DEVELOPMENT OF A TEACHING WRITING SELF-EFFICACY SCALE

by

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A DISSERTATION

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ABSTRACT

The ability to carry out a given task is highly dependent on one's perceived ability to perform that task. Even if teachers are appropriately prepared to teach writing, they may not feel confident in their ability to teach the necessary skills to their students. Self-efficacy, widely ignored by the writing research community, is an important factor to consider in the teaching of student writing. This study developed a new instrument to measure a teachers' writing self-efficacy when teaching writing to students. The Teaching Writing Self-Efficacy Scale (TWSES) explains approximately 52% of the variance of the construct and has over 97% score reliability ($\alpha = .973$) with 4th through 7th grade educators. The TWSES can be used to assess in-service educators' knowledge gaps in teaching writing for teacher-driven, research-based, professional development.

DEDICATION

This work is dedicated to the teachers who toil tirelessly to aid each student as she develops the knowledge and skills that life requires.

LIST OF ABBREVIATIONS AND SYMBOLS

α	Cronbach Alpha index of internal consistency (a measure of reliability)
df	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
F	Fisher's *F* ratio: A ratio of two variances
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
t	Computed value of *t* test
<	Less than
=	Equal to
%	Percent or percentage
R^2	Multiple correlation squared; measure of strength of linear association

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CHAPTER 1: INTRODUCTION

"Writing is one of the most complex literate activities in which children engage…and not only is it challenging, it creates anxiety, avoidance, and frustration for the learner and the teacher," (Troia & Graham, 2003, p.75).

"Although students need to be prepared to successfully communicate through the written word, many are not achieving writing success on national assessment standards," (Taylor, 2008, p. iii).

Statement of the Problem

Students are asked to write every day in school. They are told that writing is the method by which they express ideas with words. Lemlech stated, "Writing may be the most difficult language arts component to develop. …Writing involves both composition and transcription. Composition represents selecting and ordering words into logical patterns for self-expression" (1990, p. 260). Bruer also emphasized, "We have to think of something to say, organize our thoughts, and then choose just the right words to express our ideas" (1993, p. 217). Writing requires the ability to evoke meaning into words, often as images of things or sounds, and to choose those which accurately represent ideas, relationships, images, and sounds (Aulls, 1985; Bruer, 1993). It is no surprise therefore to find that experts in the field of writing describe the process as intense, in-depth, and difficult.

If we recognize that the process of writing is challenging, we must also recognize that the quality of the instruction students receive is vital. Teachers spend countless hours in preparation and professional development that exposes them to varied instructional techniques, which are not typically teacher, student, or region specific; yet students in the US are failing to meet proficient expectations for writing achievement and the development of writing as a lifelong skill. The

2007 Nation's Report Card on writing achievement reported that only 35% of 8th graders and 25% of 12th graders reached a proficient level (Salahu-Din, Persky, & Miller, 2008). The lack of writing skills reaches far beyond the classroom as the ability to write can enable students to open the door to entrance into college, acquire their first job, and communicate better in society. Hill and Resnick stated this clearly in their findings, "Business and industry leaders often cite communication skills as one of the most important skills for their new employees to have, in the same breath reporting that college graduates coming to work for them can't write" (1994, p. 145). In his forward to *Writing Next* (Graham & Perin, 2007), Vartan Gregorian, President of the Carnegie Corporation of New York, reminds educators, researchers, and lawmakers that,

> Indeed, young people who do not have the ability to transform thoughts, experiences, and ideas into written words are in danger of losing touch with the joy of inquiry, the sense of intellectual curiosity, and the inestimable satisfaction of acquiring wisdom that are the touchstones of humanity. What that means for all of us is that the essential educative transmissions that have been passed along century after century, generation after generation, are in danger of fading away, or even falling silent. (p. 1)

Statement of the Purpose

The purpose of the present study is two-fold in design to address the present gaps in writing education research. The first purpose entails the development of the Teaching Writing Self-Efficacy Scale (TWSES), a self-report instrument that measures teachers' self-efficacy with regards to their perceived ability to teach writing. The second purpose used data gathered from the TWSES with other data pertaining to the amount of training teachers received with regards to writing skills and pedagogical techniques and student outcomes to validate the TWSES as an appropriate measure of teacher self-efficacy with regards to teaching writing.

Rationale for the Proposed Study

The positive predictive effects of self-efficacy with regards to specific contexts of knowledge are firmly grounded in a decade of extensive psychological and educational research (Bandura, 1997; Henson, Kogan & Vacha-Haase, 2001; Pajares, 1996;). It is difficult however to believe that teachers' self-efficacy has widely been ignored by the writing research community (Ross, Cousins & Gaddalla, 1996). Yet, one of the few studies in this area include the Graham, Harris, Fink, & MacArthur's (2001) modification of the widely accepted Teacher Efficacy Scale of Gibson and Dembo (1984). This modification began the process of specialization of a self-efficacy instrument for writing education; however, a better instrument and more research related to professional development are needed.

Expanded research is essential if the area of teacher self-efficacy with regards to writing is to provide data-driven, content-specific professional development opportunities, currently lacking in school districts across the country (Lieberman & Wood, 2003). Teachers are too often considered "passive consumers of prepackaged knowledge or, at best, compliant participants whose role it is to absorb information…regardless of whether it is useful or appropriate" (Lieberman & Wood, 2003, p.3; see also Cochran-Smith &Lytle, 1999). Research in the area of teacher self-efficacy with regards to writing could provide school districts with a cost, time, and material-effective professional development network, built upon the needs and interests of the teachers of each specific school, district, or state (Lieberman & Wood, 2003).

Significance of the Proposed Study

This study added to the existing research in the field of domain specific teacher efficacy, specifically writing teacher efficacy. The findings from this study established the relationship

between knowledge of pedagogical techniques to teach writing and the personal self-efficacy beliefs of the teachers who utilize those techniques. From this study, a new instrument was created and validated for use with upper elementary and middle school educators to explore their self-efficacy beliefs with regards to specific writing skills. At this time, such an instrument currently does not exist; its development could provide a research based tool for determining the needs for teacher training across the writing domain. The TWSES is capable of being utilized for writing specific academic, instructional, and predictive decision making with regards to writing instruction, professional development, and potential student outcomes. Given the focus on teaching writing, self-efficacy deficits of teachers with regards to pedagogical or orthographical knowledge could be addressed and used to provide teacher-specific professional development. The analysis of TWSES teacher responses would serve to provide information for professional development and the ability to target specific areas of concern within the classroom. Identifying important teacher professional development activities would allow school districts to better utilize professional development funds. In addition, awareness of teacher self-efficacy deficits in teaching writing could influence the way pre-service teachers are taught in order to address areas of deficiency in programs of academic study and professional development.

Basic Assumptions

Writing instruction and the quality and variety of that instruction are as variable as any academic subject educators might teach. The need for students to be exposed to and practice writing skills exists all across the school curriculum, so whether teachers feel qualified and confident in teaching writing skills is important. Two key assumptions are made in the development of the TWSES and use of other data to validate the TWSES as an appropriate

measure of teacher self-efficacy with regards to teaching writing. The key assumptions in this study include:

1. Educator participants read, comprehended, and replied to the items honestly and without fear of retribution or expectation of payment.
2. Educator participants responded anonymously and their responses were held in confidence.

Limitations and Delimitations

This study has specific limitations which limit generalizability of findings. The limitations and delimitations of the study include:

1. Educator participants were sampled only in the state of Alabama public school systems and thus may not be generalizable outside of the region of the southeast U.S or with private or home school settings.
2. The Educator participants volunteered their involvement in the TWSES study and may not be representative of all of the teachers in the respective school systems or the state.
3. The items of the TWSES were aligned with state and national language arts standards during a specific time frame (Alabama State Department of Education [ALSDE], 2007; Langer, 2002; National Council of Teachers of English [NCTE], 1996; National Commission on Writing in America's Schools and Colleges [NCW], 2003; National Writing Project [NWP] & Nagin, 2003).

Definitions of Terms

Self- efficacy was defined as an individual's confidence in his ability to employ a suitable behavior needed to produce the preferred outcome (Bandura, 1977). Self-efficacy is different from other self-perceptions like self-esteem and self-concept. Self-efficacy is belief in one's ability to perform an action, where self-esteem is an evaluative judgment and self-concept is an overall regard (Coopersmith, 1967). The personal beliefs about the level and strength of this ability, not the knowledge alone are the primary focal point of self-efficacy.

Professional Development was defined as the opportunity to gain skills and knowledge for professional growth; "teacher learning: changes in the knowledge, beliefs, and attitudes that teachers possess that lead to the acquisition of new skills, new concepts, and new processes related to the work of teaching" (Fishman, Best, Foster, & Marx, 2000, p. 3). Professional development descriptions include any intensive and/or collaborative "facilitated learning opportunities" (Speck & Knipe, 2005). This type of development is often completed as a compulsory requirement for educators who have little control over the content of such training (Lieberman & Wood, 2003).

