. Most of the responses described this action as “co-teaching,” or lessons that have “two teachers in the same classroom.” The greatest difference between responses was the idea of the purpose of this action; some saw the collaboration as special education inclusion, while others interpreted it as interdisciplinary lessons. This seemed to reflect the content specialties of the respondents, as Mathematics and ELA/Reading are often written specifically into the goals of special education students, so teachers of these two subjects more regularly experience co-teaching as a form of inclusion.

Items 33b and d (regarding observing colleagues and sharing materials) were described as “straightforward” by a number of respondents; little variance appeared in the statements of teachers. Similarly, item 33c (referring to joint activities) yielded responses that repeated stated “interdisciplinary” or “cross-curricular” activities and projects. This was interpreted as school-wide or grade-level in scope. In their responses, several teachers stated that cross age group seemed unlikely at this level (middle school), while others completely ignored this aspect of the item in their responses. Though there was some variance for item 33e on discussing student progress, *Teacher 1* summed up their ideas: “Team meeting on a particular student or maybe a discussion in guidance...also, any conversation – like formal or informal.” Special education students came to mind for

a number of these teachers – particularly in reference to Individualized Education Plans (IEPs).

Items 33f, g, and h some distinct variance when addressed during the interviews and thus warranted additional analysis. Question 33f asks that teachers reflect on: “Work with other teachers in my school to ensure common standards in evaluations for assessing student progress.” Some teachers viewed this as formative, common assessments (e.g. chapter tests), while others connected it to district benchmark testing and District Determines Measures (DDMs), which would be tied to evaluation. Another teacher associated the action to curriculum development. Additionally, this item could refer to content area assessments (e.g. chapter quizzes), curriculum-based progress monitoring (e.g. oral reading fluency, computational fluency, etc.), standards-based testing (e.g. state accountability testing), or any other chosen means of student performance evaluation – formative or summative.

The next item, Question 33g solicits information regarding the frequency by which teachers “Attend team conferences.” “Team conferences” may refer to meetings of teaching units within a school. These may be grade-level colleagues or cross-content teams that share students. These types of meetings may run on a calendar schedule or be called as needed. According to *Berckemeyer* (2013), the time is commonly used to:

- Talk about kids
- Discuss curriculum
- Work on professional development goals
- Vent and be around semi-mature adults
- Work on logistics

- Talk about team norms and expectations
- Meet with parents and students
- Work on the weekly homework calendar
- Update the team website
- Review student data and progress. (para. 2)

Team conferences were popularly interpreted along these lines by the teachers who were interviewed. At the lower secondary level (represented as grades seven and eight in the interviews), this is grade level team time, which is interdisciplinary in nature, and sometimes includes school administrators. Also mentioned was special education meetings, which serve the purpose of creating and/or revising individualized education plans, determining appropriate services, and addressing special education eligibility concerns. Participants on these teams by law include: the parents of the child; regular education teachers, special education teachers, service providers (e.g. counselors, occupational therapists, etc), representatives from public agencies (e.g. social services), student evaluators (e.g. psychologists), public advocates, and whenever appropriate, the child with the disability (U.S. Department of Education, 2006).

Finally, the concluding item, Question 33h, requests that teachers indicate the frequency by which they “Take part in collaborative professional learning.” This question is arguably the broadest of the group, and is open to a scope of interpretations. Teacher interviews gleaned a fair variation of responses; however a number of teachers referenced professional development sessions (which the district plans). Other teachers linked this with their Professional Learning Community (PLC) time, or less structured activities (e.g. “Learning together, then discussing it, implementing it together. Go back and reflect with

your peers.”). Williamson and Blackburn (2013) offer five examples of common and effective professional learning practices utilized in schools: book studies, looking at student work, learning walks, lesson studies, and developing consistent expectations. In her review of literature on teacher collaborative learning, Darling-Hammond (2009) offers additional examples: analyzing video tapes of student problem solving, teaching and reflecting on new units of study, peer observation, curriculum development, and student data analysis. Although these lists and teacher responses may not cover all possible scenarios for “collaborative professional learning,” consideration of them as a group gives context to the TALIS responses for Question 33h on this topic.

**The dependent variable.** In order to gauge the dependent variable (teacher self-efficacy), this research utilized responses to the items from Question 34 (see Figure 3), which thoroughly addresses the construct of teacher self-efficacy. This question includes twelve items that concentrate on instructional strategies, classroom management, and student engagement. These items require responses within a range resembling a Likert Scale. The origin of these questions is a measurement tool produced from Tschannen-Moran and Hoy’s (2001) research analyzing the construct of teacher self-efficacy (see Figure 4). While the TALIS survey committee vetted and field-tested these items for their own use, they were initially created in 2001, and incorporated in an instrument called the *Ohio State Teacher Efficacy Scale* (OSTES).

Question 34 focuses on teaching activities, with an opening prompt: *In your teaching to what extent can you do the following?* Each of the items after the prompt notes a specific teacher action – e.g. *Help your students think critically*. No sub-item aims to evaluate general teaching efficacy or incorporate external factors, which would have

potentially compromised the validity of this question. This was central to the research of Tschannen-Moran and Hoy (2001), who scrutinized variation in instruments created and administered by previous researchers. In the 1980's and 1990's, research to define teaching efficacy, teacher self-efficacy, and personal versus external control were fairly popular. The OSTES sought to narrow the focus specifically to teacher self-efficacy, also referred to by Tschannen-Moran and Hoy as *teacher personal efficacy*. The twelve items from the OSTES represent an effort to capture teacher self-efficacy without the bias of external factors or context. In the past, self-efficacy questionnaires had been tailored to reflect particular circumstances (e.g. the vignettes of Ashton, et al., 1984) and/or subject areas (e.g. teaching science in Riggs and Enochs, 1990). The OSTES attempted to optimize the level of specificity within the questions to limit the impact of contextual bias amongst respondents. Because Question 34 provides an appropriate variety of questions, which have been vetted and field-tested by previous researchers, it therefore serves as a legitimate measurement of teacher self-efficacy.

Overall teacher self-efficacy would effectively be assessed as a composite, continuous variable for each individual completing the survey. Within SPSS, values of 1-4 were assigned for the responses, as noted in Figure 3, with 1 representing the lowest perception of teacher self-efficacy (*Not at all*) and 4 representing the highest perception of self-efficacy (*A lot*).

**34. In your teaching, to what extent can you do the following?**

*Please mark one choice in each row.*

		Not at all	To some extent	Quite a bit	A lot
TT2G34A	a) Get students to believe they can do well in school work ...	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34B	b) Help my students value learning .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34C	c) Craft good questions for my students .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34D	d) Control disruptive behaviour in the classroom .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34E	e) Motivate students who show low interest in school work ..	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34F	f) Make my expectations about student behaviour clear .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34G	g) Help students think critically .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34H	h) Get students to follow classroom rules .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34I	i) Calm a student who is disruptive or noisy .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34J	j) Use a variety of assessment strategies .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34K	k) Provide an alternative explanation for example when students are confused .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34L	l) Implement alternative instructional strategies in my classroom .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>

**Figure 3:** 2013 TALIS - Teacher Questionnaire, Question 34



Ohio State teacher efficacy scale (OSTES)
<p><i>Factor 1: Efficacy for instructional strategies</i></p> <ol style="list-style-type: none"> <li>1. To what extent can you use a variety of assessment strategies?</li> <li>2. To what extent can you provide an alternative explanation or example when students are confused?</li> <li>3. To what extent can you craft good questions for your students?</li> <li>4. How well can you implement alternative strategies in your classroom?</li> <li>5. How well can you respond to difficult questions from your students?</li> <li>6. How much can you do to adjust your lessons to the proper level for individual students?</li> <li>7. To what extent can you gauge student comprehension of what you have taught?</li> <li>8. How well can you provide appropriate challenges for very capable students?</li> </ol> <p><i>Factor 2: Efficacy for classroom management</i></p> <ol style="list-style-type: none"> <li>9. How much can you do to control disruptive behavior in the classroom?</li> <li>10. How much can you do to get children to follow classroom rules?</li> <li>11. How much can you do to calm a student who is disruptive or noisy?</li> <li>12. How well can you establish a classroom management system with each group of students?</li> <li>13. How well can you keep a few problem students from ruining an entire lesson?</li> <li>14. How well can you respond to defiant students?</li> <li>15. To what extent can you make your expectation clear about student behavior?</li> <li>16. How well can you establish routines to keep activities running smoothly?</li> </ol> <p><i>Factor 3: Efficacy for student engagement</i></p> <ol style="list-style-type: none"> <li>17. How much can you do to get students to believe they can do well in schoolwork?</li> <li>18. How much can you do to help your students value learning?</li> <li>19. How much can you do to motivate students who show low interest in schoolwork?</li> <li>20. How much can you assist families in helping their children do well in school?</li> <li>21. How much can you do to improve the understanding of a student who is failing?</li> <li>22. How much can you do to help your students think critically?</li> <li>23. How much can you do to foster student creativity?</li> <li>24. How much can you do to get through to the most difficult students?</li> </ol>

**Figure 4:** *Ohio State Teacher Efficacy Scale*

Specific ideas of teacher self-efficacy were isolated and analyzed for descriptive purposes, as intended by Research Question Two. When evaluating a teacher's level of self-efficacy, imparting knowledge is not the only accomplishment. Teaching is a job with numerous responsibilities, likewise teaching self-efficacy is multi-dimensional

construct. During the original research using the OSTES, Tschannen-Moran and Hoy (2001) broke their question items into three facets of teacher self-efficacy: *efficacy for instructional strategies*, *efficacy for classroom management*, and *efficacy for student engagement* (see Figure 4). Similarly, past researchers have recognized the need to flesh out the various facets of teacher self-efficacy for clarity (Ashton & Webb 1982; Bandura, 1977; Skaalvik & Skaalvik, 2007). TALIS did not include all of the items from the OSTES, which could potentially invalidate categorization. Therefore, this research refrained from utilizing a similar manner of discrimination. Instead, items were considered together for the composite variable, and then separately to address Research Question Three.

**Validity of the TALIS Questionnaire.** Instrument validity indicates the “appropriateness, meaningfulness, and usefulness of specific inferences” (Gall, Gall, & Borg, 2003, p.640) made from a test, survey, or other data-collection tool. As noted above, the dependent variable for this study was measured by survey items that had been created and analyzed extensively by means of previous research. Those self-efficacy items originated and evolved from studies dating back to the 1980s. Thus, confidence in the validity of TALIS Question 34 was quite high.

The validity of the collaborative action-taking items was arguably not as strong. It is reasonable that any type of questionnaire is subject to less stringent validity criteria than a content-specific test, quantitatively measured substance, etc., as people answer using their own opinions and schema. Before analyzing the TALIS data, general concepts of collaboration were researched in order to verify the definitions of common terminology and phrases incorporated in the survey items (e.g. *team meeting*,

*professional learning activities, and teach jointly*). Additionally, teachers working local to the researcher were asked to interpret the collaborative actions presented in Question 33. Their responses (included as *Appendix C*) varied on several items, with some teachers actually calling a few questions “vague.” This suggests that future iterations of the TALIS may require some items be revised for clarity and consistency.

**Reliability of the TALIS Questionnaire.** Instrument reliability refers to the internal consistency by which its items can be summed up to measure a particular construct (Gall, et al., 2003). Gall et al. (2003) further define a construct as “a concept that is inferred from observed phenomena and that can be used to explain those phenomena” (p. 439). This study sought to explore and describe two constructs: teacher collaborative action-taking and teacher self-efficacy. Data on these two constructs were measured by scales from Questions 33 and 34 of the *2013 TALIS- Teacher Questionnaire*, respectively. Teacher collaborative action-taking represented this study’s independent variable, while teacher self-efficacy was the dependent variable. Reliability of scaled items is most commonly determined by use of a test statistic known as a reliability coefficient. In the case of questionnaires, interviews, and surveys, acceptable coefficient levels for item reliability may differ than from tests meant to evaluate individuals’ performances, as these instruments are typically collecting information using items of predetermined validity.

In order to measure the reliability of these two scales, confirmatory factor analysis was conducted on the eight teacher collaboration items and the twelve teacher self-efficacy items. “Confirmatory factor analysis (CFA) is a statistical technique used to verify the factor structure of a set of observed variables. CFA allows the researcher to test

the hypothesis that a relationship between observed variables and their underlying latent constructs exists” (Suhr, 2006, p.1). Researchers should utilize the CFA in order to determine if the items within a scale are distinguishable from each other and whether any particular items on the scale impact the overall construct in a nonstandard manner.

For the purpose of this paper, a CFA was completed on each scale to yield an internal consistency coefficient called Cronbach’s  $\alpha$ . Gall et al. (2003) noted that Cronbach’s  $\alpha$  is one of the most widely used reliability statistics in use today. It is recognized for its ability to accurately determine the internal consistency or average correlation of items in a survey instrument, which can then allow researchers to appraise its reliability. In addition, Gliem and Gliem (2003) reported that another valuable characteristic of Cronbach’s  $\alpha$  as a reliability technique is that only a single administration is necessary to provide an estimate of its reliability; testing and retesting for reliability is unwarranted.

Cronbach’s  $\alpha$  was calculated separately for each variable. Items from Question 33 on teacher collaborative action-taking yielded a Cronbach’s  $\alpha$  reliability coefficient of .785, while items from Question 33 on teacher self-efficacy yielded a Cronbach’s  $\alpha$  of .892 (see Tables 3 and 4).

**Table 3:** *Inter-Item Reliability of TALIS Question 33- Teacher Collaborative Action-Taking*

Cronbach's $\alpha$	Cronbach's Alpha Based on Standardized Items	N of Items
.785	.791	8

**Table 4:** *Inter-Item Reliability of TALIS Question 34 – Teacher Self Efficacy*

Cronbach's Alpha Based on		
Cronbach's $\alpha$	Standardized Items	N of Items
.892	.893	12

In general alpha coefficient ranges in value from 0 to 1, with some professionals considering a coefficient of .7 or above as reliable for psychometric instruments (“Cronbach’s Alpha,” n.d.). Gliem and Gliem (2003) found an alpha coefficient of .8 to be sufficient, depending on the number of items incorporated in the analysis. Calculation of Cronbach’s  $\alpha$  for dropped items yielded little statistical difference for each variable (see Tables 5 and 6). However, the collaborative actions described by Question 33 showed slightly greater variance when dropped. This may be the result of the weight they accumulated due to higher frequency of responses (as described in Chapter 5). Therefore, both questions were kept intact for the duration of the study, and were deemed internally consistent.

**Table 5:** *Internal Consistency for Dropped Questions for TALIS Question 33 – Teacher Collaborative Action-Taking*

	Cronbach's Alpha if Item Deleted
a) Teaching in General/ How often do you/ Teach jointly as a team in the same class	.788
b) Teaching in General/ How often do you/ Observe other teachers’ classes and provide feedback	.774
c) Teaching in General/ How often do you/ Engage in joint activities across different classes and age groups	.772
d) Teaching in General/ How often do you/ Exchange teaching materials with colleagues	.749

e) Teaching in General/ How often do you/ Engage in discussions about the learning development of specific students	.753
f) Teaching in General/ How often do you/ Work with teachers to ensure common standards for assessing student progress	.736
g) Teaching in General/ How often do you/ Attend team conferences	.762
h) Teaching in General/ How often do you/ Take part in collaborative professional learning	.751

**Table 6:** *Internal Consistency for Dropped Questions for TALIS Question 34 – Teacher Self Efficacy*

	Cronbach's Alpha if Item Deleted
a) Teaching in General/ To what extend can you do the following/ Get students to believe they can do well in school work	.881
b) Teaching in General/ To what extend can you do the following/ Help my students value learning	.882
c) Teaching in General/ To what extend can you do the following/ Craft good questions for my students	.885
d) Teaching in General/ To what extend can you do the following/ Control disruptive behaviour in the classroom	.885
e) Teaching in General/ To what extend can you do the following/ Motivate students who show low interest in school work	.882
f) Teaching in General/ To what extend can you do the following/ Make my expectations about student behaviour clear	.885
g) Teaching in General/ To what extend can you do the following/ Help students think critically	.881
h) Teaching in General/ To what extend can you do the following/ Get students to follow classroom rules	.884
i) Teaching in General/ To what extend can you do the following/ Calm a student who is disruptive or noisy	.884
j) Teaching in General/ To what extend can you do the following/ Use a variety of assessment strategies	.885
k) Teaching in General/ To what extend can you do the following/ Provide an alternative explanation	.886

### Data Analysis Procedures

This study had four research questions to drive its statistical analysis:

1. In which types of collaborative action-taking do US teachers most frequently engage?
  - **Sub-question:** Does participation vary by demographic factors?
2. How do US teachers currently describe their level of self-efficacy?
  - **Sub-question:** Does teacher self-efficacy vary by demographic factors?
3. What is the relationship between teacher collaborative action-taking and teachers' sense of self-efficacy?
4. Which specific types of teacher collaborative action-taking significantly relate to teachers' sense of self-efficacy?

Analyses of the data began with descriptive statistics on the sample. Frequencies and typical measures of central tendency were collected on the gender, age, experience, and training. This was followed by the evaluation of the reliability of the measurement scales for each variable by means of a confirmatory factor analysis (as previously mentioned). Linear multiple regression analyses for Questions Three and Four followed.

**Descriptive statistics.** Research Questions One and Two required were purely descriptive and required quantitatively describing the information at hand. Descriptive statistics for organizing, summarizing, and displaying the data were employed (i.e. tables, frequencies, measures of central tendency, etc.). Using the assigned numerical values for

the ranks within each item for the two TALIS questions, means for each were computed to generalize the typical responses of the participants. This yielded eight separate means for Question 33 on teacher collaboration and twelve for Question 34 on teacher self-efficacy. Next composite variables were created to describe an overall frequency of teacher collaborative action taking and the average level of teacher self-efficacy. These would later be used for correlation analyses.

Composite variables were further analyzed by disaggregating the data based on demographic characteristics. Where feasible (within the scope of statistical sophistication exhibited in this study), means were compared by utilizing Levene's Test for Equality of Variance and performing independent sample *t* tests. This type of *between-subjects* analysis is appropriate for sample that can be separated by discrete population indicators (Gravetter & Wallnau, 2009). Levene's Test for Equality of Variance is commonly used to determine if the two populations have the same or different amounts of variability between scores. This must be done before conducting and interpreting other statistical calculations (like a *t* test), as samples with different or inconsistent variability in scores may not be reliably compared (Nordstokke, D.W., Zumbo, B.D., Cairns, S.L., & Saklofske, D.H., 2011). When appropriate, *t* tests were performed afterward to gauge the significance of any variance in frequency of collaboration and/or level of teacher self-efficacy.

Additionally, cases were categorized into age groups in order to evaluate differences in participation in collaborative activities. Respondents were grouped in age by decade, and means were compared to examine trends. This same procedure was done to explore variation in teachers' sense of self-efficacy by age group. Though age and



years of work experience often correspond, the teaching profession may reasonably be entered as a mid-life career change. Likewise, as such a heavily feminized profession, there may be gaps in work experience due to child-rearing. Therefore, the process of comparing means was repeated using the demographic data for number of years teaching experience. Similar to the analyses for age, respondents were sorted into experience bands; however these were broken down for every five years (e.g. 0-5 years, 6-10, years, etc.) rather than by decade, as a person's life span and working years vary in scope.

**Linear multiple regression analyses.** This study explored the relationship between independent and dependent variables in several amalgams. In order to verify a relationship, it is necessary to choose statistical methods that target multivariate correlation. Typically, the Pearson correlation (bivariate correlation) is prescribed as the technique to describe the linear relationship between two variables. While the independent and dependent variables have already been declared, linear multiple regressions allows the researcher determine if the independent variable is moderated by specific, identified controls (Gravetter & Wallnau, 2009). The *2013 TALIS - Teacher Questionnaire* garnered demographic and professional information on participants, including age, education level, participation in a teacher training program, and more. Due to the strength in relationships of gender, age, and years of teaching experience – in addition to possible interaction effects amongst the collaborative actions themselves – the choice of the linear multiple regressions for Questions Three and Four was most reasonable. Linear multiple regressions allow all independent variables to be considered simultaneously in order to control for each other.

Research Question Three assessed the relationship between the composite, continuous variables that were created during the descriptive analysis, using the model:

$$\hat{Y} = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + a$$

Here, the variable  $X_1$  stands for gender,  $X_2$  represents age,  $X_3$  signifies years of teaching experience,  $X_4$  stands for the collaboration composite, and  $a$  represents the y-intercept.

Additionally, both Questions 33 and 34 from the *2013 TALIS - Teacher Questionnaire* originally solicited responses that were framed in a rank order (rather than interval, ratio, etc.) – even those items which assessed frequency of participation in various collaborative endeavors. However, the multiple regression procedure does not limit data inputs according to scale type. For Research Question Four, relating each collaborative action to the composite teacher self-efficacy value, all eight individual items for TALIS Question 33 were included as independent variables in the regression on the dependent variable. Alongside those collaborative actions, gender and years of teaching experience served as independent variables, as they were found to be significant during analyses for Question Three.

Thus Question Four utilized the model:

$$\hat{Y} = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 \dots b_{10}X_{10} + a$$

For this model, values for TALIS items 33a through h were represented by  $X_1$  to  $X_8$ , sequentially. Meanwhile,  $X_9$  and  $X_{10}$  stood for gender and years of teaching experience, respectively, and  $a$  represented the y-intercept.

Though correlation does not prove causation, it does *imply* an influence or association, which has already been established within the literature review, and will be explored with the statistical analysis. Linear multiple regression yields the Pearson

coefficient and its adjusted square –  $R$  and  $R^2$ , respectively. These allow the researcher to assess correlation and predictability of relationships. Also calculated are the unstandardized ( $B$ ) and standardized ( $\beta$ ) coefficients, which detail how units of change in the dependent variable are related to one unit of change in the independent variable.

### **Limitations and Delimitations**

In consideration of the current research plan, there are several limitations to the study. Foremost is the fact that the TALIS instrument was not designed with the primary function of analyzing teacher collaboration or teacher self-efficacy. Rather, it is meant to provide a snapshot of themes such as: initial teacher education and professional development, appraisal and feedback, school climate, school leadership, and teachers' instructional beliefs and pedagogical practices. If it had been designed for the sole purpose of analyzing the two constructs of teacher collaboration and teacher self-efficacy, the survey may have differed substantially. For example, the questionnaire does not ask whether collaboration is mandatory or built into the daily schedule, which could potentially influence not only how much collaboration teachers participate in, but their attitude regarding their work together (and alone). Likewise, the items relating to collaboration do not specifically identify some critical elements of strong teacher collaboration, including: decision making, evaluation, and cyclic inquiry (Gajda & Koliba, 2008).

Additionally, not all facets of teacher self-efficacy will be addressed in this study. Bandura (n.d.) offered a 30-item scale measuring the following seven dimensions of self-efficacy: influence decision making, influence school resources, instruction, discipline, enlist parental involvement, enlist community involvement, and create a positive school

climate. Similarly, Skaalvik and Skaalvik's (2001) *Norwegian Teacher Self-Efficacy Scale* includes four dimensions: instruction, student motivation, maintaining discipline, and coping with change. Clearly, teacher self-efficacy is a complex construct, and may require a measurement scale more thorough than the one incorporated in the *2013 TALIS – Teacher Questionnaire*. Should this instrument have been more comprehensive, additional understandings about teacher collaboration and teacher self-efficacy may be derived.

The primary delimitation of this study relates to the sample. The TALIS surveys were administered to a specific grade-level span – lower secondary education - which may influence the behaviors, practices, and attitudes of the respondents, since the structures at the middle level of schooling may consist of formal teams, departments, etc. This is not typically true of primary intermediary, and upper secondary schools, so findings may not be completely generalizable to the elementary or high school levels.

Additionally, the choice of lower secondary educators may also influence demographic statistics. Sample data showed lower female participation rates than the intended population as indicated through the National Center for Education Statistics (NCES). According to data from 2007-2008 school year, 76% of American elementary and secondary school teachers are female (NCES, 2013), versus approximately 66% recorded by the TALIS. This discrepancy is most likely not indicative of skewed data, but rather a cultural difference in grade level preferences by gender. According to NCES (2013), only 52.6% of public school teachers in grades 9 through 12 were female (in 2010-2011). This indicates a general trend of increased males in the work force as grade

levels increase. Thus generalizations beyond teachers in the grade-range sampled may not be accurate.

### **Significance of the Study**

Education isn't solely about imparting measurable content knowledge; it drives the economy, impacts the community, and more. This research study is unique in that it focused on teachers and teacher actions, so the benefits can be expanded beyond student achievement, which was the focus of many previous studies related to teacher self-efficacy. The fundamental definition of teacher self-efficacy is grounded in social learning theory (Bandura, 1977, 1994), which states that people interact with others and their environment to develop understandings and behavioral expectations (Bandura, 1977). Our actions are driven by experiencing the causes and effects of life, and over time, we shape our behaviors by preparing for our own success. This study was predicated on the idea that teachers can control the outcomes of their efforts, which may be emotional, professional, and/or vicarious (i.e. impact on students).

In order to develop and retain a strong teaching workforce, American schools and school systems need to provide teachers with the supports necessary to build their self-efficacy. This is particularly important from a human resources standpoint, as higher levels of teacher self-efficacy correlated to teacher longevity (Burley, Hall, Villeme, & Brockmeier, 1991) and decreased teacher burnout (Chwalisz, Altmaier, & Russell, 1992; Skaalvik & Skaalvik, 2007). Thus, methods for enhancing self-efficacy may ultimately save American schools enormous sums of money earmarked for hiring and training new teachers. Advances made in personnel management may sensibly extend into the realm of organizational behavior, and thereby span across professional industries.

The instrumentation used to measure teacher self-efficacy here allowed for 12 different representations of teacher self-efficacy to be examined. These primarily focused on *efficacy for instructional strategies*, *efficacy for classroom management*, and *efficacy for student engagement*. Targeted analysis of these can potentially inform instructional leaders (administrators, coaches, mentors, etc.) as they work to increase the human and social capital of individual teachers and groups.

The conceptual framework for this study sprouted from social capital theory (Fullan, 2001; Hargreaves & Fullan, 2012; Leana & Pil 2006; Pil & Leana, 2009), which tied together the two major constructs (i.e. teacher collaboration and teacher self-efficacy) that it analyzed. This paper scrutinized the relationship between teacher collaborative action-taking and teacher self-efficacy at a foundational level – delineating particular teacher actions with great depth. The format of this study allowed for examination of both the frequency of types of teacher collaborative action-taking and various demographic components of the sample, which may provide understandings about the interactions between these two variables.

Numerous off-shoots from this study will be possible regarding not only the two major constructs involved here (teacher collaboration and teacher self-efficacy), but related concepts like teacher retention, teacher burnout, coping with change, inciting innovation, and leading and supporting collaborative practices.

## **CHAPTER 4**

### **RESULTS**

#### **Introduction**

The purpose of this study is to investigate the relationship of teacher collaborative action-taking with their self-efficacy. Additionally, descriptive analyses provide a snapshot of current collaborative action-taking across US schools, and illustrate teachers' present sense of self-efficacy. Four research questions and two sub-questions were analyzed. This study utilized existing data from the *2013 Teaching and Learning International Survey* (sponsored by the OECD). Multivariate correlational analysis confirmed that frequency of US teachers' participation in collaborative actions significantly correlated to higher levels of teacher self-efficacy. Actions with the significant relationships included: taking part in collaborative professional learning, working with other teachers to ensure common standards in evaluations for assessing student progress, and engaging in joint activities across different classes. Descriptive analysis suggests that US teachers have an overall positive sense of self-efficacy related to their instructional practices, ability to engage students, and classroom management skills. Differences in self-efficacy and participation in collaborative action-taking are evident by age, experience, and gender. This chapter provides full details of the results and addresses the four research questions (and two sub-questions). Tables and figures are incorporated to exemplify and showcase the quantitative results.

## Results for Research Question One

In which types of collaborative action-taking do US teachers most frequently engage?