Pedagogical Knowledge was defined as the knowledge and understanding of instructional styles and strategies with regards to writing (Robertson, Fluck, Webb, & Loechel, 2003).

Orthographic Knowledge was defined as the knowledge and correct usage of the symbols and rules of a writing system (Smalley, 1964).

Basic, Proficient, and Advanced levels of achievement were defined in this study as the levels currently defined in the 2007 Nation's Report Card: Writing (Salahu-Din et al., 2008). *Basic* achievement indicates limited mastery of writing knowledge and skills that are essential for "proficient work at a given grade" (Salahu-Din et al., 2008, p.6). *Proficient* represents grade level appropriate mastery of writing knowledge and skills. *Advanced* represents *superior* performance with regards to writing knowledge and skills. Students exhibit mastery of challenging skills and techniques (Salahu-Din et al., 2008).

CHAPTER 2: LITERATURE REVIEW

Self-Efficacy

The interest in self-efficacy can be traced beyond Bandura's theories of social learning and personality development (Bandura & Walters, 1963), cognitive mechanism (Bandura, 1977) and social cognition (Bandura, 1986). Its roots can be traced through the philosophical and psychological issues of human agency…voluntarism, action, pragmatism, determinism of human action, authenticity, power and responsibility to current streams through social psychology and cognitive studies (Gecas, 1989). Bandura's influences on motivation, health, cognition, and emotion and achievement are well-documented (Bandura, 2006; Hawkins, 1995; Pajares, 2002).

Self-efficacy is frequently defined as an individual's confidence in their ability to employ a suitable behavior needed to produce the preferred outcome (Bandura, 1977). Coopersmith (1967) differentiated self-efficacy from other self-perceptions like self-esteem and self-concept. He stated that while these perceptions are related, self-efficacy is defined as a belief in one's ability to perform an action, where self-esteem is an evaluative judgment and self-concept is an overall regard. "…Self-efficacy affects one's behaviors and the environments with which one interacts, and is influenced by one's actions and conditions in the environment" (Schunk & Meece, 2006, pp. 72-73). The personal beliefs about the level and strength of this ability, not the knowledge alone are the primary focal point of self-efficacy. According to Bandura (1977; 1986), knowledge about a given topic or behavior is necessary but not sufficient. The ability to carry out a given task, be it mathematics or stopping smoking, is highly dependent on one's perceived ability of completing that task, not just knowledge of the task (Bandura, 1997; Schunk,

1995). In an interview with Richard Evans, Bandura stated that, "Effective functioning requires that people develop competencies and skills. In addition, they need a strong self-belief in their own efficacy to put those skills to good use" (Evans, 1989, p. 53). The system of self-efficacy is the groundwork for choice, motivation, effort, persistence, coping, thinking, and achievement (Evans, 1989; Pajares, 2002; Schunk & Zimmerman, 1997).

The Development of self-efficacy from infancy to adulthood.

From the time of Sartre's claim that "existence precedes essence" and Heidegger's *is vs. is not*, it has been a popular idea with some theorists that while the "self exists from the 'moment the child is alive'", the child is not born with a *sense* of that *self* (Fitts, 1971; Løvlie, 1982). In her work, *The Self*, Løvlie refers to the earliest time period of development as the *organismic* state as the infant "participates directly in his experiences… [and] perceives no distance between organismic sensations and the outside world (1982, p. 27)". In a sense, "He has not yet a self to relate experiences to" (1982, p. 27). It is during this stage of development that Bandura's research suggests that the development of the self-efficacy system *begins* with the initial interactions between an infant and his environment (Bandura, 1980, 1981).

As children end the sensory-motor stage and initiate learning the required skills for language development, the children begin to gain the tools necessary to evaluate their personal efficacy (Piaget, 1954; see also Bandura, 1980, 1981). Children moving into the *symbolic* state, in which self-awareness is developed, begin to attach "feelings of worth to linguistic symbols" (Løvlie, 1982, p. 27). As the self-concepts commence development, children begin to assess, judge, and evaluate themselves with their level of cognitive development and the influence of environmental and social systems guiding that development (Coopersmith, 1967). With the on-set of the preoperational stage, children attend to cues individually resulting in experiences that

produce self-efficacy that is closely tied to immediate outcomes and parental guidance pertaining to their capabilities (Kamii, 1981; see also Bandura, 1980, 1981).

While the influence of the parent is strong, a child's judgment of self-efficacy initiates through comparison of his abilities to those of his siblings and then later, as he enters school, to his peers (Wright, 1967; see also Bandura, 1980, 1981). The accuracy of the self-efficacy judgments improves and relies less on immediate outcomes as children enter the concrete operational stage (Piaget, 1954; see also Bandura, 1980, 1981). Children age and continue to compare and evaluate their self-concept which leads to a decrease in the parental influence in the growth and development of self-efficacy while the influences of peers increase (Costanzo & Shaw, 1966; Wright, 1967).

School has been found to exercise a significant level of influence on children's self-efficacy development. Through the learning process, children, via a complex system of success and failure, discover their abilities and limitations (Erikson, 1959). The formal operational stage, typically reached during adolescence, necessitates the acquisition of new self-efficacy beliefs dealing with relationships, academic interests, physical and emotional concerns, and other areas of social and academic growth that promote the transition from childhood to adulthood (Piaget, 1954; see also Bandura, 1980, 1981; Schunk & Meece, 2006).

Bandura continues his stages of self-efficacy development beyond the formal operational stage through adulthood. He contends that the individual's sense of self-efficacy iterates through life from dealing with the demands of young adulthood to dealing with the reassessment of abilities later in life, paralleling Erikson's life crisis (1959; Bandura, 1980; 1981). For most theorists, the development of self-efficacy is a life-long process that involves the "progressive differentiation of self-knowledge" (Oyserman & Markus, 1993, p. 206; see also Erikson, 1968).

Sources of self-efficacy beliefs.

Regardless of a person's cognitive or ability levels, the self-efficacy beliefs that a person possesses results from four primary sources of self-efficacy, each one varying in its influence on growth in perceptions (Bandura, 1997; Pajares, 2006). These sources include performance experiences, vicarious experiences, verbal persuasion, and emotional arousal (Bandura, 1977, 1978; Evans, 1989).

Performance experiences are thought to be the most effective in developing self-efficacy beliefs due to the authentic nature of the actual personal mastery experience (Bandura, 1978; Evans, 1989; Gecas, 1989; Schunk & Meece, 2006). Numerous studies suggest that *action-oriented* treatment in which participants actually practice and use the intended new behavior or skill produces dramatically greater gains in the perceptions of self-efficacy than treatments based solely on other sources/methods (Bandura, 1977; Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977; Evans, 1989). The influence of these performance experiences relies directly on their cognitive appraisal of their performances (Bandura, 1977). An appraisal of success raises self-efficacy beliefs about that given task, while an appraisal of failure lowers self-efficacy, especially if repetitious and viewed by the person as simple (Feather, 1966; Bandura, 1977, 1978; Schunk & Meece, 2006).

In his interview with Evans, Bandura stated that the majority of what people base their beliefs on is "shaped by what they see and hear rather than by their own direct experiences. If we relied solely on direct experiences, we would have a very limited experiential base…" (Evans, 1989, p. 6). As a result, vicarious or modeled experience is seen as an influential source of self-efficacy. According to Gecas (1989), vicarious experience, based largely on symbolic interaction, becomes much more consequential after infancy. The need to infer the information

using social comparison skills means that those abilities must be present prior to vicarious experience becoming an influential determining source of self-efficacy (Bandura, 1977; Gecas, 1989). In addition those modeling the experience should be seen as *similar others* to the observers of the experience. Observers who witness *similar others* succeeding may, in-turn, believe that they can succeed as well (Brown & Inouye, 1978; Evans, 1989; Schunk & Meece, 2006). In addition, these modeling experiences can reduce the effects of personal failure experiences by maintaining a stance of continuing when faced with persistent failure (Brown & Inouye, 1978). Schunk and Meece (2006) however, are careful to point out that this type of inferred experience can have weaker outcomes given that these inferred skills and behaviors must still be personally tested.

Persuasive information, usually in a verbal or written sense is also a commonly agreed upon source of self-efficacy (Bandura, 1978; Pajares, 2002; Schunk, 1981; Schunk & Meece, 2006). While often seen as less powerful than performance experience, persuasive speech and writing have shown to produce positive effects on the efficacy of those who reasonably believe they themselves can complete the action (Bandura, 1978; Chamblis & Murray, 1979; Schunk, 1981). The work of Erikson eloquently points out that the real strength of verbal persuasion and praise is only reached when those messages are authentic in nature (Erikson, 1959). Self-efficacy is largely unaffected and can actually diminish if the persuasive information is deemed as *artificial* or *undeserved* or is provided by someone that the individual does not see as credible (Pajares, 2006).