**Sub-question:** Does participation vary by demographic factors?

Analyses for this question began with a descriptive assessment of the overall frequency that American teachers commonly participated in the actions included in the TALIS. By assessing the central tendencies of the composite variable, a baseline was established to gauge the individual items. Table 7 demonstrates the summary of teachers' participation in collaborative actions utilizing the composite variable. Frequencies were expressed numerically as noted in Table 8, with the value 1 assigned to "Never" and the value 6 assigned to "Once a week or more." Descriptive analysis showed a mean collaboration frequency of 3.49 on a normal curve, which falls approximately half-way between the two responses: "2-4 times a year" and "5-10 times a year." Each of these two choices for response has its own range, with the former including three possible occurrence rates and the latter including six. This suggests participation in any of the eight activities most likely occurs four to six times a year.

**Table 7:** *Summary of Descriptive Statistics for Collaborative Action-Taking Composite Variable*

		Statistics	SE
Mean		3.4889	.02400
95% Confidence Interval for Mean	Lower Bound	3.4418	
	Upper Bound	3.5359	
Median		3.5000	
Std. Deviation		1.02644	
Minimum		1.00	
Maximum		6.00	



**Table 8:** *Numerical Values for Responses to TALIS Question 33 on Collaborative Action-Taking*

Response Values	1	2	3	4	5	6
Response Labels	<i>Never</i>	<i>Once a year or less</i>	<i>2-4 times per year</i>	<i>5-10 times a year</i>	<i>1-3 times a month</i>	<i>Once a week or more</i>

Table 9 summarizes the responses of participants by collaborative action. A great deal of variation was represented by the data, with a range from 2.03 to 4.79 (out of 6). Item 33e about discussing student learning development was by far the most frequent action that teachers engaged in (4.79), followed by item 33d regarding the exchange of materials with colleagues (4.34). After these two, items 33f, 33g, and 33h pooled around similar responses in frequency (ranging from 3.93 to 4.07). These three actions included: working with teachers to ensure common standards for assessing student progress, attending team conferences, and engaging in collaborative professional learning.

A great divide separated the two least commonly occurring actions from the rest. The least commonly practiced actions were: 33b observing other teachers (2.03) and 33c conducting joint activities with other classes (2.20). Teaching jointly (item 33a) did not fare much better (2.56). This had negative implications for the confirmation of several hypotheses related to Research Question Four, because the actions such as those represented by 33a and 33b were predicted to have a significant impact on teacher self-efficacy. It is reasonable to infer from these frequency results that a relationship would be weak – particularly if teachers were rarely participating in the actions represented in the independent variable.

**Table 9:** *Summary of Means for Collaborative Action-Taking by Item – Descending Order of Frequency*

	Mean	Std. Deviation	N
e) How often do you/ Engage in discussions about the learning development of specific students	4.79	1.427	1806
d) How often do you/ Exchange teaching materials with colleagues	4.34	1.578	1806
f) How often do you/ Work with teachers to ensure common standards for assessing student progress	4.07	1.731	1806
g) How often do you/ Attend team conferences	3.99	1.872	1806
h) How often do you/ Take part in collaborative professional learning	3.93	1.506	1806
a) How often do you/ Teach jointly as a team in the same class	2.56	2.013	1806
c) How often do you/ Engage in joint activities across different classes and age groups	2.20	1.410	1806
b) How often do you/ Observe other teachers' classes and provide feedback	2.03	1.332	1806

When data was disaggregated by demographic indicators, gender exhibited a variation amongst respondents (See Tables 10 and 11). While females' composite collaboration score was 3.5164, males' answers averaged a score that was 2.6% less (3.4343). A *t* test to compare means revealed that there is not a statistically significant difference in the frequency of collaboration between females ( $M=3.5164$ ,  $s=1.00553$ ) and males ( $M=3.4343$ ,  $s=1.06622$ ),  $t(1826)=.203$ ,  $p=.107$ ,  $\alpha=.05$ . In order to interpret the cause for the 2.6% difference, additional *t* tests were run. When drilled down to the individual actions, only four exhibited equal variance to enable reliable comparisons.

And out of those, only three showed statistical differences between the genders: exchanging teaching materials, attending team conferences, and taking part in collaborative learning (see Table 12). In all three of those cases, female means were higher.

**Table 10:** *Teacher Collaborative Action-Taking (Composite) Means by Gender*

Gender	N	Mean	Std. Deviation	SE Mean
Female	1215	3.5164	1.00553	.02885
Male	613	3.4343	1.06622	.04306

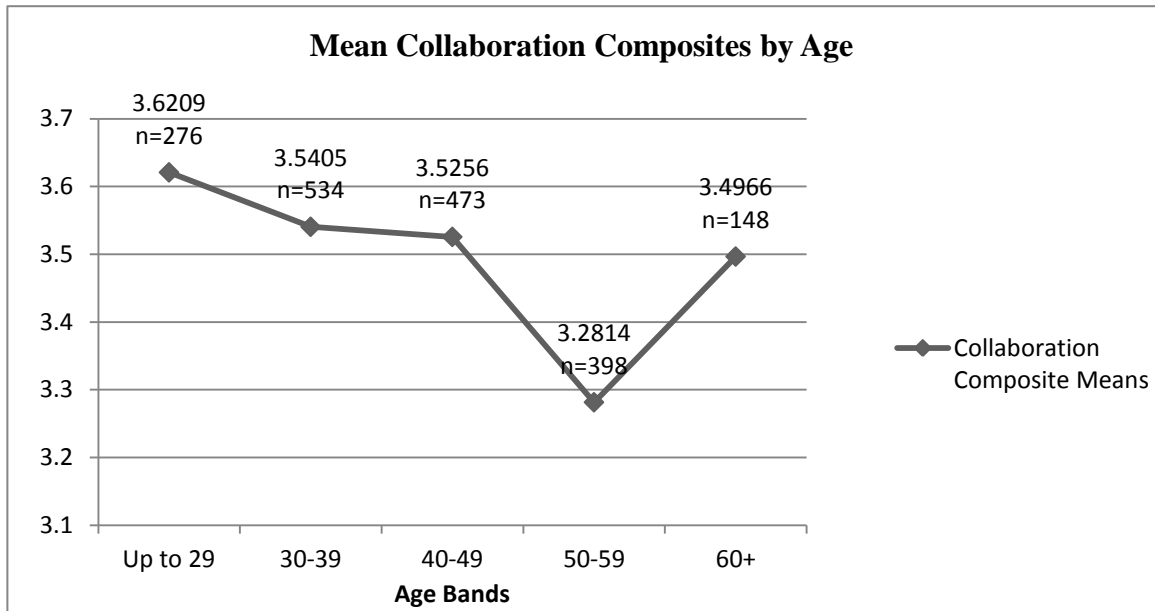
**Table 11:** *Teacher Collaborative Action-Taking (Composite) t Test by Gender*

	Levene's Test for Equality of Variances		t Test for Equality of Means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Equal variances assumed	1.620	.203	1.613	1826	.107	.08202

**Table 12:** *Teacher Collaborative Action-Taking t Test by Gender*

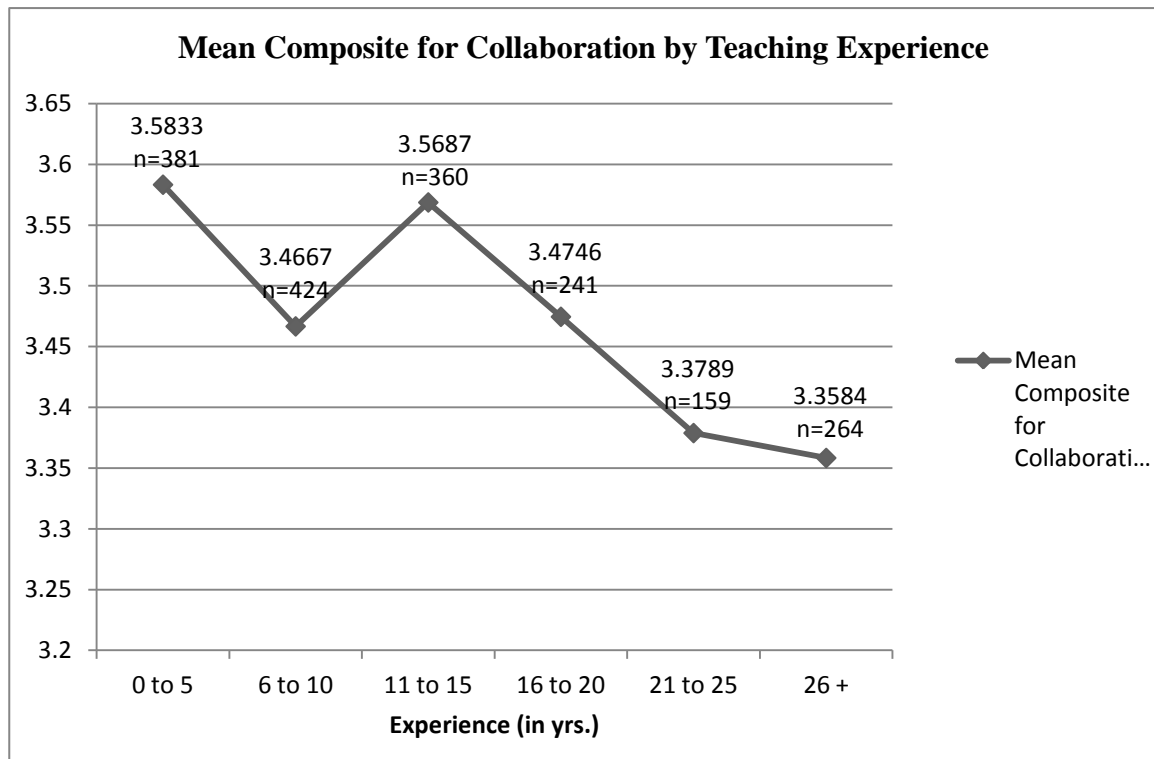
	Levene's Test for Equality of Variances		<i>t</i> test for Equality of Means			
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference
How often do you/ Exchange teaching materials with colleagues	3.272	.071	4.034	1848	.000	.312
How often do you/ Take part in collaborative professional learning	.252	.616	2.754	1851	.006	.204
How often do you/ Attend team conferences	.400	.527	2.840	1848	.005	.261

The sample was next categorized into age bands by decade to evaluate any patterns in collaborative practice evident by age. Figure 5 shows the means for the collaboration composite, indicating a drop off in participation as age increases. Teachers age twenty-nine and younger reported a mean collaboration score of 3.62, while older teachers averaged a 3.50. Collaboration was not disaggregated by action for this part of the study, as that was beyond the scope of the statistical analyses and scale of the paper.



**Figure 5:** *Teacher Collaborative Action-Taking (Composite) Means by Age*

Finally, the means for frequency of participation in collaboration were categorized by years of teaching experience (see Figure 6) reported by the participants. As displayed in Figure 5, fairly steady decreases in participation were noted as teaching experience is accumulated; those educators with 0-5 years of teaching experience reported a mean collaboration frequency of 3.58, and those with at least twenty-five years in the profession averaged 3.36.



**Figure 6:** *Teacher Collaborative Action-Taking (Composite) Means by Years of Teaching Experience*

### Results for Research Question Two

How do US teachers currently describe their level of self-efficacy?

Not only were individual items on teacher self-efficacy analyzed, the composite teacher self-efficacy variable was also examined. Table 13 summarizes the results of the descriptive statistics for the composite variable, considered in this research to represent a teacher's overall sense of teaching self-efficacy related to instruction, student motivation, and classroom management. With the value 0 representing "Not at all" and 4 standing for "A lot", the mean for the sample was calculated to be 3.28. This translates to the average US teacher responding positively about their teaching self-efficacy, as the value 3 for the survey item corresponds to "Quite a bit."

**Table 13:** *Summary of Teacher Self-Efficacy Composite Value*

	N	Minimum	Maximum	Mean	Std. Deviation
Self-Efficacy	1831	1.83	4.00	3.2755	.47355
Valid N (list wise)	1831				

The range of responses for the items from Question 34 (2.87-3.59) was quite narrow, with most of the items hovering around the mean (see Table 14). The area item that received the highest response rates (3.59) was 33c) Make my expectations about student behaviour clear. The lowest rated item was the only one that came close to falling outside of one standard deviation from the mean: 34e) Motivate students who show low interest in school work. Results did not indicate any pattern within the construct of teacher self-efficacy; means varied on all of the topics, not just one particular teacher responsibility. However it was significant that the second lowest action that teachers reported feeling efficacious about was item 34c) Help my students value learning (M=3.13). Thus the two lowest items also shared a common categorization: Efficacy for Student Engagement under the criteria set by the OSTES (Tschannen-Moran & Hoy, 2001). These two items also shared the highest values for their standard of deviation, showing greater variation amongst teachers' responses.

**Table 14:** *Summary of Teacher Self-Efficacy Composite Value – Descending Order of Strength*

	N	Mean	Std. Deviation
f) To what extent can you do the following/ Make my expectations about student behaviour clear	1854	3.59	.575
k) To what extent can you do the following/ Provide an alternative explanation for example when students are confused	1851	3.51	.615
h) To what extent can you do the following/ Get students to follow classroom rules	1852	3.38	.660
d) To what extent can you do the following/ Control disruptive behaviour in the classroom	1852	3.35	.699
c) Teaching in General/ To what extent can you do the following/ Craft good questions for my students	1851	3.30	.666
l) To what extent can you do the following/ Implement alternative instructional strategies	1850	3.26	.734
a) To what extent can you do the following/ Get students to believe they can do well in school work	1854	3.25	.716
j) To what extent can you do the following/ Use a variety of assessment strategies	1852	3.25	.719
i) To what extent can you do the following/ Calm a student who is disruptive or noisy	1851	3.22	.717
g) To what extent can you do the following/ Help students think critically	1852	3.17	.702
b) To what extent can you do the following/ Help my students value learning	1852	3.13	.794
e) To what extent can you do the following/ Motivate students who show low interest in school work	1854	2.87	.795
Valid N (list wise)	1831		



When the data for the composite variable was disaggregated for basic demographic features, several notable patterns were observed. First, a difference in the mean score for teacher self-efficacy was evident by gender (see Table 15). Table 16 shows that a *t* test revealed a statistically reliable difference between the mean teacher self-efficacy of females ( $M=3.2951$ ,  $s=.46849$ ) and males ( $M=3.2376$ ,  $s=.48143$ ),  $t(1828)= 2.454$ ,  $p=.014$ ,  $\alpha=.05$ .

**Table 15:** *Teacher Self-Efficacy (Composite) Means by Gender*

Gender	N	Mean	Std. Deviation	SE Mean
Female	1216	3.2951	.46849	.01343
Male	614	3.2376	.48143	.01943

**Table 16:** *Teacher Self-Efficacy (Composite) t Test by Gender*

	Levene's Test for Equality of Variances		t Test for Equality of Means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Equal variances assumed	.009	.924	2.454	1828	.014	.05744

Additionally, when the data for the composite variable was disaggregated for teacher training, a difference in the mean score for teacher self-efficacy was evident by participation or non-participation in a formal teacher training program (see Table 17). Table 18 shows that a *t* test revealed a statistically reliable difference between the mean

teacher self-efficacy of teacher training program participants ( $M=3.2848$ ,  $s=.46875$ ) and non-participants ( $M=3.0493$ ,  $s=.53759$ ),  $t(1828)=.441$ ,  $p=.000$ ,  $\alpha=.05$ .

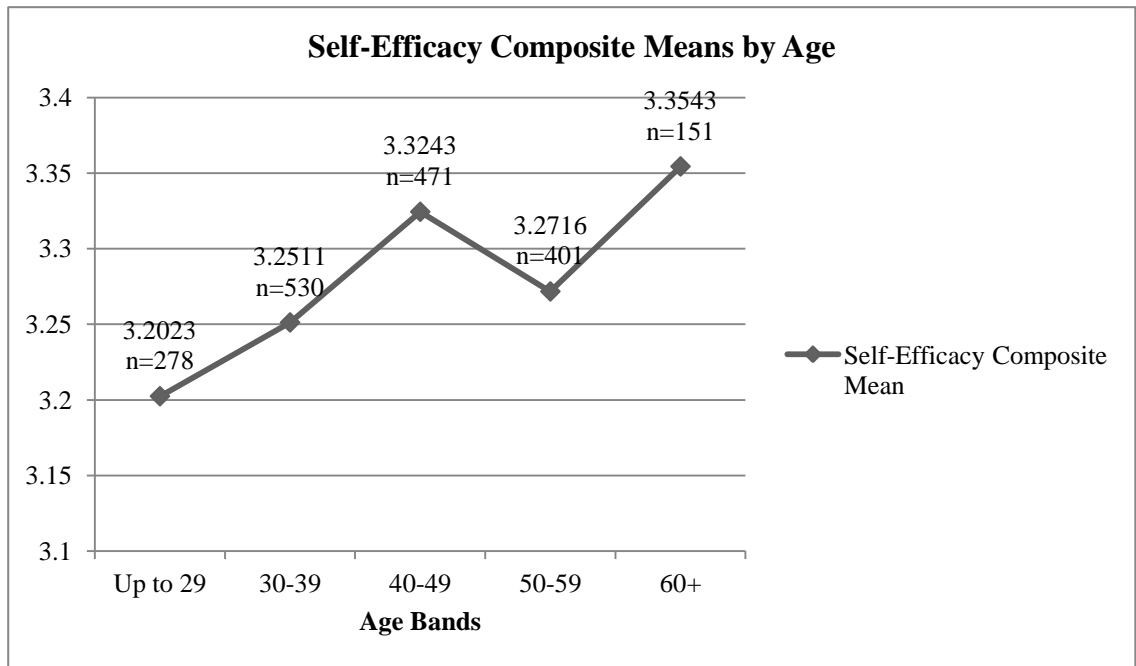
**Table 17:** *Teacher Self-Efficacy (Composite) Means by Participation in a Teacher Training Program*

Did you complete a <teacher training programme>?	N	Mean	Std. Deviation	Std. Error Mean
Yes	1759	3.2848	.46875	.01118
No	71	3.0493	.53759	.06380

**Table 18:** *Teacher Self-Efficacy (Composite) t Test by Participation in a Teacher Training Program*

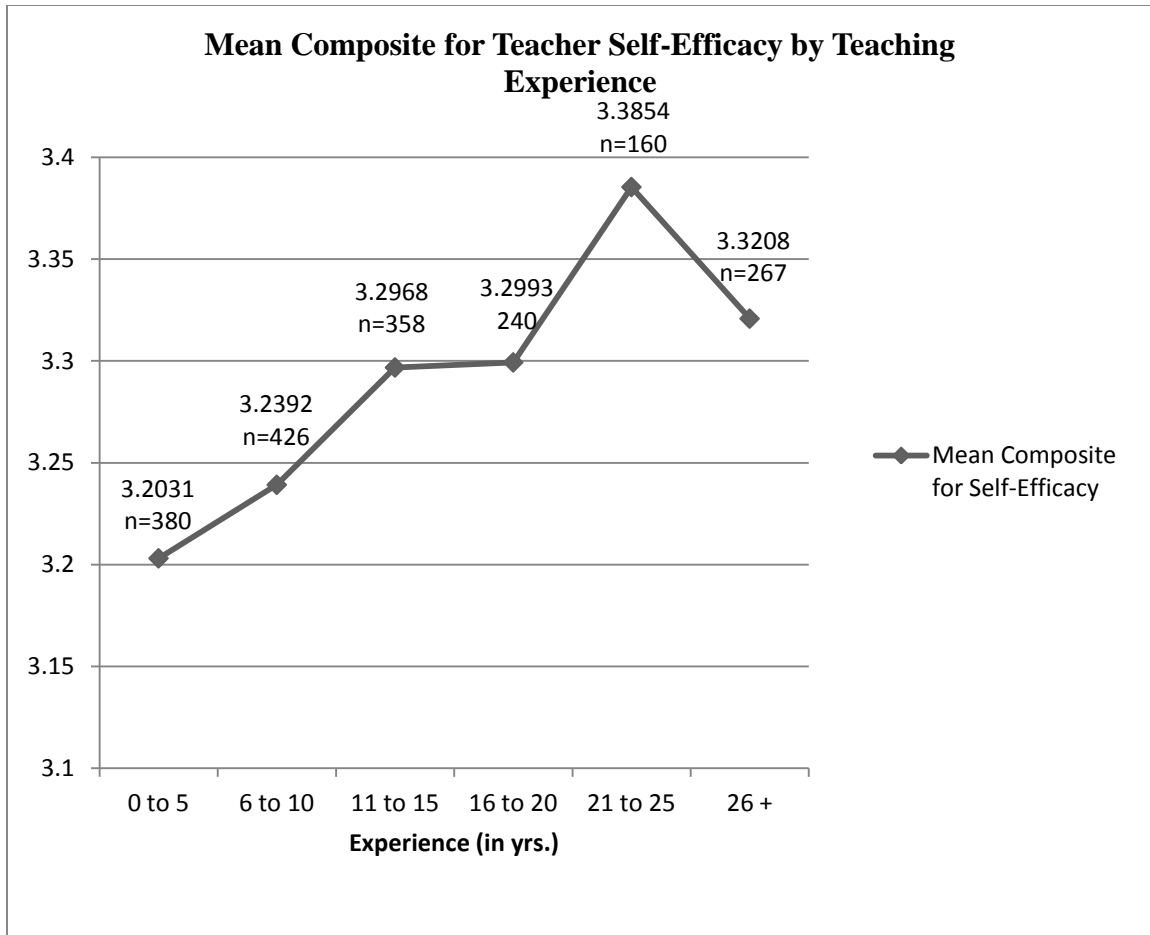
	Levene's Test for Equality of Variances		t Test for Equality of Means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Equal variances assumed	.595	.441	4.126	1828	.000	.23553

Next, mean self-efficacy ratings were categorized by age group. As noted in Figure 7, the composite means for teacher self-efficacy trended upward with the ages of the teachers. Aside for the decrease in the 50-59 age group, self-efficacy means increased from one decade to the next, ultimately increasing from a 3.20 to a 3.35.



**Figure 7:** *Teacher Self-Efficacy (Composite) Means by Age*

The final method for descriptive analysis was disaggregation of the teacher self-efficacy data by teaching experience (see Figure 8). Similar to the results from the age group sort, means for teacher self-efficacy steadily increased with the number of years teaching experience. Aside from one spike in the 21-25 years group, the self-efficacy means reflect the influence of experience on a teacher's overall sense of efficacy.



**Figure 8:** *Teacher Self-Efficacy (Composite) Means by Teaching Experience*

### Results for Research Question Three

What is the relationship between teacher collaborative action-taking and teachers' sense of self-efficacy?

Overall frequency of participation in collaborative actions and overall level of teacher self-efficacy were calculated by creating composite variables using all sub-items within the two questions TALIS questions. As noted in the results for Research Questions One and Two, descriptive analyses for gender, years of experience, and age revealed particular patterns and relationships within the data for both participation in collaborative

action-taking and self-efficacy. Thus, for the following linear multiple regressions, the data from those TALIS items were considered as separate independent variables. This clarified how teachers' participation in collaborative action-taking related to reported self-efficacy, meanwhile controlling for those demographic factors. The linear multiple regression summaries displayed in Table 19 shows that gender ( $B = -.047, p < .05$ ), years of experience ( $B = .004, p < .05$ ), and participation in collaborative actions ( $B = .111, p < .05$ ) each show significant relationships with teachers' sense of self-efficacy. However, age does not ( $B = .002, p < .05$ ). An increase in one unit of participation in collaboration (on a six-point scale), relates to an increase of .111 in teacher self-efficacy (on a four-point scale).

**Table 19:** *Summary of Regression Analyses of Independent and Dependent Variables*

	R	R Square	Adjusted R Square	Std. Error of the Estimate	
	.264	.070	.068	.45698	

	<i>B</i>	SE(B)	$\beta$	<i>t</i>	Sig.
(Constant)	2.824	.070		40.479	.000
Are you female or male?	-.047	.023	-.047	-2.044	.041
How old are you?	.002	.001	.042	1.197	.231
How many years of work experience do you have?/ Year(s) working as a teacher in total	.004	.002	.077	2.180	.029
Collaboration	.111	.011	.241	10.471	.000

### Results for Research Question Four

Which specific types of teacher collaborative action-taking relate most strongly with teachers' sense of self-efficacy?

As was posited, not all collaborative actions yielded the same strength of relationship with teachers' sense of self-efficacy. In fact, some exhibited no significant relationship at all. The results did not completely match up with the expectations set by the hypotheses for Research Question Four, nor did the regression analysis confirm significant relationships between every expected action and teacher self-efficacy.

Table 20 summarizes the regression analysis based on Question 33. Individual actions were entered as the independent variables, with the composite self-efficacy value as the dependent variable. Similar to the regression conducted for Question Three, gender and experience were also included as independent variables, in order to control for these variables while examining the relationship of the collaborative actions to teacher self-efficacy. Since age was not previously found to be a significant variable, it was not included in this regression. As was posited, not all collaborative actions demonstrated the same association on teachers' sense of self-efficacy. The eight items represented distinctly different actions and yielded a range of significance levels (from .557 to .000,  $p < 0.05$ ). Only three out of the eight items displayed significance.

**Table 20:** *Summary of Regression by Collaborative Action-Taking Items (with Composite Variable for Teacher Self-Efficacy)*

R Square	Adjusted R Square	Std. Error of the Estimate
.084	.078	.45428

	<i>B</i>	SE(B)	$\beta$	<i>t</i>	Sig.
(Constant)	2.855	.058		48.886	.000
34 a) How often do you/ Teach jointly as a team in the same class	-.008	.006	-.032	-1.273	.203
34 b) How often do you/ Observe other teachers' classes and provide feedback	.011	.009	.031	1.189	.235
34 c) How often do you/ Engage in joint activities across different classes and age groups	.037	.009	.110	4.216	.000
34 d) How often do you/ Exchange teaching materials with colleagues	.006	.009	.019	.654	.513
34 e) How often do you/ Engage in discussions about the learning development of specific students	.014	.009	.041	1.430	.153
34 f) How often do you/ Work with teachers to ensure common standards for assessing student progress	.022	.008	.082	2.631	.009
34 g) How often do you/ Attend team conferences	.004	.007	.016	.587	.557
34 h) How often do you/ Take part in collaborative professional learning	.033	.009	.104	3.612	.000
Are you female or male?	-.048	.023	-.048	-2.062	.039
How many years of work experience do you have?/ Year(s) working as a teacher in total	.005	.001	.109	4.783	.000

According to the hypotheses, five actions were predicted to yield significant, positive relationships ( $p < .05$ ) with teacher self-efficacy (see Table 21) (i.e., as one variable increases, so does the other). Meanwhile, three were predicted not to have significant relationships. The results did not satisfactorily confirm all eight of these suppositions. Three actions were found to have significant, positive relationships with self-efficacy: 33c) Engage in joint activities across different classes and age groups (e.g. projects) ( $B = .037, p < .05$ ), 33h) Take part in collaborative professional learning ( $B = .033, p < .05$ ), and 33f) Work with other teachers in my school to ensure common standards in evaluations for assessing student progress ( $B = .022, p < .05$ ). All three of these *were* predicted to significantly relate teacher self-efficacy, confirming (H4), (H7), and (H9). (H2) and (H3) also predicted significant, positive relationships, and thus were rejected. All hypotheses regarding actions predicted not to significantly relate, were confirmed.

**Table 21:** *Summary of Hypotheses for Research Question Four*

Actions Predicted to Significantly, Positively Relate to Teacher Self-Efficacy	Actions Predicted to <u>Not</u> Significantly Relate Teacher Self-Efficacy
a )Teach jointly as a team in the same class (H2)	d) Exchange teaching materials with colleagues (H5)
b) Observe other teachers' classes and provide feedback (H3)	e) Engage in discussions about the learning development of specific students (H6)
c) Engage in joint activities across different classes and age groups (e.g. projects) (H4)	g) Attend team conferences (H8)
f) Work with other teachers in my school to ensure common standards in evaluations for assessing student progress (H7)	
h) Take part in collaborative professional learning (H9)	



Those actions yielding no significant relationship with self-efficacy were: 33a) Teach jointly as a team in the same class, 33b) Observe other teachers' classes and provide feedback, 33d) Exchange teaching materials with colleague, 33e) Engage in discussions about the learning development of specific students, and 33g) Attend team conferences.