The final agreed upon source of self-efficacy is arousal efficacy information in the form of physiological (heart rate) and emotional arousal (feelings of anxiety, depression, elation) (Bandura, 1977, 1978, 1981; Pajares, 2002; Schunk & Meece, 2006). The self-efficacy

implications are directly dependent on past experience with similar situations (Bandura, 1978). Symptoms of high emotional and/or physiological arousal signal the individual to feel competent or incompetent in the expected action (Schunk and Meece, 2006). Pajares further stated that while the arousal signs are indeed signals, it is not the intensity of that arousal state, but the individual's interpretation of that state that affects self-efficacy (2006; Bandura, 1977, 1978). "Those who are inclined to perceive their arousal as stemming from personal inadequacies are more likely to lower their perceived efficacy than those who regard their arousal as a common transitory reaction…" (Bandura, 1993 p. 133).

Schunk and Meece (2006) clearly pointed out that these sources of perceived self-efficacy do not simply occur *automatically*, nor do these sources act alone as any sole source of efficacy (Bandura, 1978; Schunk, 1995). It is in judging all relevant information, that the development of the self-efficacy actually takes place (Bandura, 1977, 1978). These judgment skills, often loosely understood and even more loosely appropriated, lead to gaps between the actual action knowledge level and the perceived efficacy to complete that action (Bandura, 1993; Pajares, 2002, 2006). Expanding experience with the action and improving the quality of the judgments made by the individual with regards to information from the many sources of the perceived efficacy toward that action has been shown to be effective in improving the accuracy of those judgments, resulting in a more accurate self-efficacy (Pajares, 2006).

Self-efficacy's influences on life.

"Effective functioning requires that people develop competencies and skills…in addition [to] a strong belief in their own efficacy to put those skills to good use. …self-beliefs translate into human accomplishments, motivation, and personal well-being" (Bandura in Evans, 1989). The research of Bandura and many others have clearly shown that an individual's beliefs in his

own abilities has a direct effect on the behavior, choice, coping, motivation, thinking, achievement, and the personal well-being of that individual (Bandura, 1977, 1978, 1986, 1997; Evans, 1989; Gecas, 1989; Pajares, 2002; Schunk and Zimmerman, 1997; Stajkovic & Luthans, 1998). Bandura's research further shows that these effects can be categorized into four processes: cognitive, motivational, affective and decisional processes (1992, 1993, 2006).

Cognitive processes embody the direct effects of self-efficacy on an individual's beliefs about his abilities and goals, social comparisons to others, and his ability to control his environment (Bandura, 1991, 1992, 1993). "Perceived self-efficacy influences performance…through its strong effects on goal setting and analytical thinking" (Bandura, 1993, p. 128). Personal efficacy directly effects the choice of behavior and the environmental setting in which the individual is willing to allow that behavior to take place (Bandura, 1977).

Through the cognitive tools of forethought, self-efficacy beliefs frame how an individual conceptualizes his abilities and sets goals for himself (Bandura, 1993). Bandura states that cognitive processes can be "self-aiding or self-hindering" (Evans, 1989, p. 54). A person who has a strong sense of self-efficacy toward a given skill envisions successful outcomes and therefore set higher goals than an individual who possesses little perceived efficacy (Bandura, 1993). "People who have a high sense of efficacy tend to devote their attention and cognitive resources to mastering the problems at hand, whereas people who are plagued by self-doubts about their efficacy tend to worry about all the things that can go wrong" (Evans, 1989, p. 54).

Whether ability is believed to be an attainable skill or an inherent intellectual capacity, many researchers suggest that perceived self-efficacy beliefs are affected directly by how an individual interprets ability (Bandura, 1992, 1993; Dweck & Leggett, 1988; Nicholls, 1984). In a 1989 study, Bandura and Wood found that for those who view ability as an attainable skill,

self-efficacy beliefs endure despite encountering difficulties. This resilient quality led the group to set and attain higher quality goals. However, those who view ability as an inherent intellectual capacity, something one has or does not have, saw decreases in perceived self-efficacy beliefs when presented with problems, lower expectations, and declining results.

An individual's beliefs about his abilities are most often shaped by his social comparisons to other's ability to perform that same task. Bandura states that most tasks do not, "provide objective standards for assessing ability,…[therefore]…people must assess their capabilities in relation to the attainments of others," with the group or individual used for comparison along with the type of feedback received directly influencing the level of perceived self-efficacy (1993, p. 121). The closeness of the perceived ability of the group or individual being compared directly effects the quality of the judgment to be made. Research has shown that if an individual compares himself to a similar group, the self-efficacy comparisons are more accurate than when comparing himself with those more or less skilled (Bandura, 1980, 1981, 1993).

The feedback received from those social comparisons also directly influenced the quality of the perceived self-efficacy judgment, forethought, goal setting and attainment of a given skill (Bandura, 1993). Affirmative feedback in which the individual receives positive comparisons between his own abilities and those of the compared social group, leads to higher levels of perceived self-efficacy, greater effort, and extended persistence, while negative feedback leads to an undermining of self-efficacy beliefs, less effort and a sense of failure (Bandura & Jourdan, 1991; see also Bandura, 1993). If negative comparisons carry few or no consequences, "little incentive is given to [use that feedback] in making accurate efficacy appraisals" (Bandura, 1978, p. 349).

The perceived ability to control and cope with the environment also plays a large role in the development of self-efficacy concepts. An individual who sees himself as able to cope with changes in a setting focuses more on his abilities to complete the task and less than on how the environment in which the behavior takes place can actually affect that ability (Bandura, 1978). Bandura states that the modifiability of the environment and the perceived ability to change that environment through effort are the main *aspects in the exercise of control* (1993). Modifiability refers to the freedom provided by the environment for an individual to employ choice and personal efficacy (Bandura, 1993). The second aspect, focus on the *level and strength* of efficacy beliefs, abilities, and resources to make those changes happen (Bandura, 1993). Bandura and Wood found that when presented with the idea that the environment is not *influenceable*, individuals demonstrated lower levels of self-efficacy beliefs and reached far fewer of lowered expectancy goals (1989). These individuals were initially slowed by external forces from doing what they thought they would be able to do, which in-turn eventually lowered their perceived efficacy beliefs, creating a discrepancy between their initial efficacy judgment and ability and their actual performance (Bandura, 1978; Bandura & Schunk, 1981). Others who were presented with the idea that the environment is amendable were able to maintain higher levels of perceived personal efficacy beliefs, while setting and reaching higher expectancy goals (Bandura & Wood, 1989).

The ability of forethought to imagine future consequences and the actions of goal development and self-evaluation also partially roots the motivational processes within cognitive processes; those processes focused on the *activation and persistence* of behavior (Bandura, 1978, 1993). Bandura (2006) stated that individuals set goals and "anticipate likely outcomes of prospective actions to guide and motivate their efforts…A future cannot be a cause of current

behavior, because it has no material existence. But by being represented cognitively in the present, visualized futures serve as guides and motivators of behavior" (2006, p. 7). In her work, *The Self*, Løvlie describes just this type of motivational processes describing it to be a force that must be "conceptualized as being inherent in lived experiences…[that] …can only be grasped by entering into the event" (1982, p. 75). In the same vein, Pintrich and Schunk (2002) described motivation as a procedure in which "goal-directed" behavior is initiated and maintained.

The motivational process of an individual can be viewed as a process that involves cognitive goal setting, self-regulative reactions, and proactive control of those processes (Bandura, 1993). Studies have shown that self-efficacy is highly predictive of, "task interest and of value for accomplishing future goals…" (Zimmerman & Cleary, 2006, p. 14; see also Cleary & Zimmerman, 2000; Pajares & Miller, 1994). Through a process of cognitive comparisons with what the individual believes he is able to do and the intended outcome, goals are set. If the perceived efficacy to complete the needed task in order to meet the set goal is high, that goal is more likely to be explicit and challenging, yet attainable (Zimmerman & Cleary, 2006; see also Bandura, 1978, 1993; Cleary & Zimmerman, 2000; Locke & Latham, 1990). Cleary and Zimmerman exhibited this phenomenon with their 2000 study with expert, non-expert, and novice basketball players. They found that the higher the efficacy level of the player, the more explicit the goals. Those goals then proved to serve as a standard for measurement and set forth a precedent for future goal setting within the given task. The more challenging the goal, the more likely the individual is willing to exert the effort and persistence required in meeting that goal (Locke & Latham, 1990). In an earlier study however, Bandura and Schunk (1981) were careful to state that those challenging goals must be attainable in order for the individual to

maintain effort. Their research found that when difficult or new skills are required to meet a given goal, individuals often perform better and progress faster if attainable sub-goals are established as a pathway to the main goal (Bandura & Schunk, 1981; Evans, 1989).

The self-efficacy beliefs of an individual directly influence the self-regulation reactions of the motivational processes (Bandura, 1991). "Forethought is translated into incentives and appropriate action through [this] self-regulation" (Bandura, 1993, p. 130). The self-regulated amount of effort an individual is willing to put forth and the length of time he persists with the given behavior in an effort to meet his goal is a function of his self-efficacy and the importance of the goal (Bandura, 1978, 1993). The higher the individual's perceived self-efficacy beliefs about his ability to complete the given task or use the given skill, the more effort he exerts and the longer he persists even when faced with obstacles (Schunk, 1981, 1984; see also Evans, 1989; Pajares, 2002; Zimmerman & Cleary, 2006).

According to Bandura (1993), individuals set challenging goals, creating a *disequilibrium* between their known skill level and the set outcome in a proactive attempt to control their motivational processes; a self-efficacious use of internal locus of control (Zimmerman & Cleary, 2006). After reaching that goal, individuals with high perceived efficacy set even higher goals for themselves, thus creating new motivation to meet the new goals (Bandura, 1993). Bandura describes this process as a, "…dual control process of motivating discrepancy production followed by discrepancy reduction" (Bandura, 1993, p. 119).

Much like the cognitive and motivational processes, affective processes are directly affected by an individual's perceived self-efficacy (Bandura, 1993, 2006). This set of processes is the *emotional mediator* of self-efficacy and determines how well an individual copes with stress when presented with difficulties (Evans, 1989; see also Bandura, 1993; Larsen, 2000).

Those with a higher sense of coping efficacy dedicate more attention to mastering the problem and less attention on those things that could go wrong (Evans, 1989; see also Bandura, 1993). In addition, affective processes are influenced by the way in which individuals, "perceive the determinants of their behavior" (Bandura, 1978, p. 349). When the task at-hand is one that the individual feels that he has personal control over, his ability to cope with adverse situations is raised (Bandura, 1993, 1997). Similarly, when he feels that he has little personal control and that external factors heavily influence his ability to reach his goal, his coping efficacy is lowered (Bandura, 1978, 1993; Evans, 1989; Cleary & Zimmerman, 2000).

Bandura (1978) stated that it is the *self-knowledge* of the coping efficacy that lessens stress reactions. Pajares furthers this by stating that self-efficacy of coping skills, "helps to create feelings of serenity in approaching difficult tasks and activities…" concluding that this knowledge can have a direct affect on the, "level of accomplishment that one ultimately achieves" (2006, p. 6). As an individual faces the task between him and his ultimate goal, his coping efficacy leads him to choose a method of progression that is least threatening to his perceived coping abilities (Bandura, 1978). His level of perceived coping efficacy directly influences the method he chooses, how much effort he is willing to extend, and how long he persists (Bandura, 1977, 1978, 1993; Evans, 1989; Gecas, 1989). This self-efficacy to cope with the given situation results in those levels of stress not only being present with the given task, but also transferable to other similar tasks (Bandura, 1977).

Decisional processes once referred to as selection processes include those operations that pertain to the use of an individual's perceived self-efficacy to make informed choices in his life. These choices affect the way he makes decisions and the direction of his *life paths* (Bandura & Schunk, 1981; see also Bandura, 1993; Evans, 1989). While an individual's environment is

highly influential on the choices he makes, the manner in which he evaluates the controlling factors surrounding that environment is dependent on his self-efficacy beliefs (Bandura, 1986, 1993; Zimmerman & Cleary, 2006). In addition to the environment, an individual's social stratification is yet another factor affecting his decisional processes (Gecas, 1989; see also Bandura, 1993). Social stratification influences the types of opportunities afforded the individual and thus directs the types of experiences of which he uses to develop his self-efficacy beliefs (Gecas, 1989).

"The matters of major interest center on whether, and how, people exert some influence over what they perceive and do" (Bandura, 1978, p. 351). Those decisional processes are consistently found to be guided by perceived efficacy (Bandura, 1993; Pajares, 2002). "Individuals…select tasks…in which they feel competent and confident…Unless people believe that their actions will have a desired [effect]…they have little incentive to engage in those actions" (Pajares, 2002, p. 6). Without such incentives even skilled and efficacious individuals choose not to complete the given task (Pajares, 2002). These types of decisional processes can have profound effects on the intellectual, academic, and career development (Bandura, 1993).

Self-efficacy and academic achievement.

Agency.

"Each period of human development brings with it new competency requirements, challenges, and opportunities for personal growth" (Bandura, 2006, p. 6). To this idea, Bandura discusses with his social cognitive theory the existence of three levels of human agency, individual, proxy, and collective, each with its own purpose and place in academic achievement

(1986, 2006). Each level of agency is exhibited in the relationship between student (individual), teacher (proxy), and school (collective) in the quest for the academic achievement of the student.

Students, especially those with higher levels of self-efficacy, set challenging, attainable academic goals and put forth effort to meet those goals in an attempt to exert their individual agency (Bandura, 2006). Personal self-efficacy of student plays a direct role in time on task and the general classroom climate; those with lower self-efficacy are more likely to exhibit disruptive behavior that directly impact time on task for all students and negatively impacts the classroom climate (Schunk, 2003). Student academic and emotional achievement is based on a myriad of factors including time on task, persistence in the face of difficulty or failure, and attitude toward specific tasks within a given domain. Wolters stated that students have "the ability to monitor, evaluate, and purposefully control their own expectations, perceptions of competence, [and] self-efficacy for [a given] task" (2003, p.190). Research has been successful in demonstrating that student self-efficacy beliefs are successful in mediating, "the effect of skill, previous experience, mental ability, or other self-beliefs on subsequent achievement" (Pajares & Schunk, 2001, p.240).

Given that academic goals are often daunting and initially unclear to students, teachers serve as proxy agency when individual efforts and perceived self-efficacy are simply not enough. Through their instructional guidance, skill and belief building activities, teachers encourage students down the path toward building their personal efficacy and meeting their academic goals (Bandura, 2006). In an effort to scaffold students in their ever evolving development of a personal self-efficacy, teachers, through proxy agency, take on the responsibility of creating learning environments conducive to the development of cognitive and self-examination skills. In support of the central role teachers play in aiding in the development of individual student self-

efficacy, Colvin and Schlosser defined teachers as "powerful individuals in the lives of students who critique academic work, clarify expectations, enforce rules, and provide feedback…which allows students to experience a sense of success or failure" (1998, p.273). Through these mastery and vicarious experiences, teachers guide students with cognitive and motivational support. Through proxy agency, teachers support student development of strong self-efficacy beliefs.

"The school functions as the primary setting for the cultivation and social validation of cognitive competencies… it is the place where children develop the cognitive competencies and acquire the knowledge and problem solving skills essential for participating effectively in the larger society " (Bandura, 1994, p.74). Schools blend their knowledge to form the collective agency that the students need to build self-efficacy beliefs and that teachers need in order to meet the academic goals of the students. Collective agency affords the teachers the ability and the belief that they can work together for the greater good of the students (Bandura, 2006). When administrators, teachers, and staff work together to build opportunities for collaboration, coaching, and teacher driven decisions, the collective agency of the schools actually serves to increase teacher efficacy (Chester & Beaudin, 1996; Hoy & Woolfolk, 1993; Newmann, Rutter, & Smith 1989; Rosenholtz, 1989; Ross, 1992). As a rule, when teachers feel an increased and supportive sense of control over their decision making in schools, their sense of perceived teacher efficacy is increased and they become more persistent and resilient in the face of difficult or challenging situations (Bandura & Schunk, 1981; see also Bandura 1993; Evans, 1989; Locke & Latham, 1990).

Beyond the concept of agency, Bandura discusses three courses in which cognitive developments are guided by perceived self-efficacy beliefs: the students' beliefs in their ability

to control and affect their learning environment and accomplishment, the teachers' sense of self-efficacy pertaining to their ability to motivate and promote learning, and the collective sense of the school to guide students to meet academic goals (2006). If we recognize that the perceived sense of self-efficacy of all parties involved in the process of completing this course of academic achievement and cognitive growth is pertinent to the course being completed at all, we must also recognize that the quality of the instruction and support students receive is vital.

Perceived teacher self-efficacy.

Perceived teacher self-efficacy can be defined as, "the teacher's belief in his or her capability to organize and execute courses of actions required to successfully accomplish a specific teaching task in a particular context" (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p. 233). The self-efficacy of a teacher with regards to her ability to teach her students is affected by all four sources or efficacy beliefs (Pajares, 2006; see also Bandura, 1977, 1978, 1997; Dembo & Gibson, 1985; Evans, 1989). These beliefs develop first as pre-service teachers learning through vicarious experience and modeling by master teachers. Slowly, though varied classroom experiences, verbal persuasion of master teachers and competent peers, comparison with peers while modeling modes of teaching, and actual time in the classroom as student teacher, the beliefs about her ability to teach children begin to emerge (Bandura, 1997, 1986; Schunk, 1987, 1989; Tschannen-Moran & Hoy, 2007).