## **CHAPTER 5**

### **DISCUSSION AND CONCLUSIONS**

#### **Introduction**

The opening chapters of this dissertation defined two constructs that have been widely discussed and independently analyzed for several decades. These two constructs - teacher collaboration and teacher self-efficacy- have proven to be complex concepts, with numerous facets up for consideration. However, previous research has provided us with progressively clearer understandings of their definitions – and their importance. The discourse in this paper on the two constructs was followed with a review of the literature, which described and established the relationship between teacher collaboration and teacher self-efficacy. The purpose of this study directed the methodology of its data analysis towards descriptive and correlative statistical techniques. Next, Chapter 4 outlined the results and compared these to the study's nine original hypotheses. Chapter 5 will further flesh out the meaning of the results, and discuss implications for research, policy, and practice. This paper will conclude with culminating statements about the significance of its findings, along with suggestions for enhancing the growth of our knowledge about the two critical constructs examined here.

#### **Interpretation of the Results and Connections to Existing Research**

This study examined the relationship of teacher collaborative action-taking with teacher self-efficacy. Four research questions were proposed and examined using secondary analyses of an existing data set. Descriptive statistics gave a snapshot of current levels of teacher self-efficacy across the sample, in addition to the frequency of participation in particular collaborative actions. Means analyses also identified patterns

across the sample. Correlative statistics solidified the existence of a relationship between the two primary variables in focus.

### **Research Question One — Examining the Frequency of US Teachers’ Collaborative Action-Taking in the United States**

Research Question One examined the frequency of teachers’ participation in collaborative actions. Though no hypothesis was tested, the analyses for this question provided a snapshot of current collaborative practices. Descriptive statistical analyses revealed that engagement in collaborative activities varied across respondents, and that overall participation in those actions addressed in the TALIS was mediocre – based on the overall composite mean of 3.49 on a scale of 6 (with 6 representing “Once a week or more”). It is important to acknowledge that the value of 1 on the scale actually measures a frequency of *never* participating in the targeted activity. So a mean of 3.49 falls at the approximate middle of the scale’s choices. As described in Chapter 4, the means for each action substantially varied from 2.03 to 4.79. This translates to some of the least frequent actions occurring an average of “Once a year or less”.

Put into the context of an American school calendar (approximately 10 months), the mean for collaboration indicates that the respondents reported participation in this range of collaborative actions less than once a month each. In fact, the frequency of 3.49 falls approximately half-way between the two responses: “2-4 times a year” and “5-10 times a year.” This means that some respondents might only engage in these collaborative actions every other month – or less. With that in mind, it is also important to note that they may never participate in some of the actions, since this is a mean of *all* the actions. Logically, actions with the higher scores must occur more frequently to balance out the

lower scores. Put into context, teachers may complete some of these actions on a weekly basis, but if they do, then others are certainly occurring with a frequency closer to once or twice a year. These findings confirm that the collaborative actions from the TALIS are practiced fairly infrequently by American teachers, and that current levels may not be enough to change teaching practice and improve student achievement (Darling et al. 2010).

Further scrutiny of the data on teacher collaboration indicated that the most typical manner of collaborative action-taking was discussing the learning development of specific students. This was not surprising to the researcher, as the purpose of education reforms like Elementary and Secondary Education Act (ESEA) and its reauthorization, No Child Left Behind (NCLB) Act, were to increase the accountability of schools and teachers in order to hone in on the achievement of individual students. Additionally, the Individuals with Disabilities Education Act (IDEA) is a law that requires education professionals to regularly meet to assess the progress of individual students. Therefore, there are strong education policies in place to promote – and even mandate - this type of collaborative-action taking between teachers. An advantageous piece of qualitative data would be whether these discussions typically regard students who are having learning and behavioral issues in the classroom. Without mandates, do teachers regularly meet to discuss students who excel, or other not-at-risk students?

Coming in second for frequency in participation was the exchange of materials with colleagues. This action represents a very low level of collaborative commitment, as personal interactions need not be lengthy or complex for this to happen. This may also explain why it is so common. When asked about this item, local teachers referred to

sharing tools and materials, which can be interpreted as borrowing; no joint planning or purpose is required. Without collective dialogue, decision making, action, and group evaluation - the standards set by Gajda and Koliba's (2008) *Teacher Collaboration Assessment Rubric* (TCAR) – the quality of this type of collaborative action is questionable. While exchanging materials saves teachers time and is helpful for lesson planning, the impact of exchanging materials on educator professionalism may not be substantial. This item will be addressed again with additional details under Research Question Four.

Amongst the least frequent actions were: observing other teachers and giving feedback, conducting joint activities with other classes, and teaching jointly as a team. These three items had very low means – down between 2.00-2.5 – indicative of participation only one to three times per year. Skaalvik and Skaalvik (2007) considered activities that aligned to these three items as important methods for developing teacher self-efficacy: “Observing colleagues managing different aspects of teaching may increase individual teachers’ self-efficacy, particularly when teachers work in teams and have opportunities to observe each other” (p. 621). With such low frequency of participation, it would appear that US teachers are underutilizing three potentially powerful collaborative actions. There are several notable barriers to their execution. For one, these activities entail significant coordination and resources (e.g. classroom coverage, protocols, etc.). A structure that enables teachers to work in teams with shared planning time and space would also be critical. Additionally, the act of observing other teachers and providing feedback may conflict with teacher contracts and evaluation procedures in various district and schools.

Friend and Cook (1992) pointed out several characteristics of successful teacher collaboration: it is voluntary in nature, there is equity amongst participants, and it is based on mutual goals. Moreover, individuals who collaborate share responsibility, accountability, decision making, and resources. Unfortunately, the least frequent collaborative actions in this study – observing other teachers and giving feedback, conducting joint activities with other classes, and teaching jointly as a team –arguably meet these criteria very well. Certainly, teachers who observe each other, work closely together on joint activities, and otherwise teach jointly share responsibility and have mutual goals. Most likely, they are also sharing space and materials. In addition, when teachers conduct joint activities with each other, they have control over the logistics and details, making decisions on what and how the activities will occur.

Likewise, some of the mid-frequency items on the list – working with teachers to ensure common standards for assessing student progress, attending team conferences, and engaging in collaborative professional learning – share some of these promotable features, including equity, mutual goals, and control over decision-making. It is regrettable that those collaborative actions with theoretically strong characteristics prove to be the least frequent in participation. Though there will always be the argument of quality over quantity, perhaps prioritization of collaborative time should be considered and promoted by school leaders.

Various demographic data was collected on the teachers and schools involved in the TALIS. This study disaggregated the results in order to give fuller descriptions for Research Questions Two and Three. Teacher education level was not used as a criteria for analyzing the frequency of teacher collaboration nor teacher self-efficacy. The

primary reason for disregarding the teacher education level was that 97.9% of respondents indicated a minimum completion of the category “ISCED Level 5A.” This included Bachelor’s degree, Master’s degree, and any combination (e.g. two Master’s) or intermediate level (e.g. Master’s +30). It was reasonable to assume that this categorization represented a wide array of formalized coursework, and that pooling all these possibilities together – particularly when around 1,800 people chose that one category – would not yield any significant information.

By circumstances – or perhaps policy – younger teachers reported higher frequencies of participation in teacher collaborative actions. One explanation for this is that many states and districts require teachers to go through mentoring processes during the first year or more of employment. Teachers who move from one district to another may end up going through the mentoring process several times. This is especially true in a region where layoffs and budgetary issues lead to frequent workforce reductions, as nearly all school districts use some sort of seniority criteria to determine who gets cut (Boyd, Lankford, Loeb, & Wyckoff, 2011). Theoretically, a new, young teacher could repeatedly face layoffs, and go through district-level induction/mentoring repeatedly. This would potentially increase new, young teachers overall participation in collaborative action-taking.

This brings up the question: Do new and/or young teachers collaborate more because they are required by district or state policy to do so? No indicators were present in the data to assess this possibility, nor did a review of the literature on collaboration denote any specific rationale for differences. Additional data specifying *why* teachers collaborate may clear this up.

In addition to age and experience, gender correlated to varying frequencies of collaborative action-taking – however the relationship was not found to be significant for all actions. This study revealed that male teachers report slightly less frequent collaborative action-taking. This result is consistent with previous research by Gumus, Bulut, & Bellibas (2013), who similarly found that “female teachers tend to cooperate and collaborate more than men do” (p.15). The data from this study, along with its review of the literature on teacher collaboration, provided no apparent indicators for these results. One hypothesis for the gender-collaboration gap could be related to the employment imbalance between the genders in the teaching profession; males made up 34% of the respondents in the TALIS survey, which is not significantly different from the national average. In order to substantiate any hypothesis, further investigation of the impact of gender differences in the education profession – as compared to more gender neutral occupations – would be warranted.

Considering the lack of statistical significance, and given that no research or theoretical grounding linked teacher preparation programs with teacher collaborative action taking, this demographic was determined to be irrelevant for further consideration under Research Question One.

### **Research Question Two – Examining how US Teachers Currently Describe their Sense of Teacher Self-Efficacy**

Similar to Research Question One, the purpose of the second research question was to study one of this paper’s key constructs: teacher self-efficacy. As indicated by the mean of the composite variable for teacher self-efficacy, US teachers in general reported positive self-efficacy (a mean equivalent to the rating “Quite a bit”). It is important to



recognize that response bias often plays a role in self-reporting (Furnham, 1986). When people complete questionnaires and surveys, they have a tendency to inflate responses regarding positive personal traits.

Overall, teachers reported higher levels of self-efficacy with increased age. This is supported by the experiential nature of both social learning and social cognitive theories. Just like anyone else, teachers gain confidence in their abilities through actually engaging in activities that they – or colleagues – have been successful. As described by Bandura (1977), teachers amass repertoires of experiences over time – both positive and negative – that shape their outlooks and expectations for the job. However, if schools are to reap the benefits of teachers with high self-efficacy, they certainly cannot wait for their workforce to age and improve, like fine wines and cheeses. This study indicates that one way we can enhance both new and experienced teachers' self-efficacy is by promoting collaboration, which could accelerate teachers' professional growth and effectiveness. It would be prudent to use collaborative actions-taking as a lever to cultivate teachers' self-efficacy from the moment they walk into their first classrooms. While new teacher induction programs and/or mentoring are required in more than half the states (Goldrick, Osta, Barlin, & Burn, 2012), structures for implementation vary. An investigation of their efficacy and the quality of the collaboration evidenced by their required components could shed some light on this. Additionally, longitudinal research following our newest crop of teachers could shed light on how our current teaching atmosphere is more or less conducive to teachers' development of self-efficacy.

Significantly, the two survey items which yielded the lowest scores fell under the area of *Efficacy for Student Engagement* from the Ohio State Teacher Efficacy Scale.

These two items included efficacy for motivating students who show low interest in school work and efficacy for helping students to value learning. Rubie-Davies, Flint, and McDonald's (2012) research on teacher efficacy yielded similar findings, with teachers reporting highly levels of self-efficacy for instruction over student engagement (and classroom management). These actions require changing other people's values and/or mindsets, which have been developed through years of life experiences.

As noted in Chapter Two, researchers Guskey and Passaro (1993) found that teachers tended not to distinguish between their own personal efficacy and teaching efficacy in general. Rather they attributed the difference to be an internal versus external distinction, which relates to *locus of control theory* (Rotter, 1954, 1966). This theory refers to the extent to which people believe that they can control events that affect them. However, these two TALIS self-efficacy items reflect control over *other* people's beliefs and values, which opens up a completely different avenue for examining teacher self-efficacy. It appears that US teachers believe they can influence the *learning* of their students to a greater extent than they can influence their students' values and mindsets regarding learning.

One explanation for this regards the sensitivity around the issue of changing students' values; some educators may not believe it is their responsibility. Teachers wear many hats, and for philosophical or other personal reasons, they may not choose to take on this role for their students. An alternative explanation may be that US teachers consider such challenging work outside the scope of their efforts, and possibly outside the area of teaching efficacy in general. In either case, this would demonstrate that teachers

may relate the two TALIS items to *external factors* –therefore beyond their locus of control – and perhaps independent of their self-efficacy.

Also notable was this study’s finding that female teachers reported significantly higher levels of self-efficacy. This correlates to previous research on teacher self-efficacy (Ross, 1998; Rubie-Davies et al., 2012). Rubie-Davies, et al. (2012) suggested that teaching has a reputation for being a female profession, thus females may align more strongly with the norms and dominant ideology of their schools. Because self-efficacy is a norm-referenced construct, this may lead to females having comparatively higher levels of comfort and confidence in their ability to succeed at the profession.

Almost all teachers in the sample (96.1%) reported that they completed a “teacher training programme.” This is reasonable and expected as the No Child Left Behind (NCLB) Act of 2001 mandated that teachers meet requirements to be deemed “highly qualified,” which requires a bachelor’s degree, proof of subject matter knowledge, and any other state requirements for full licensure. Those additional licensure requirements may include completing teacher training programs, mentoring, predetermined hours of field work, and/or coursework. Testing is required by all states (Certification Map, n.d.); however there is variance between the types and number of tests.

Considering these set professional standards for becoming a teacher, it is reasonable that formal training corresponded to higher levels of teacher self-efficacy. Teachers who have passed rigorous state requirements have been subjected to teacher assessments, mastery experiences, and subject matter instruction. There is no guarantee that a non-trained teacher accumulated opportunities for verbal persuasion, vicarious successes, and mastery experiences related to the education field. However, it is

important to acknowledge that this rationale assumes that the training program was extensive, with opportunities to practice instructional skills in the context of a real classroom, under the supervision of collaborating teachers. In order to more thoroughly assess this, a qualitative analysis of the structures of teacher training programs would be advantageous, as various training formats may not encourage, enable, and/or endorse prolonged, collaborative learning experiences (e.g. online courses, expedited certification programs, etc.). Short-term and online training programs may get teachers into the classroom sooner, but there may ultimately be a deficit down the line regarding teacher self-efficacy. This is especially troublesome as the data from this study indicates that newer teachers exhibit lower levels of self-efficacy – even though a majority of them completed a teacher training program.