As the teacher continues through her career as a classroom teacher, she experiences varied situations through her own teaching of students, workshop attendance, professional development participation, and sometimes continued coursework, building an experiential base that continually forms and re-form her beliefs about her ability to teach (Gist & Mitchell, 1992). Through an analysis of the varied teaching tasks faced by the now practicing teacher, judgments

about her personal self-efficacy are made to discern what is needed for success and what success actually looks like for her and her students (Tschannen-Moran et al., 1998). Factors affecting her decision to higher or lower her self-efficacy beliefs about the specific context depend greatly on,

> …the students' abilities and motivation, appropriate instructional strategies, managerial issues, the availability and quality of instructional materials, access to technology, and the physical conditions of the teaching space…[the] leadership of the principal, the climate of the school, and the supportiveness of other teachers. (Tschannen-Moran et al., 1998, p. 232)

Whether the teacher believed that her perceived self-efficacy with regards to teaching is a flexible belief that can be affected through experience and professional development, or whether she believes that her self-efficacy beliefs are fixed and unable to be challenged or defeated, the willingness to explore and acknowledge those personal efficacy beliefs directly impact her innumerable numbers of contexts within and outside the classroom (Tschannen-Moran et al., 1998; see also Bandura 1993)

Perceived teacher self-efficacy is an important and proven factor in the achievement of students. Graham, et al., stated that teacher self-efficacy is a "particularly powerful construct and one of the few teacher characteristics that reliably predicts teacher practices and student outcomes" (2001, p.178). Numerous studies have shown that teacher self-efficacy is directly correlated with higher levels of achievement (Ashton & Webb, 1986; Ross, 1992; Ross & Bruce, 2007; Tschannen-Moran & Hoy, 2007; Tschannen-Moran et al., 1998). In fact, Rimm-Kaufman and Sawyer (2004) found a 1:1 relationship with regards to teacher self-efficacy beliefs and academic achievement of students. "The relation between teachers' self-efficacy and student performance is viewed as bi-directional; teachers feel more efficacious when their students do well, and students do well when teachers feel more efficacious " (p.322).

In addition to student achievement, student motivation (Dembo & Gibson, 1985; Midgley, Feldlaufer, & Eccles, 1989), and student self-efficacy (Anderson, Greene, & Loewen, 1988) are also directly influenced by teacher self-efficacy. Likewise, teacher self-efficacy has a direct relationship with less critical attitudes towards students (Ashton & Webb, 1986), and teachers being more likely to attempt to utilize new pedagogical tools to meet the needs of their students (Ashton & Webb, 1986; Guskey, 1988; Stein & Wang, 1988). The positive predictive effects of self-efficacy with regards to specific contexts of knowledge are firmly grounded in a decade of extensive psychological and educational research (Bandura, 1997; Henson et al., 2001; Pajares, 1996). Even the environment of the classroom, is in part, developed and maintained due to the teacher's perceived self-efficacy of teaching (Bandura, 1997).

Teachers with higher senses of general teacher self-efficacy provide consistently better classroom environments and learning opportunities for their students. Questions arise as to what teachers believe this process actually looks like in the classroom. If we recognize that the process of developing self-efficacy beliefs pertaining to academic and social contexts is difficult, then several questions arise. 1) How do teachers share this development of beliefs with young students in a way that motivates them to take ownership of their goal setting and future? 2) How do teachers provide students with mastery experiences, that when completed, build skills and foster a feeling of accomplishment? 3) How do teachers help students develop the meta-cognitive skills that allow them to analyze and improve their skills? and, 4) How do teachers help students transfer knowledge about a given task into feelings of self-efficacy and into different contexts?

High efficacious teachers have embraced the teaching of Bruner (1975) who emphasized the importance of "scaffolding" (Tschannen-Moran et al., 1998; see also Goza, 2009;

Linnenbring & Pintrich, 2003). *Scaffolding* is based on the belief that students need the opportunity to interact with those who have more expertise in a given area. Braunger & Lewis (1997) further described scaffolding as the "…interaction between the learner and more sophisticated others that provides guidance, support, and models as new things are learned" (p. 29). Children learn best when provided with scaffolds by those who have strong beliefs about their own abilities to complete the given task. These individuals, be it parents, teachers, or even peers, provide students safe opportunities to practice a given task while gaining useful support and feedback (Bandura; 1977, 1993, 2006; Bruner, 1975; Tschannen-Moran et al., 1998). Using varied levels and methods of scaffolding allows for adaptation to meet the needs of each student. As students develop the skills to monitor their own progress, difficulties, and shortcomings, as those with a strong sense of personal efficacy do, the transfer of these skills occur (Bandura, 1977, 2006; Pellegrino, Chudowsky, and Glasner, 2001). When a student begins to understand the task process, even on a very novice level, it can foster independent thinking and self-reliance (Pajares, 1996, 2006; Wood, 1990).

Scaffolding models for students how skill development is not a simply one, two, three, done activity, but rather a highly iterative process, which leads students to develop meta-cognitive skills that allow them to set personal goals and gain confidence in their ability to complete the task and meet their goals (Woolfolk Hoy & Burke-Spero, 2005; see also Bransford, Brown, and Cocking, 2002; Tschannen-Moran et al., 1998). Meta-cognitive strategies allow students to actively think about their own thinking "and is a term used to describe the general activities of reflecting on and directing one's own thinking" (Pellegrino, Chudowsky, and Glasner, 2001, p.78; see also, Bandura, 1977, 1986, 2006; Pajares, 1996). Furthermore, Braunger and Lewis (1997) stated that those who are able to,

> …draw upon their own resources to problem solve as they encounter difficulties… [are better able to] …understand when, how, and why they are applying a particular strategy and skill, and what strategy or skill might be the best choice to help them progress in their development…. (p. 58)

Through a process of exploration, students can learn the *how-to* of self-belief in their ability. Through thinking aloud and modeling of the task process, where the teacher models thinking, decision making, and risk taking, students gain understanding and confidence in their own ability to use the modeled skills. Thinking aloud also allow the teacher to exhibit the decision making that takes place when a mistake has been made or when changes need to be made (Eggen & Kauchak, 2004). By questioning students about possible alternatives and showing examples of ways in which experts solve problems, teachers help students recognize and resolve their own problems. Students learn to evaluate skills of others, as well as their own, thus making them more accurately efficacious in their own abilities (Pajares 2006; see also Bandura, 1980, 1981, 1986).

Vygotsky (1978) found that social interaction drives learning. When students develop their ability to share their knowledge, fears, and concerns through social interaction, they enable themselves to develop healthy peer comparison that could one day open the door to enhanced, more accurate self-beliefs about their own academic, social and emotional skills (Bandura, 1993, 2006; Zimmerman & Cleary, 2006). Building on this concept, a community of learners, or *cognitive apprenticeships* groups students into a community of less and more skilled learners in which both parties share knowledge and concerns about the process of skill development and goal attainment (Eggen& Kauchak, 2004). Studies show that when engaged in cognitive apprenticeships, "learners can adopt the criteria for competence they see in others…then use this information to judge and perfect the adequacy of their own performance" (Pellegrino, et al.,

2001, p.89; see also Bandura, 1977; Evans, 1989; Gecas, 1989; Schunk & Meece, 2006). Furthermore, research has shown that the acquisition of skills is best learned through purposeful and meaningful social interactions with others (Schunk & Meece, 2006; see also Bruner, 1975; Bandura, 1986). These interactions create a collaborative, non-competitive environment in which to attempt and share what has been attempted with others.

If basic knowledge of structure becomes automatic for the learner, it then frees up cognitive space for greater understanding of the skills required to complete the given task and the ability to set accurate sub-goals that aid in continued effort and persistence (Bandura & Schunk, 1981; Evans, 1989; Scardamalia & Bereiter, 1987). Knowledge transformation takes place when students are able to move a given task from a school setting into an authentic situation; actually using their basic understanding and schemas to develop a *creative and unique solution* to real life problems (Bruer, 1993). When students are encouraged to answer authentic problems, they develop a larger understanding of the task. Teachers must provide mastery building experiences that are performance-based, through the use of critical-thinking, thought-provoking activities in order for transformation to take place. In addition to transfer, students need the opportunity to enrich their skills and pursue their goals.

"A major goal of formal education is to equip students with the intellectual tools, self-beliefs, and self-regulatory capabilities to educate themselves throughout their lifetime," (Bandura, 2006, p. 10). The *situation-specific* nature of this goal has lead researchers to theorize that knowledge about a given pedagogical topic is necessary but not sufficient (Woolfolk Hoy & Davis, 2006; see also Ashton & Webb, 1986; Bandura, 1977, 1986; Tschannen-Moran et al., 1998). The ability to carry out a given task is highly dependent on one's perceived ability on that topic. Thus, even if pre-service and in-service teachers have the necessary subject-specific

content and pedagogical content knowledge to teach, they may not be able to share this knowledge with their students. Possessing this knowledge,

> …does not ensure that the task will be performed successfully… effective[ness] also depends on one's perceived self-efficacy, or personal judgments that the knowledge and the skills needed to perform the task can be mobilized successfully under varied and unpredictable circumstances (Graham et al., 2001, p. 178; see also Bandura, 1993; Pajares & Miller 1994; Schunk, 1981).

"The level of perceived competence to meet the demands of a particular teaching task is what will influence functioning in that context," (Tschannen-Moran et al., 1998). The research teams, headed by Ross (1998) and Raudenbush (1992), found that teachers do not feel "equally efficacious" for all subjects or situations. Perceived teacher self-efficacy is based on the judgment of whether his abilities and pedagogical knowledge are substantive enough to deal with the teaching task (Woolfolk Hoy & Davis, 2006; see also Ashton & Webb, 1986; Bandura, 1977, 1986; Tschannen-Moran et al., 1998). Efficacy judgments can vary wildly based on certain subjects, tasks, students, and classroom situations. When teachers make personal self-efficacy decisions about teaching beliefs and ideas, those are not made without consideration for the specific content and context. Thus, a call for research to be conducted to explore domain specific self-efficacy beliefs is sent out; a call echoed by Wigfield and Colleagues (Wigfield, Guthrie, Tonks, & Perencevich, 2004) and Deemer and Minke (1999).

Self-efficacy with regards to writing instruction.

Researchers continually support that self-efficacy is the task-specific and is strongly influenced by the successful completion of a task (Klassen, 2002; see also Bandura, 1999). With regards to writing knowledge and both student and teacher success, it is critical that the task specific nature of their self-efficacy beliefs are explored.

Student self-efficacy with regards to writing.

With regards to writing, Klassen (2002) discovered that students often experience great difficulty. To develop become successful, proficient writers, "Students need more than skill and ability in order to perform academically; they also need the sense of efficacy to use them well and to regulate learning" (Klassen, 2002, p.177). Student self-efficacy has been found to be a significant predictor of academic writing performance at all age and proficiency levels (Graham, Schwartz, & MacArthur, 1993; McCarthy, Meier, and Rinderer, 1985; Pajares & Johnson, 1996; Pajares & Valiante, 1999; Shell, Colvin, & Bruning, 1995; Shell, Murphy, & Bruning, 1989). McCarthy, Meier, and Rinderer (1985) examined the relationship between self-efficacy and a written product and found that those with high writing self-efficacy wrote more proficient essays. Pajares and Johnson (1994) took their investigation between writing self-efficacy and writing performance a step further when they developed a model of "full-scale student writing self-efficacy [a composite of both skill and task scales]…" (p. 321). This model revealed that self-efficacy accounted for 68% of the variance in the writing performance at the end of the term (Pajares & Johnson, 1994). A 1995 study by Spaulding concured with previous research when she found that, "students with relatively higher levels of linguistic self-efficacy were more engaged with their writing assignment than were their peers with lower levels of self-efficacy" (p. 215).

Teacher self-efficacy with regards to writing.

In order to aid students in strong writing skills and methods, a clear understanding of the importance of writing, and the self-efficacious beliefs that allow them to move successfully through the writing process for varied purposes, teachers must make a *place* for writing in the curriculum. When effective teachers were asked about their placement of writing in the

curriculum, all of the teachers responded that they provided students with frequent opportunities to practice writing, taught grammar and usage skills alongside and in conjunction with the writing process, and provided students with opportunities to explore writing and editing in authentic setting and purposes. In addition, they express the explicit belief that teachers are to be coaches to their writing students, provide constructive and corrective feedback, and provide environmental supports in the form of large amounts of varied books, charts, poem, and word lists (Graham et al., 2001; Rankin-Erikson & Pressley, 2000; see also Allington, 2005a, 2005b; Pressley, Rankin, & Yokoi, 1996; Pressley et al., 2001). These teachers supported the use of embedded basic skills within purposeful writing instruction and emphasized that learning to write is a life-long pursuit that allows students to opportunity to communicate for life (Rankin-Erikson & Pressley, 2000). While research has shown that writing is a complex task, students can learn to write proficiently through regular, meaningful practice of writing within a variety of genres (Graham & Harris, 1997; Isaacson, 2004; Sadoski, Willson, & Norton, 1997). There is no single prescription for the teaching of writing; writing instruction is and should be as varied as the students taught and the genres explored (Dyson & Freedman, 2003). "The role of teachers as professional decision makers is vital" (Golsen, 2005, p. 6). "Teachers' decisions about writing's *place* in the curriculum and their reactions to student writing trace back to their own understanding of writings' nature, its uses, and their own feelings toward it, ….thus it is the beginning point for building student self-efficacy about writing," (Schunk 2003, p. 160). Many teachers would support this statement, but research and teacher statements pertaining to writing's *place* tell a different, ever-changing story.

The role of current curricular policies.

After numerous years of training and experience with students, school teachers are licensed and certified to teach their students. Most educators would support the belief that teachers, especially the *effective* ones, have insight and knowledge into what works within the curriculum for their students (Golson, 2005). But as one first grade teacher put it, "While working…, I became increasingly aware that my voice as a professional, and the voices of my colleagues, were frequently not requested or heeded in matters of educational policy…" (Golson, 2005, p. 4). As early as the mid-1990s, murmurs of change in the direction of literacy instruction began to surface. "With the time needed to cover the curriculum assessed and pressure of high stakes testing blocking out large quantities of time for teaching writing is difficult" (Jinks & Morgan,1999, p.229). But, beginning around 2003, researchers and teachers began reporting rapid changes to the *place* writing held in the literacy curriculum. One reading coach shared her experience at a school during the 2004-2005 school year:

> Known for its academic rigor and developmentally appropriate learning experiences… Canyon Primary School …had …until the 2004-2005 school year, enjoyed a great deal of academic freedom – the freedom to make decisions about student learning based on teacher expertise, knowledge, as well as campus instructional traditions… [C]lassrooms had been focused on cross curricular units of study; time was spent writing and performing plays, creating elaborate art projects,… and exploring the ocean environment...A deep emphasis on visual and performing arts has been and continues to be entrenched in the identity of the campus…The teachers all…wrote their own classroom productions [and] emphasized creativity in their classroom instruction… But [in 2004,] the stories grew more complicated with the large emphasis placed on state-mandated testing,… the introduction of a state-wide reading initiative, and a much tighter rein exerting force regarding not only what was taught in classrooms, but how. Because of the directive…to increase test scores, and the increased pressure to meet both county and state accountability standards, teachers began to teach to the test. (Darden, 2009, pp. 3-4, 8)

One of the key impacts on the time writing instruction received in the classrooms was the high stakes testing of reading and mathematics (Henck, Marinak, Moore, & Mallette, 2003).

The amount of time deemed as strictly for reading or mathematics increased causing other subjects, including writing, to be pushed to the margins of the curriculum. During a commonly imposed ninety minute reading block, writing is not a part of the curriculum. Writing is no longer a portion of literacy instruction in many schools, especially those with mandated scripted instructional programs that do not allow for additions to or deletions of the *set* curriculum of the literacy block (Darden, 2009). Teachers prioritize instructional time based on the new policies, mandates, and adoption of specific literacy programs of instruction; often citing these issues in opposition to their own beliefs about the *place* that writing should have in the curriculum (Brooks, 2007; see also Darden, 2009; Golson, 1995; Manning, 2006).

Teachers are faced with making changes to their beliefs and the curriculum, not based on the needs of the children or new research findings supporting an writing instructional process for their students, but rather because of school policies and state and federal mandates (Manning, 2006). In order to bridge the gap between personal beliefs and mandated curriculum, Manning (2006) proposes that teachers find a way to honor their own beliefs and the curriculum mandates. "We have spent years becoming the teachers we are and we can't and shouldn't change what we believe because of mandates. Maybe we can be true to ourselves and still be in compliance with the rules of others" (Manning, 2006, p. 69).

In order to head the call of Manning and others who see writing slipping outside the reach of the curriculum, teachers must design instructional opportunities creatively to integrate writing practices and strategies that have proven effective, while adhering to the established school policies and mandates. The need for innovative writing curriculum is significant, yet without proper preparation and high self-efficacy beliefs with regards to the writing instruction, the

ability of teachers to meet the demands of finding a *place* for writing in the curriculum will not be met (Golson, 2005).