### **Research Question Three – The Relationship between Teacher Collaborative Action-Taking and Teachers' Sense of Self-Efficacy**

The third research question addressed the previously established relationship between teacher collaborative actions and teacher self-efficacy (Duyar et al., 2013), but with a focus on teachers in the United States. As earlier research and social theories support, teachers' sense of self-efficacy is a norm referenced construct (Ashton et al., 1984), developed through experiences and interactions with others. Thus, the connection between the two constructs of teacher collaboration and teacher self-efficacy appears to be a natural association, supported by social capital theory (Leana & Pil, 2006; Pil & Leana, 2009) and social learning theory (Bandura, 1995, 1997).

The multiple regression analysis in this study revealed a significant, positive relationship between the two constructs; however the  $R^2$  did not reveal a large influence

from the overall model (including all independent variables). It is quite possible that there is a non-linear (e.g. curvilinear) relationship between the variables. One example of this would be if teacher self-efficacy peaked with a certain frequency and then fell off. A different type of relationship could be confirmed via alternate statistical measurements. In that case, correlation coefficients could vary.

One conflict that bubbles up in discussing the results of this research question (in combination with Research Questions One and Four), is the fact that the frequencies of different collaborative actions – and the strengths of their correlations to self-efficacy - varied greatly. The composite variable solely took the average of the frequencies of all eight collaborative actions. This potentially skewed the overall correlation strength, especially considering the research regarding the development of self-efficacy. Skaalvik and Skaalvik (2007) specifically remarked that “Observing colleagues managing different aspects of teaching may increase individual teachers’ self-efficacy particularly when teachers work in teams and have ample opportunities to observe each other” (p. 621). As noted in the results for Research Question One, these actions, which connect to TALIS items 34 a) teach jointly as a team in the same class, b) engage in joint activities with other classes and age groups, and c) observe other teachers’ classes and provide feedback, were reported as the *least* frequent in participation. This leads to additional questioning: would self-efficacy scores potentially rise if teachers participated in more collaboration entailing the direct modeling and mastery experiences gleaned from items 34 a, b, and c? Bandura’s (1997) research, along with that of Tschannen-Moran and McMaster (2009), support this logic. It is reasonable to guess that the overall collaborative action-taking to self-efficacy coefficient would increase if the teachers

participated more frequently in collaborative actions that theoretically related stronger to their self-efficacy.

Clearly, we now have a new potential answer when posed the questions, “Why is teacher collaboration important?” or “What do teachers get out of collaborating with each other?” They surely gain a lot, and a greater sense of self-efficacy can be added to the list. The relationship between teacher collaboration and teacher self-efficacy is strong, and quite possibly interwoven with numerous other positive beliefs and attitudes about the education profession.

The results from this study indicate a positive relationship, but not necessarily *causation*. In consideration of the numerous variables that might ultimately contribute to a teacher’s sense of self-efficacy (e.g. content area strengths, student demographics, parent-teacher relationship, personal life, etc.), this was not surprising. Ultimately, the data supports the hypothesis that *that greater frequency of teacher collaborative action-taking is associated with greater levels of teacher self-efficacy*.

A greater sense of teacher self-efficacy has proven to shape both ideas and practices (Berman et al., 1977; Muijs & Reynolds, 2002), and ultimately impact the performance of students in the classroom (Ashton & Webb, 1986; Moore & Esselman, 1992; Ross, 1992). Capitalization on its relationship with teacher collaboration would yield professional benefits that extend across the education field (i.e. personnel, professional development, instruction, etc.). In her research on initiating professional learning communities, Diane Wood (2007) noted that collaboration brought about a sense of leadership amongst participants. Thus she stated “when teachers work together successfully, particularly when they have the opportunity to name their own professional

problems and address them, they develop a sense of efficacy” (p. 717). Professional discussions, reflection, and problem-solving enabled this

#### **Research Question Four - The Relationship between Specific Types of Teacher Collaborative Action-Taking and Teachers’ Sense of Self-Efficacy**

The fourth and final research question was presented to assess the variations in the relationships between the different collaborative actions presented in the TALIS and teachers’ overall sense of self-efficacy (measured by the composite variable for teacher self-efficacy). This question was posed in order to assess the power of each action to inspire expertise and effectiveness in participants.

The items with statistically significant relationships to self-efficacy – and were 33h) Take part in collaborative professional learning, 33f) Work with other teachers in my school to ensure common standards in evaluations for assessing student progress, and 33c) Engage in joint activities across different classes and age groups (*e.g. projects*). The positive relationships between each action and teacher self-efficacy indicate that each will trend in a positive direction as the other one does. These actions imply that specific programs, activities, students, etc. would be the focus of these endeavors, implying a shared purpose and some type of group or individual decision-making. Participation in outcome-oriented group actions “generates ‘social capital’ that enables new levels of collaboration and coordination: for building and sharing collective knowledge, and for developing members’ skills” (Snyder, Wenger, & de Sousa Briggs, 2003, p. 19). It must also be acknowledged that these particular teacher collaborative actions require a high level of structure and guidance in order to be effective; these are not mere exchanges. Elaboration on this will follow in the *Implications* portion of this chapter.

Notably, two out of the five collaborative actions that were hypothesized to significantly relate to teacher self-efficacy were amongst the lowest for both reported participation and correlation to self-efficacy. These specifically included: teaching jointly as a team in the same class and observing other teachers' classes and providing feedback. It is possible that the narrowing of the measured sample (due to lack of participation) had a negative impact on the correlation coefficient. These two actions require that the teachers have complimentary schedules and/or release time, which limits their prevalence.

It important to recognize that multiple interpretations were evident – as reported in face-to-face interviews – for the collaborative action-taking items, and this undoubtedly played a role in the consistency of the results and some of the low levels of correlation.

## **Implications for Policy, Practice, and Future Research**

### **Introduction**

The results of this study suggest that participation in teacher collaborative action-taking has a positive relationship with teachers' self efficacy. If purposefully implemented and mindfully organized, teachers may reap the benefits of a variety of collaborative actions, which should be driven and supported not only by school principals, but also by district leadership.

This section of Chapter 5 pulls apart the results from all four research questions in order to determine some practical suggestions for changes to practice, along with proposed foci for policy-makers. These carry implications for time and teacher schedules, launching collaborative efforts, training new teachers, and using local evaluation tools for



leverage. In concluding, this chapter ends with recommendations that would augment and extend this study's findings for future research.

### **Implications for Policy**

**Educator evaluation.** As teacher evaluation and training policies evolve an emphasis on participation in professional learning through collaboration is a must. As Wood (2007) described, "Teaching is work that demands relational labor, but renders it devalued and invisible in most accountability measure" (p.710). States like Massachusetts have already taken a step in this direction with the updated *Massachusetts Model System for Educator Evaluation* (Massachusetts Department of Elementary and Secondary Education, 2012). New evaluation rubrics for both teachers and administrators include specific descriptors for engaging in and facilitating collaboration, and treat collaborative action-taking as a professional standard, rather than an exception (See *Appendix D and Appendix E*). By bringing such practice to the foreground, district and school leadership will not be the only driving forces for this cultural change, but so too will teachers, as it is now their professional responsibility.

**Time.** The results of this study suggest that teacher collaborative action-taking is associated with teachers' self-efficacy, which has numerous indirect benefits (as described in Chapters One and Two). However, not all schools have time built into their daily schedule to offer collaborative opportunities to take place during the work day. US teachers spend significantly more time leading classes (up to 17% per day) than their peers in other OECD nations, meanwhile, they are paid considerably less (Abrams, 2015). Without common planning time or a dedicated team time, US teachers would be expected to collaborate outside of their typical working hours. Unless compensated, this

would further push down their hourly pay rate. Considering the fact that a majority of states mandate minimum numbers for hours and/or days of instruction for students (Mikulecky, 2013), similar directives to promote teacher collaboration should also be considered.

Though the brief interviews in this study were intended to flesh out the items from the *2013 TALIS - Teacher Questionnaire* regarding teacher collaborative actions, a few of the unsolicited responses suggest a negative state of affairs related to collaboration in some schools:

- “I don’t think we ever do this.”
- “Never had that opportunity.”
- “I don’t know what that means.”
- “...could be emails.”
- “...wouldn’t be possible for me.” (Interviews, January/February 2015)

As both our global society and the education field evolve, policy-makers and school leaders must acknowledge the need to honor the professional needs of educators. Speckled across the nation, there are districts and schools who have built “team time” and early release days into their daily and yearly schedules. However, that may not be the norm. In fact Linda Darling-Hammond’s (2013b) analysis of a recent survey of teachers conducted by the National Center for Literacy Education (2013) reported that:

- Only 32% have a chance to frequently co-create or reflect with colleagues about how a lesson has worked.
- Only 21% are given time to frequently examine student work with colleagues.

- Only 14% frequently receive feedback from colleagues.
- And only 10% frequently have the opportunity to observe the teaching practice of a colleague. (para. 7)

Darling-Hammond (2013b) further described evidence that may indicate that a nation-wide scaling-back of collaborative time amongst educators. She noted that from 2009 to 2012, there was a drop in the reported percent of US teachers who engage in more than an hour per week of collaboration with colleagues for the sake of improving student learning (according to MetLife Foundation, 2010).

Educators absolutely need time and resources to collaborate; they cannot be expected to participate in meaningful collaboration if they have no release time from their students. Nor should they be expected to sacrifice their personal time (nights and weekends) for the sake of joint professional activities. In order to improve the professional practices of US teachers, states across the nation need to provide schools and school districts with the appropriate supports necessary to make collaborative time a norm. This may be in the form of substitutes to cover classes, revamped schedules to enable teacher planning and inquiry, expanded early release days, and other scaffolding.

**Inquiry-based collaboration.** It may be advantageous for the US to take a cue from countries like Japan and China, whose collective cultures promotes school-based inquiry and professional learning through lesson studies and mentoring (Collinson & Ono, 2001). Since 2000, Japan has consistently ranked amongst the top ten (and often top five) countries in the world for student achievement on the Programme for Student Assessment (PISA). Like Japan, a handful of other Asian and European nations that top the ranks on PISA and Trends in International Mathematics and Science Study (TIMSS),

including China, South Korea, Singapore, Denmark, Finland, Hungary, Italy, Norway, Switzerland, and Flemish Belgium, require teachers to spend significantly less time on teaching than here in the US (Darling-Hammond, Wee, & Andree, 2010). Instead, substantially more work time is dedicated to various forms of collaborative professional learning. This includes lesson studies, context-based inquiry, peer observations, planning, collaborative research, curriculum development, and more.

Interestingly, when US data was disaggregated by state, Massachusetts – which has collaboration built into the teacher evaluation system – outscores numerous rivals. Massachusetts’ fourth and eighth graders ranked at the number one spot in both reading and mathematics according to the 2013 National Assessment of Education Progress (NAEP), commonly regarded as “The Nation’s Report Card” (Massachusetts Department of Elementary and Secondary Education, 2013a). Additionally, Massachusetts’ eighth graders scored at a statistical tie to Japan (fifth in the world) on the mathematics portion of the 2011 Trends in International Mathematics and Science Study (TIMSS). These eighth graders placed second compared to other nations on the science portion of the TIMSS (Massachusetts Department of Elementary and Secondary Education, 2013b). One possible explanation is that teacher collaboration - amongst other factors - may have contributed to these strong performances. Additional research to distinguish how Massachusetts’ practices relate to those of other top-ranking OECD nations would be necessary to confirm this.

**New teacher preparation.** This study revealed that the nation’s youngest and least experienced teachers reported the lowest levels of self-efficacy. This finding has especially problematic implications for some of our neediest students, as low self-

efficacy is commonly present in new *urban* teachers (Goddard & Goddard, 2001). A state-by-state revamp of teacher training programs, with a focus on effective collaborative actions authentically executed with a skilled educator, would potentially improve these new teachers' earliest work experiences.

New teachers' experiences have been discussed in at least one self-efficacy study, which offered suggestions about enhancing their training through on-site collaborative actions. Tschannen-Moran and Hoy's (2001) research suggested that new teachers could gain a greater sense of self-efficacy early in their career if:

teacher preparation programs could come to look more like apprenticeships, with a gradual shift from the vicarious experience and verbal persuasion of a university classroom to more mastery teaching experiences throughout the program, with steadily increasing levels of complexity and responsibility. (p. 802)

Teaching apprenticeships would enable aspiring professionals to have mastery experiences in the presence of a trained, licensed teacher, who can offer coaching and advice on the spot. In countries like UK, several tiers of apprenticeships (e.g. *Intermediate* and *Advanced*) are supported by the government in order to gradually train new teachers *on the job – with pay* (GOV.UK, 2012). Additionally, top-performing nations like Finland, Singapore, and South Korea purposefully prepare new teachers through “highly structured opportunities to practice their craft” (Greenberg, McGee, & Walsh, 2013, p.9). Mastery experiences working with effective educators can groom new teachers not only to be more efficacious upon induction, but to complete their professional learning within a context of classroom collaboration.

The prescription of taking education courses, completing observations, and/or participating in a 3-4 month practicum – which seem to be commonplace practices for Bachelor’s degree programs – should be replaced with longer-term apprenticeships that allow for extensive opportunities to learn by doing. Tschannen-Moran and McMaster (2009) succinctly stated “Only in a real setting can a teacher experience a true test of his or her capabilities” (p. 242). Apprenticeship learning is enhanced by closely working with another practitioner, co-planning, co-teaching, and otherwise working together to accomplish the goal of educating school children. Thus our newest teachers would be accustomed to a culture of collaboration before they achieve their first appointment.

As states assess and monitor educator preparation programs, new standards (including rigorous apprenticeships) should be presented and voted upon by states’ departments of education, and phased in amongst criteria for program accreditation. Additionally, Federal mandates such as NCLB should reconsider the definition “Highly Qualified Teacher,” since fast-track teacher preparation programs and alternative licensure routes may potentially side-step the benefits of extensive mastery experiences and the modeling of teacher collaboration.

### **Implications for Practice**

**Strategy and educator education.** Clearly, all the collaborative actions considered in the TALIS showed some correlation to teacher self-efficacy. Regrettably, they are being done relatively infrequently across lower secondary schools in the US, and this is not always due to lack of time. The Center for Comprehensive School Reform and Improvement (2007) found that:

Unfortunately, school staff members sometimes find that although accommodating schedules are in place, true collaboration is more difficult than they had anticipated. Some find that the time set aside is not used productively or is not having the hoped for impact on teaching and learning. As a result, they can become frustrated and begin seeing team meetings or common planning time as one more obligation that keeps them from doing their “real” work. (para. 3)

Targeted guidance would be necessary in order to establish and develop meaningful collaborative action-taking. It is clear that quality collaboration does not come about simply out of necessity or happenstance; strategic initialization and institutionalization are required for substantial and sustained changes to practice. Garmston and Zimmerman (2013) echo this sentiment in their work on developing effective teacher work groups:

Collaboration is not something that just happens. Collaboration is worth striving for. It is built out of the experience of humankind in our day-to-day push for honest, authentic interactions and a commitment to be responsible collaborators.

When groups find this space, they experience dignity, power, and renewal. (p. 11)

In their research on professional learning communities, Thessin and Starr (2011) echoed this sentiment when they stated, “learning how to work in teams does not just magically happen. Districts must be deliberate in their efforts to teach teachers how to collaborate” (p.50). Their research confirmed that meeting time and space is not enough to produce high-quality collaboration. They cited the poor initial results of collaborative efforts in Stamford, CT that began in 2007. Though the teachers had opportunities to work with colleagues on a weekly basis, when their collaborative actions were directed

toward improving instruction – rather than fieldtrips and other non-instructional activities- this incited frustration and confusion. The district absolutely had to provide professional development and other direct supports in order to yield positive returns. They labored to develop a culture whereby teachers and administrators took ownership of their collaboration, were trained to evaluate the impact of their work together, and progressed with differentiated levels of guidance at each site over time. With a systematic integration of structured collaboration, three years of work finally led to significant gains in student achievement.

In some cases, teachers may not be aware of particular collaborative actions that would be worthwhile for them to take on. Therefore, an overall process for education on collaborative practices is recommended for any school site. The findings of this study – and the theory behind the development of teacher self-efficacy – have determined that not all collaborative actions contribute greatly to teachers’ self-efficacy. It is wise for districts and schools to commit to supporting those actions that offer the highest returns on their investment. Additionally, collaboration should be thoughtfully rolled out in order to assure effective implementation. Gajda and Koliba (2008) suggest a multi-step plan for unrolling quality collaboration, starting with raising the collaboration literacy of all participants. They suggest that principals assist in developing an operational definition of teacher collaboration, which must include a cycle of inquiry and shared purpose. This burden would best fall on building and district administrators, but may extend to instructional leaders, and/or instructional leadership teams. Results from Gumus et al. (2013) confirmed that principals’ leadership practices positively correlate with the collaboration of their staffs – particularly those that relate to instructional leadership over



administrative practices. Gumus et al. (2013) stated that responsibilities such as direct supervision of instruction, working with teachers to manage school goals, and promoting professional development related to school goals, all positively related to teacher collaboration.

Garmston and Zimmerman (2013) noted that time is a valuable asset for teachers, and that school leaders must take advantage of opportunities to maximize and accelerate the effectiveness of teacher teams. With leaders playing a critical role in collaboration, they need to be well-schooled in the processes; as Gajda and Koliba (2008) stated, it must be evident that they are “walking the walk in their own practice” (p. 150). Garmston and Zimmerman (2013) emphasized leaders’ skills and involvement in school-level collaboration:

When leaders know how to facilitate with elegance and intervene to maintain engagement, they teach by example and create smart collaborators. Accordingly, group members learn to be facilitative participants — to manage their own behavior and support their colleagues in thinking together. They are able to transfer these skills to collaboration with others in any context, including the classroom. (p.11)

It is the responsibility of district-level leaders (e.g. superintendents, assistant superintendents, etc) to provide the training and guidance necessary for principals and other site-based leaders to guide collaboration at their buildings. Site-based school leaders should experience collaboration as the district intends for it to occur. This would entail practicing the inquiry cycle and using applicable routines and protocols. Standard criteria like the Teacher Collaboration Assessment Rubric (TCAR) can help these

administrators gauge their effectiveness for transfer to individual sites. It is recommended that districts utilize the expertise of collaboration specialists who can assist in initiating high quality collaboration and later to follow up on the progress through objective analysis and feedback.

Once the launch pad has been established, long-term support and action plans would be mandatory to sustain purposeful and effective collaboration. Diane Wood's (2007) research on utilizing professional learning communities showed that inquiry-based collaboration with structures for teacher interactions had a positive impact on teachers' self-reported practices when surveyed. Wood (2007) documented percent changes for:

- More collegial conversations (84.1% before; 92.8% after).
- More feedback on professional performance from colleagues and more useful suggestions to improve practices (36.6% before; 54.1% after).
- More discussions focused on student work samples (44.3% before; 61% after) and assignments, and lesson plans (56.6% before; 69.9% after).
- More discussions about dilemmas of practice (54.4% before; 72.2% after).

(p.716)

**Teacher teams and groupings.** Based on the descriptive evaluation included in this study, it is recommended that the *diversity of teacher teams* and work groups be considered when launching collaborative endeavors. Both the frequency of participation in collaborative actions and teacher self-efficacy varied with gender, age, and experience of the teachers surveyed. Though various communities within the larger whole may develop holistically, Gajda and Koliba (2008) support the strategic development of teacher teams so that membership is "equitable and purposeful" (p.141). In order to

enrich the human and social capital of entire school staffs, the results of this study suggest that administrators should encourage or assign (as needed) mixed work groups. Peer-to-peer learning and knowledge-sharing from the multiple perspectives in deliberately configured collaborative groups would surely foster individual and collective efficacy.

Addressing *generational differences* may be easier said than done. Today's veteran teachers spend a good deal of their work experience under conditions that implicitly endorsed individualism and isolationism. Pappano (2007) cautions that shifting these norms will require a new approach to the profession. Promoting regular talk about instruction, common planning, and structured observations offer a starting point (Little, 1982). Refocusing a school's efforts to accountability standards and targeted analysis of data may assist in turning teachers into team players, with problem-solving at the center of their efforts (Pappano 2007). Careful planning to shift into such a model would be critical, as teachers' self-efficacy can drop soon after the introduction of new approaches to instructional practice (Tschannen & McMaster, 2009). This can be explained by the norm-referenced nature of self-efficacy (Ashton, et al., 1984)), since the teachers now hold themselves to a new standard.

### **Implications for Future Research**

Due to the rigidity of a pre-existing data source, this study could not assess constructs other than those selected during the creation of the *2013 TALIS - Teacher Questionnaire* – and according to the operational definitions assigned by the authors. While the teacher self-efficacy items were well-grounded in education research and social theory, the collaborative action items were considerably vague, and lacked the

depth some teacher collaboration experts might appreciate. For example, no item mentions participation cycle, inquiry-based group efforts involving decision making and evaluation, which are at the center of quality collaboration (Gajda & Koliba, 2008; Thessin & Starr, 2011). Also, actions commonly associated with high quality collaboration – like classroom action research, mentoring, and lesson studies (Darling et al., 2010) – were not specifically mentioned. Most items included under Question 33 were broad, but that does not mean that a given respondent could anticipate all ideal scenarios encompassed by the actions. Future research on specific collaborative actions would benefit from more explicit, in depth questions, or perhaps a more open-ended format. It would be advantageous to consider utilizing a mixed method or qualitative research format – including focus groups or interviews –in order to gain details and/or clarify interpretations of the collaborative actions. Additionally, any future scale used to measure frequency of collaborative action-taking would benefit from shifting to a ratio scale, in order to avoid misinterpretations or assumptions regarding data translation.

Though USA was the sole country examined in this study, forthcoming research across nations may provide insights as to strengths and weaknesses in international education practices (e.g. teacher collaboration, professional development, and training). With the existence of international assessments like PISA and TIMSS, it is also possible to correlate student achievement outcomes to teacher collaboration and teacher self-efficacy on a wide scale.

Finally, the TALIS was administered to primary schools in some nations – but not the US. The results at the primary level could provide critical understandings about how the educators' frequency of collaborative action-taking and their self- efficacy differ by

grade level and school structure. New improvements to practice may be garnered by looking outside of the narrow grade span of US's 2013 TALIS administration (seventh, eighth, and ninth grades), particularly since the daily structure and working conditions at schools can vary based on the ages of the students served. The teaming and departmental structures common at the lower secondary level may prove to accommodate greater levels of collaboration, as compared to the more isolated nature of a primary classroom, taught by an all-subjects generalist. This in turn could negatively impact teacher self-efficacy at those levels.

### **Conclusion**

This study enhances the modest foundation of current research examining the relationship between teacher collaborative action-taking and teacher self-efficacy. Very few studies – if any – have explored this relationship in the United States. Furthermore, this paper investigated both the constructs of teacher collaboration and teacher self-efficacy at discrete, actionable levels. This provided a snapshot of the existing status of US participation in collaborative actions, along with measures of teachers' sense of self-efficacy. Again, little previous research has been available to clearly illustrate which actions teachers take to collaborate and how they feel about their effectiveness in their jobs. This study's descriptive and correlational analyses led to several distinct and important findings:

- Frequency of US teachers' participation in collaborative actions correlated to higher levels of teacher self-efficacy.

- The 7<sup>th</sup>-9<sup>th</sup> grade teachers who participated in the *2013 TALIS – Teacher Questionnaire* engaged in a range of eight specific collaborative actions an average of up to once a month each.
- On average, US teachers reported positive self-efficacy related to their instructional practices, ability to engage students, and classroom management skills.
- Female teachers reported significantly higher levels of teacher self-efficacy than their male counterparts.
- More experience and greater age were associated with higher levels of teacher self-efficacy.
- Frequency of participation in collaborative actions was higher for younger and less experienced teachers.
- Frequency of participation in collaborative actions trended downwards with the age of the sample.

Teacher collaboration can and should serve as a mechanism to increase teacher self-efficacy. Collaborative actions enhance the professional experience of educators, and translate into measureable and immeasurable gains for society. Current frequencies of collaborative actions may not be enough to yield significant outcomes for teachers' self-efficacy and student achievement.

District and school leaders should be careful to fully plan for and implement collaborative actions in order for the work to be most beneficial. Though all forms of collaborative action-taking related to teacher self-efficacy, the specific collaborative actions that teachers currently participate in the most (discussions about specific students'

progress and the exchange of teaching materials) are not necessarily indicative of high quality collaboration. Nor do these two actions theoretically match with Bandura's (1997) notion of social learning theory, and the growth of self-efficacy. This study shows that we must pay greater attention to how teachers collaborate, and school leaders should take steps to educate themselves and their staffs on the benefits of high quality collaborative actions.

In concluding, this paper took inventory of the current state of teacher self-efficacy and participation in collaborative actions. Some of the most intriguing realizations came from the descriptive analyses done to address Research Questions Two and Three. These questions yielded some interesting and important results that may inspire rich dialogue around the state of our nation's education profession.

## APPENDIX A

### ITEMS FROM 2013 TALIS – *TEACHER QUESTIONNAIRE*

**33. On average, how often do you do the following in this school?**

*Please mark one choice in each row.*

		Never	Once a year or less	2-4 times a year	5-10 times a year	1-3 times a month	Once a week or more
TT2G33A	a) Teach jointly as a team in the same class ..	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33B	b) Observe other teachers' classes and provide feedback .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33C	c) Engage in joint activities across different classes and age groups (e.g. projects) .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33D	d) Exchange teaching materials with colleagues .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33E	e) Engage in discussions about the learning development of specific students .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33F	f) Work with other teachers in my school to ensure common standards in evaluations for assessing student progress .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33G	g) Attend team conferences .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>
TT2G33H	h) Take part in collaborative professional learning .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>6</sub>

**34. In your teaching, to what extent can you do the following?**

*Please mark one choice in each row.*

		Not at all	To some extent	Quite a bit	A lot
TT2G34A	a) Get students to believe they can do well in school work ...	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34B	b) Help my students value learning .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34C	c) Craft good questions for my students .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34D	d) Control disruptive behaviour in the classroom .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34E	e) Motivate students who show low interest in school work ..	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34F	f) Make my expectations about student behaviour clear .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34G	g) Help students think critically .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34H	h) Get students to follow classroom rules .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34I	i) Calm a student who is disruptive or noisy .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34J	j) Use a variety of assessment strategies .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34K	k) Provide an alternative explanation for example when students are confused .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
TT2G34L	l) Implement alternative instructional strategies in my classroom .....	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>



## APPENDIX B

### TEACHER COLLABORATIVE ASSESSMENT RUBRIC (TCAR)

BY REBECCA GAJDA (2009)

TEACHER COLLABORATION ASSESSMENT RUBRIC

	DIALOGUE	DECISION-MAKING	ACTION	EVALUATION
Professional Learning Community	6 a) Agenda for team dialogue is pre-planned, prioritized, and documented. b) All team members meet face-to-face. c) Team dialogue is facilitated and focused on the structured examination and analysis of instructional practice and student performance. d) Professional tension exists, and controversy is resolved "now" or as close to now as possible. 5 e) Team members value and reaffirm their shared purpose - to improve instructional practice and cultivate student learning. f) All members contribute to group performance, there are no "hibernators" or "dominators".	a) The process for making any decision is formal, transparent, understood by all. b) Team regularly makes explicit decisions about the individual and collective instructional practices they will initiate, maintain, develop, and/or discontinue. c) All decisions are informed by data and directly related to the improvement of instructional practice and the cultivation of student learning. d) All decisions are documented.	a) Each team member regularly initiates, develops, and/or discontinues an instructional practice as a result of team decision-making. b) Team member actions are observable, interdependent, pedagogically complex/challenging, and directly related to the improvement of instructional practice and the cultivation of student learning. c) Distribution of action-taking workload among team members is equitable.	a) The team collects and analyzes qualitative and quantitative information about student learning and member teaching practices. b) Data is also collected through peer observation of instruction. c) The team uses student performance data to evaluate the merit of individual and collective instructional practices. d) Evaluation data and findings are shared publicly and form the basis for team dialogue and decision-making.
	4 g) A documented agenda for team dialogue exists. h) Most group members regularly meet face-to-face. i) The process for team dialogue is occasionally facilitated; conversation is somewhat improvisational and unstructured. j) Discussion is generally related to instructional practice and student performance. 3 k) Professional tension exists, but controversy is rare and/or may go unresolved. l) Most team members express a belief in a common purpose - to improve instructional practice and cultivate student learning. m) Most members contribute to group performance, but sometimes there are "hibernators" and "dominators".	d) An informal process for making decisions exists. e) The team makes decisions about what instructional practices they will initiate, maintain, develop and/or discontinue. f) Some decisions are informed by data about student learning. g) Group decisions are generally transparent and understood by all, however they may not always be documented.	d) Select team members will initiate, develop, and/or discontinue instructional practices as a result of team decision-making. e) Team member actions tend to be interdependent and somewhat complex. f) Actions are tangentially related to the improvement of instructional practice and the cultivation of student learning. g) Distribution of action-taking workload among team members varies.	e) The team infrequently collects and analyzes qualitative and quantitative information about student learning and member teaching practices. f) Data is rarely generated through peer observation of instruction. g) The team relies on "hearsay," "anecdotes," or "recollections" to evaluate the merit of their practices. h) The data that is collected is usually shared publicly and forms the basis for dialogue and decision-making.
Disparate Groups	2 n) Full attendance at team meetings is rare or the group meets face-to-face sporadically. o) Agenda for group dialogue is not planned and documented. p) Dialogue is improvisational and informal, and is not facilitated. q) Controversy does not exist, or exists and goes unmanaged. 1 r) Team members air disagreements to non-team members outside the meetings. s) The purpose of the group is unclear and unrelated to the improvement of instructional practice and student learning. t) Dialogue is almost entirely convivial or members tend to "hibernate" and "dominate."	h) A process for making decisions does not exist. i) The team does not make decisions about what instructional practices they will initiate, maintain, develop and/or discontinue. j) Individuals make their own decisions and these decisions are most often unrelated to the improvement of instructional practice and the cultivation of student learning. k) There are no documented decisions.	h) Team members take minimal action as a result of group decision-making. i) Member actions tend to be individualistic in nature, and involve very little challenge and/or complexity. j) Team actions are not related to the improvement of instruction practice and the cultivation of student learning. k) Distribution of action-taking workload among team members is unequal.	i) The team does not systematically collect or analyze information about student learning and the merit and value of their instructional practices. j) The team relies almost exclusively on "hearsay," "anecdotes," or "recollections" to form the basis of their dialogue and decision-making. k) Team members do not publicly share the effects of their instructional practice.