To achieve today's high standards, knowledge of the writing process and the varied genres and purposes of writing is necessary (Moss, Swim, Cross, Sholl, & Laidroo, 2006). If teachers are to make a space for writing in the high stakes classroom, they must examine their own beliefs about writing and what writing instruction actually looks like. Researchers point out that the master and vicarious experiences of teachers with regards to writing play a direct role in the emphasis the teacher places on writing instruction, the type of instruction utilized, and the way in which the teacher interacts with her students during the instructional process (Pajares, 2003; see also Bandura, 1978; Evans, 1989; Gecas, 1989; Schunk & Meece, 2006). "For students to become effective writers, teachers must be cognizant of their self-perception of writing and how writing instruction is manifested in their classrooms. It was the background experiences of teachers, in their personal, academic, and social lives, that have shaped their self-perceptions about writing" (Thornton, 2010, p. 7). If the experiences of the teacher have been positive, her willingness to embrace the task of finding a *place* for writing in the classroom is met with successful inclusion of writing into the literacy curriculum; conversely, negative experiences lead to limited opportunities for students to develop as proficient, independent learners. **"**When teachers became aware of their self-perception about writing, they were more likely to address the issues of teaching writing to students… Without this information, teachers …continue to practice writing based on mandates, curriculum guidelines, and adopted programs," (Thornton, 2010, p. 8).

In order to develop as proficient writers, students need time and experience to develop a positive self-efficacy with regards to writing. Only teachers with a strong sense of teaching self-

efficacy develop varied and numerous opportunities for student to experience writing and writing instruction in the midst of the high stakes classroom curriculum (Pajares, 2003; see also Klassen, 2002; Tschannen-Moran & Hoy, 2007). In 2003, the National Commission on Writing in American Schools and Colleges suggested that "Every state … have a policy aimed at doubling the amount of time spent on writing, requiring a writing plan in each school district, that writing is taught in all subjects and in all grades, and teachers must complete a writing theory and practice course as a condition of professional licensing" (p.39). Until the time that states take on the responsibility of meeting these strong suggestions for meeting the high standards for language arts instruction set forth by countless educators, researchers, and commissions, the responsibility lies with the classroom teacher. Only those teachers with a high sense of self-efficacy with regards to writing take on that responsibility; the responsibility to spend time writing every day in all subjects, develop a literacy plan inclusive of writing, and continue with training to assure that the knowledge and pedagogical skills base is an ever increase pool to pull from to meet the needs of students for the future.

In addition to the slipping place that writing now holds in the curriculum, a group or researchers have shown that teachers may not possess the appropriate skills and strategies for preparing students for success with regards to writing, and that this lack of training may lead to a diminished sense of personal efficacy for both the teacher and the students (Barry & Moore, 2004; Buell, Hallam, & Gamel-McCormick 1999; Huai, Braden, & White, 2006). Buell and colleagues (1999) reported in their needs-assessment study that 78% of teachers replied that they did not have adequate professional development training to make writing a successful endeavor for all students. Professional development has been found to be beneficial to the perceived teacher efficacy of teaching writing, especially if the training aided teachers in recognizing the

needs of students and provided specific ways to modify the instructional program to meet the needs of all students (Brownell and Pajares, 1999).

The role of professional development.

Since No Child Left Behind legislation, accountability has become a focus of administrators across the country in the 1990s (No Child Left Behind [NCLB], 2001; Ginsberg & Berry, 1998). Legislators continue to demand increased accountability, especially as the Nation's Report Card shows little progress toward academic proficiency (Salahu-Din et al., 2008). Pressure for students to meet acceptable performance levels places an ever present demand on schools to increase student achievement. With student achievement considered one of the most important criteria for school accountability, school administrators are concerned with meeting acceptable performance levels as imposed by state and federal agencies. Failure to meet minimum performance levels can result in public scrutiny and even fiscal and administrative intervention from state departments of education (Public Education Network [PEN], 2007). For administrators and school boards, academic achievement often becomes a balancing act between public evaluation and the needs of teachers and students. One of the proven ways to accomplish improved student achievement is through collaborative professional development for teachers (Darling-Hammond, 2000; Goddard, Hoy & Hoy, 2000; Joyce & Showers, 2002; Langer, 1999; Stigler & Heibert, 1999; Wenglinsky, 2000).

Regardless of the facility, technology, or even curriculum, teachers are the most important influence on student learning in the classroom (Sparks, 2000; Zeichner & Klehr, 1999). With its newsletter on issues in school reform, the U.S. Department of Education (1996) focused on quality teaching as the key to raising student achievement (see also Darling-Hammond, 2000). The newsletter states that professional development is needed to maximize

ongoing development and support. It purports that through meaningful professional development, school systems may provide the most cost-effective, direct route to improving student learning by improving the quality of teaching. Describing the cost effectiveness of professional development, Darling-Hammond states, "one review of more than 60 studies found, added dollars spent on increasing teacher education had a larger impact on increased student achievement than money spent on reduced class size, increased teacher experience, or increased salaries" (1999, p. 7). Brown and Sheppard (1997) concur;

> If one accepts the assumption that the essence of successful instruction and good schools comes from the thoughts and actions of the professionals in the schools, the sensible place to look in order to improve the quality of education in a school is the continuous education of educators through professional development. (p. 2)

It is well accepted that teachers who possess high levels of perceived teacher efficacy are more likely to innovate their curriculum and change their teaching practices to meet the needs of their students (Evans, 1989; see also Alderman, 1999; Pajares, 2002; Zimmerman& Cleary, 2006). Zeichner and Klehr, concluded that professional development, having the greatest impact on teaching and learning, "represent[s] a long term investment in building the capacity of teachers to exercise their judgment and leadership abilities to improve learning for themselves and their students" (1999, p. 18). Professional development emphasizing performance and vicarious, or modeled, experiences provide teachers the opportunity to improve practices and gain a deeper understanding of the content (Stigler & Hiebert, 1999; see also Bandura, 1977, 1978; Burns, 2002; Evans, 1989; Norton and Lewis, 2000; Schunk & Meece, 2006).

"If you want an intervention to fail, mandate its use with a school full of teachers who hate it, don't agree with it, and are not skilled (or planning to become skilled) in using it" (Darden, 2009, p. 31). For professional development to meet the needs of the teachers and the students, the training must be of intellectual and instructional interest to the teachers. Teachers

report being subjected to mandatory professional development sessions in which they are trained to utilize instructional techniques and materials that limit their ability to make pedagogical decisions for their classroom (Darden, 2009; Hargreaves & Dawe, 1990). This type of professional development fails to empower the teacher, encourage collaboration between professionals, and often fails to expand the knowledge base of the teacher due to the issues of a lack of motivation to gain any efficacious beliefs from "forced" training (Hargreaves & Dawe, 1990). When teachers participate in professional development that makes use of prior knowledge, mastery and vicarious experiences, high self-efficacy, collaboration, and flexibility with regards to pedagogical and content knowledge is built.

Using the Teacher Efficacy Scale (Gibson & Dembo, 1984), Cantrell (2000) found that those participating in a state specific professional development program, "…made significant gains in perceived teacher efficacy…significantly higher than that of the control group" (p. 59). She concluded that through performance and modeled experience, teachers practiced and implemented the strategies that they learned. They built confidence in their abilities to overcome obstacles to student learning and thus, increased their perceived teacher efficacy (Cantrell, 2000). Similar studies, both large and small scale found significant increases in positive perceived teacher efficacy following professional development activities (Logan, Stein, Nieminen, Wright, Major, & Hansen, 1999; Klehr & Zeichner, 2001).

In addition to performance and modeling experiences, Guskey (1995) felt that professional development achieves its greatest success if targeted to a specific context; "uniqueness of the individual setting will always be a critical factor in education" (p. 3). When techniques and concepts presented have been tested and refined to meet the needs of the context in which they are to be used, greater relevance is realized (Gersten, Vaughn, Deshler, & Schiller,

1997; Gersten, Chard, & Baker, 2000). The implementation of data driven, site-based professional development has been shown to have the greatest positive impact on perceived teacher efficacy and classroom practices (Dilworth & Imig, 1995; Gersten et al., 2000). Local level decision making with regards to method and content of professional development provides teachers with the power to create a dynamic learning environment (Dilworth & Imig, 1995; Logan et al., 1999). Klehr and Zeichner (2001) found evidence in their study that,

> ...the experience of engaging in teacher research helps teachers to become more confident about their ability to promote student learning, to become more proactive in dealing with difficult issues that arise in their teaching, to acquire habits and skills of inquiry that they use beyond the research experience to analyze their teaching, and to develop or rekindle an excitement about teaching. (p. 11)

Conclusion.

Considering that the positive predictive effects of self-efficacy with regards to specific contexts of knowledge are firmly grounded in a decade of extensive psychological and educational research (Bandura, 1997; Henson et al., 2001; Pajares, 1996), it is difficult to believe that teachers' self-efficacy has widely been ignored by the writing research community (Ross et al., 1996). Yet, one of the few studies in this area include Graham et al.'s (2001) modification of the widely accepted Teacher Efficacy Scale of Gibson and Dembo (1984). This modification began the process of specialization of a self-efficacy instrument for writing education. Showing the relationship between writing and perceived teacher efficacy, Graham, et al. (2001) suggested that, "Given the apparent value of teachers' feelings of efficacy, it is surprising that this construct has been largely ignored in writing research… effective instruction in writing undoubtedly requires more than the possession of the latest knowledge of skills, but is also dependent on teachers' confidence that can affect student learning" (p. 178). It is clear that a mutual exchange

exists between writing and perceived teacher efficacy; however, further exploration into the relationship is needed to expand and refine the beliefs about how the relationship works.