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Revised by Rebecca Gajda, November 3, 2009

## APPENDIX C

### TEACHER INTERPRETATIONS OF 2013 TALIS - *TEACHER*

#### *QUESTIONNAIRE, QUESTION 33*

TALIS Item	Teacher Descriptions
<p>a) Teaching in General/ How often do you/ Teach jointly as a team in the same class</p>	<p>Teacher 1: "You and another teacher – probably a SpEd teacher – teaching in one class. Inclusion."</p> <p>Teacher 2: "Two teachers in the same classroom. Same class, maybe interdisciplinary."</p> <p>Teacher 3: "A is easy. Co-teaching."</p> <p>Teacher 4: "That means when people share (responsibility). Usually there is a little bit of a leader. Tag-team it. Teach it together. Go back and forth with the lesson."</p> <p>Teacher 5: "Co-teaching. We'd be teaching the same subjects. Almost like groups. Teaching together at the same time."</p> <p>Teacher 6: "I don't think we ever do this. A collaboration – a co-teach. I can think of a math-science collaboration."</p> <p>Teacher 7: "Collaboration between team teachers – Science, Math, Social Studies. Team days."</p>
<p>b) Teaching in General/ How often do you/ Observe other teachers' classes and provide feedback</p>	<p>Teacher 1: "That's pretty straight-forward."</p> <p>Teacher 2: "New teacher/colleague asking me to observe a class for a particular thing they are looking for."</p> <p>Teacher 3: "Never had that opportunity. Maybe that is as an administrative level – not as a teacher..."</p> <p>Teacher 4: "That would mean going into somebody's class on an invitation, taking notes, talk it out afterward."</p> <p>Teacher 5: "Some sort of peer relationship. Peer observation. Self-assessment."</p> <p>Teacher 6: "Literally sit in another teacher's class while they are teaching, and after sit down and discuss positive and negatives."</p>

	Teacher 7: “Physically go to another teacher’s class and jot down notes and give them feedback.”
c) Teaching in General/ How often do you/ Engage in joint activities across different classes and age groups	<p>Teacher 1: “...interdisciplinary projects across the team or elementary teams... mentoring.”</p> <p>Teacher 2: “This is so vague. Interdisciplinary activities across school...And age groups, yikes.”</p> <p>Teacher 3: “The age groups is really difficult, unless you were a small school.”</p> <p>Teacher 4: “Cross/inter-disciplinary projects that you are all working on t the same time.”</p> <p>Teacher 5: “Cross-curricular stuff. Like if I did something with Social Studies, Science, or Math. Age group wouldn’t be possible for me.”</p> <p>Teacher 6: “A whole-school project. Maybe a TReE activity. Maybe team-building.”</p> <p>Teacher 7: “Collaboration between team leaders. Drawing in what someone is doing in Social Studies into Math class.”</p>
d) Teaching in General/ How often do you/ Exchange teaching materials with colleagues	<p>Teacher 1: “...very straight-forward, in terms of borrowing...”</p> <p>Teacher 2: “Sharing microscopes.”</p> <p>Teacher 3: “That’s pretty easy.”</p> <p>Teacher 4: “Sharing and being collaborative. We create things and share them. Across the same grade level.”</p> <p>Teacher 5: “That’s pretty (straightforward)...They can take anything they need.”</p> <p>Teacher 6: “A time during PD where we were able to say, ‘I did this lesson and it worked really well.’”</p> <p>Teacher 7: “Sharing materials.”</p>
e) Teaching in General/ How often do you/	Teacher 1: “Team meeting on a particular student or maybe a discussion in guidance...also, any conversation – like formal or informal.”

Engage in discussions about the learning development of specific students	<p>Teacher 2: "...do the teachers get together to talk about specific learning styles. Timing is a little ambiguous – could be emails."</p> <p>Teacher 3: "Team meetings. If you are able to have team meetings."</p> <p>Teacher 4: "Having a professional conversation about strategies that would help the student."</p> <p>Teacher 5: "PD. Any of our department meetings."</p> <p>Teacher 6: "Grade team time. We have a lot of kids on IEPs."</p> <p>Teacher 7: "Collaboratively assess a student's progress."</p>
f) Teaching in General/ How often do you/ Work with teachers to ensure common standards for assessing student progress	<p>Teacher 1: "Common assessments."</p> <p>Teacher 2: "Opportunities to collaborate with other teachers about evaluations of students."</p> <p>Teacher 3: "Common Core standards. Common Core evaluations. DDMs."</p> <p>Teacher 4: "Like what we did at PD; developing common assessments."</p> <p>Teacher 5: "I am assuming everyone does the same stuff. Everyone follows an outline."</p> <p>Teacher 6: "We would do the DDMs- subject-wide. We would create assessments school-wide."</p> <p>Teacher 7: "Benchmarks. Tests within the subject – not the school."</p>
g) Teaching in General/ How often do you/ Attend team conferences	<p>Teacher 1: "A team meeting – sometimes drawing in a parent."</p> <p>Teacher 2: "Being present at a team conference – whole team on a grade level. Someone is leading it."</p> <p>Teacher 3: "Team meetings."</p> <p>Teacher 4: "I don't know what that means. That could be a math team or a grade team going to something and bringing it back."</p> <p>Teacher 5: "Weekly meeting. Our admin. meetings."</p>

	<p>Teacher 6: “The ‘team’ word – I would need to know what this means. IEPs up for discussion.”</p> <p>Teacher 7: “Mainly school-wide or speaking individually with the team about anything.”</p>
<p>h) Teaching in General/ How often do you/ Take part in collaborative professional learning</p>	<p>Teacher 1: “Half-day PD’s. Stuff that’s assigned, not necessarily, directed by teachers. Collaborative environment, but you are responsible.”</p> <p>Teacher 2: “that has to be an afterschool thing or an early release day – PD kind of thing.”</p> <p>Teacher 3: “Either professional development and the ability to have some professional development. Or when we have our monthly meetings (PLC).”</p> <p>Teacher 4: “Learning together, then discussing it, implementing it together. Go back and reflect with your peers.”</p> <p>Teacher 5: “That should be our PD.”</p> <p>Teacher 6: “I guess that would be PD in my mind.”</p> <p>Teacher 7: “Professional development.”</p>

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**\*Interview dates:**

Teacher 1: January 22, 2015

Teacher 2: January 26, 2015

Teachers 3-7: February 2, 2015

## APPENDIX D

### TEACHER RUBRIC AT-A-GLANCE

*From Massachusetts Model System for Educator Evaluation; Part III: Guide to Rubrics and Model Rubrics for Superintendent, Administrator, and Teacher; Appendix C.*

<b>Standard I: Curriculum, Planning, and Assessment</b>	<b>Standard II: Teaching All Students</b>	<b>Standard III: Family and Community Engagement</b>	<b>Standard IV: Professional Culture</b>
<b>A. Curriculum and Planning Indicator</b> <ol style="list-style-type: none"> <li>1. Subject Matter Knowledge</li> <li>2. Child and Adolescent Development</li> <li>3. Rigorous Standards-Based Unit Design</li> <li>4. Well-Structured Lessons</li> </ol>	<b>A. Instruction Indicator</b> <ol style="list-style-type: none"> <li>1. Quality of Effort and Work</li> <li>2. Student Engagement</li> <li>3. Meeting Diverse Needs</li> </ol>	<b>A. Engagement Indicator</b> <ol style="list-style-type: none"> <li>1. Parent/Family Engagement</li> </ol>	<b>A. Reflection Indicator</b> <ol style="list-style-type: none"> <li>1. Reflective Practice</li> <li>2. Goal Setting</li> </ol>
<b>B. Assessment Indicator</b> <ol style="list-style-type: none"> <li>1. Variety of Assessment Methods</li> <li>2. Adjustments to Practice</li> </ol>	<b>B. Learning Environment Indicator</b> <ol style="list-style-type: none"> <li>1. Safe Learning Environment</li> <li>2. Collaborative Learning Environment</li> <li>3. Student Motivation</li> </ol>	<b>B. Collaboration Indicator</b> <ol style="list-style-type: none"> <li>1. Learning Expectations</li> <li>2. Curriculum Support</li> </ol>	<b>B. Professional Growth Indicator</b> <ol style="list-style-type: none"> <li>1. Professional Learning and Growth</li> </ol>
<b>C. Analysis Indicator</b> <ol style="list-style-type: none"> <li>1. Analysis and Conclusions</li> <li>2. Sharing Conclusions With Colleagues</li> <li>3. Sharing Conclusions With Students</li> </ol>	<b>C. Cultural Proficiency Indicator</b> <ol style="list-style-type: none"> <li>1. Respects Differences</li> <li>2. Maintains Respectful Environment</li> </ol>	<b>C. Communication Indicator</b> <ol style="list-style-type: none"> <li>1. Two-Way Communication</li> <li>2. Culturally Proficient Communication</li> </ol>	<b>C. Collaboration Indicator</b> <ol style="list-style-type: none"> <li>1. Professional Collaboration</li> </ol>
	<b>D. Expectations Indicator</b> <ol style="list-style-type: none"> <li>1. Clear Expectations</li> <li>2. High Expectations</li> <li>3. Access to Knowledge</li> </ol>		<b>D. Decision-Making Indicator</b> <ol style="list-style-type: none"> <li>1. Decision-making</li> </ol>
			<b>E. Shared Responsibility Indicator</b> <ol style="list-style-type: none"> <li>1. Shared Responsibility</li> </ol>
			<b>F. Professional Responsibilities Indicator</b> <ol style="list-style-type: none"> <li>1. Judgment</li> <li>2. Reliability and Responsibility</li> </ol>

## APPENDIX E

### SCHOOL-LEVEL ADMINISTRATOR RUBRIC AT-A-GLANCE

From *Massachusetts Model System for Educator Evaluation; Part III: Guide to Rubrics and Model Rubrics for Superintendent, Administrator, and Teacher; Appendix B.*

Standard I: Instructional Leadership	Standard II: Management & Operations	Standard III: Family and Community Engagement	Standard IV: Professional Culture
<b>A. Curriculum Indicator</b> 1. Standards-Based Unit Design 2. Lesson Development Support  <b>B. Instruction Indicator</b> 1. Instructional Practices 2. Quality of Effort & Work 3. Diverse Learners' Needs  <b>C. Assessment Indicator</b> 1. Variety of Assessments 2. Adjustment to Practice  <b>D. Evaluation Indicator</b> 1. Educator Goals 2. Observations & Feedback 3. Ratings 4. Alignment Review  <b>E. Data-Informed Decision Making Indicator</b> 1. Knowledge & Use of Data 2. School and District Goals 3. Improvement of Performance, Effectiveness, and Learning	<b>A. Environment Indicator</b> 1. Plans, Procedures, and Routines 2. Operational Systems 3. Student Safety, Health, and Social and Emotional Needs  <b>B. Human Resources Management &amp; Development Indicator</b> 1. Recruitment & Hiring Strategies 2. Induction, Professional Development, and Career Growth Strategies  <b>C. Scheduling &amp; Management Information Systems Indicator</b> 1. Time for Teaching and Learning 2. Time for Collaboration  <b>D. Law, Ethics &amp; Policies Indicator</b> 1. Laws and Policies 2. Ethical Behavior  <b>E. Fiscal Systems Indicator</b> 1. Fiscal Systems	<b>A. Engagement Indicator</b> 1. Family Engagement 2. Community and Business Engagement  <b>B. Sharing Responsibility Indicator</b> 1. Student Support 2. Family Collaboration  <b>C. Communication Indicator</b> 1. Two-Way Communication 2. Culturally Proficient Communication  <b>D. Family Concerns Indicator</b> 1. Family Concerns	<b>A. Commitment to High Standards Indicator</b> 1. Commitment to High Standards 2. Mission and Core Values 3. Meetings  <b>B. Cultural Proficiency Indicator</b> 1. Policies and Practices  <b>C. Communications Indicator</b> 1. Communication Skills  <b>D. Continuous Learning Indicator</b> 1. Continuous Learning of Staff 2. Continuous Learning of Administrator  <b>E. Shared Vision Indicator</b> 1. Shared Vision Development <b>F. Managing Conflict Indicator</b> 1. Response to Disagreement 2. Conflict Resolution 3. Consensus Building

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