Self-Efficacy Measures

The need for further examination of content specific self-efficacy measures is well documented (Deemer & Minke, 1999; Wigfield, et al., 2004). Writing researchers have heeded this call and have developed a number of self-efficacy measures that have been used to look at the topic of writing. The vast majority of these instruments however, have been designed for use with the writer, rather than the teacher or instructor.

Student writing self-efficacy scales.

The following instruments are measures of student writing self-efficacy. These writing self-efficacy measures operationalize self-efficacy as a student's belief about their abilities to perform writing tasks and skills specific to their grade/school level.

Meier and colleagues (Meier et al., 1984; McCarthy et al., 1985) constructed two of the earliest writing self-efficacy scales for college freshman enrolled in entry level English courses. Their first scale (Meier et al., 1984), a 19 item measure, asked participants to answer yes or no to each item to demonstrate their self-efficacy with regards to specific writing skills. In addition, participants were asked to rate their confidence in that efficacy on a 100 point scale. The second scale (McCarthy et al., 1985) was an adaption of the 19 item scale above. The researchers provided correct and incorrect examples for each of the 19 skills and replaced the open ended 100 point scale with a 100 point scale with 10 point interval units for confidence reporting. A sample item can be viewed below:

Sample Student Self-Efficacy Item (McCarthy et al., 1985)

> Subject-verb agreement refers to singular subjects with singular verbs and plural subjects with plural verbs.
>
> (Correct example: The list of items was long.)
>
> (Incorrect example: The list of items were long.)
>
> Can you write sentences in which the subjects and verbs are in agreement?
>
> Yes_____ No _____
>
> 0 10 20 30 40 50 60 70 80 90 100
> great uncertainty moderate certainty complete certainty

In 1989, Shell, et al. constructed a writing self-efficacy scale for college-age students. The instrument design divided the scale into two subscales, 16 writing task items and 8 writing component items. Sample writing task items: “list instructions for how to play a card game”; “author a short fiction story”. Sample writing skill items: “correctly spell all words in a one-page passage”; “correctly use plurals, verb tenses, prefixes, and suffixes”. Participants were asked to determine their self-efficacy with regards to performing the tasks and skills in each subscale using a 100 point scale ranging from “no chance” to “complete certainty”. To determine writing self-efficacy, Shell, Murphy, and Bruning (1989) took a mathematical average of the scores reported for all items. The Shell et al. (1989) writing self-efficacy measure has been utilized by other researchers (Pajares & Johnson, 1994, 1996; Pajares & Valiante 1999) and adapted for use with elementary and secondary students, with a 5 point response scale (“I’m sure I can’t” to “I’m sure I can”, with each point defined in between) replacing the 100 point scale (Shell, et al., 1995).

Graham, Schwartz and Macarthur (1993) developed a 10 item writing self-efficacy scale. The scale utilized a 5-point scale for fourth through eighth grade learning disabled and *normal achieving* students to record their level of efficacy with regards to each item. The 10 items were divided into 2 subscales, executing composing processes (7 items) and common school writing tasks. The scale resulted in 2 perceived efficacy scores, one for each subscale that was determined by taking a mathematical average of the reported values for each subscale. Sample items: executing composing processes – "When writing a paper, it is easy for me to get ideas"; common school writing tasks – "When my class is asked to write a story, mine is one of the best" (Graham et al., 1993).

In 1997 and 1999, Pajares and Valiante developed and then adapted a writing skills self-efficacy instrument for upper elementary students. The 10 item measure asked students to respond to items that judged writing self-efficacy of specific grammatical, mechanical and composition skills. Sample items: "Write a strong paragraph that has a good topic sentence or main idea"; "Structure paragraphs to support ideas in the topic sentences".

Teacher writing self-efficacy scales.

While appropriate and functional student self-efficacy measures exist and are used regularly with confidence, teacher writing self-efficacy scale options are very limited. Currently researchers are limited to one published and utilized scale. This teacher self-efficacy scale measures self-efficacy as beliefs about personal teaching self-efficacy (personal teaching efficacy) and "external influences or outcome expectancy" (general teaching efficacy) with regards to writing (Graham et al., 2001).

The Teacher Efficacy Scale for Writing (Graham et al., 2001) is a 16 item shortened and adapted version of Gibson and Dembo's (1984) Teacher Efficacy Scale. This measure, adapted

for use with primary grade teachers, uses a 6 point Likert scale, providing options ranging from strongly disagree to strongly agree. Teachers respond to items divided into two subscales, general teacher efficacy and personal teacher efficacy (Graham et al., 2001). Sample items from each subscale are: general teaching efficacy – "Even a good writing teacher may not reach many students", "The amount a student can learn in writing is primarily related to family background"; personal teaching efficacy – "When students' writing performance improves, it is usually because I found better ways of teaching that student", "If a student masters a new writing concept quickly, this is because I knew the necessary steps in teaching this concept".

Given the discrepancies between the item style, content and type, and the difference in descriptions of self-efficacy, there is a critical gap between the writing self-efficacy measures for students and teachers. While student writing self-efficacy focuses on writing tasks and skills, the teacher scale focuses on personal teaching beliefs, external influences, and outcome expectancies. While it is understood that personal and general teaching efficacy are appropriate measures of teacher efficacy (Gibson & Dembo, 1984; Enochs & Riggs, 1990; Tschannen-Moran et al., 1998), teacher beliefs about their abilities to teach writing skills and tasks needs to be measured.

Summary

The review of literature suggests that the construct of self-efficacy is a significant variable in life, development, and academic contexts. There is also strong evidence to suggest that self-efficacy beliefs have substantial influence on the effectiveness of professional development. A variety of measures of student and teacher self-efficacy have looked at the perceived efficacy of writing and writing instruction. A review of the literature demonstrates

that measures of teacher writing self-efficacy are few in number; there is a critical gap between the writing self-efficacy measures for students and teachers. While student writing self-efficacy focuses on writing tasks and skills, the single teacher measures focus on personal teaching beliefs, external influences, and outcome expectancies. While it is understood that personal and general teaching efficacy are appropriate measures of teacher efficacy (Gibson & Dembo, 1984; see also Enochs & Riggs, 1990; Tschannen-Moran et al., 1998), teacher beliefs about their abilities to teach writing skills and tasks needs to be explored and thus warrant this study and the following research questions.

Research Questions

The principal questions guiding this study address the knowledge gap between personal and general teaching writing efficacy and teacher writing self-efficacy judgments pertaining to teaching writing skills and tasks. In order to explore this topic, the researcher seeks to answer the following research questions about the Teaching Writing Self-Efficacy Scale (TWSES):

1. Does the TWSES exhibit evidence of score validity?
2. Is there a statistically significant difference between meet/non-meet AYP strata on TWSES subscale scores?
3. Do the item responses on the TWSES support a multidimensional construct?
4. Does the TWSES exhibit evidence of score reliability?
5. Do any of the item responses on the TWSES display item bias (DIF) with regards to gender or ethnicity?
6. Do the TWSES scores suggest test bias with regards to gender or ethnicity?

CHAPTER 3: METHODS AND PROCEDURES

The principal research questions guiding this study address the knowledge gap between personal and general teaching writing efficacy and teacher writing self-efficacy judgments pertaining to teaching writing skills and tasks. In an attempt to bridge this gap, this study developed the TWSES instrument for use with in-service educators, optimizing the items to elicit reliable and valid score responses from participants.

Participants, methods, and procedures.

The author selected a statewide proportional stratified random sample of school systems from two strata, those with all elementary and middle schools meeting Adequate Yearly Progress (AYP) [Stratum AYP] and those with elementary or middle schools failing to do so [Stratum Non-AYP], to match the ratio of school/teachers represented in each stratum. Based on 2008 - 2009 school year AYP data, available from the 2009 Adequate Yearly Progress Status of Schools List (ALSDE, 2009b, 2009c), approximately two thirds of the 132 school systems in the State of Alabama fall into Stratum AYP (91 systems), with one third falling into the Stratum Non-AYP (41 systems). Based on a ratio of 1:3, a random sample was chosen from each stratum for an initial system sample of 60 systems (45 Stratum AYP, 15 Stratum Non-AYP).

From participating school systems a simple random sample of 4th through 7th grade in-service teachers were contacted for participation in this study. With larger sample sizes, more stable, accurate, and replicable results are expected. In a recent study of research utilizing exploratory factor analysis, it was found that the majority of studies performed analyses with a

participant-to-item ratio of 10:1, the widely accepted "rule-of-thumb" used to determine *a priori* sample sizes (Costello & Osborne, 2005). For the present study utilizing the TWSES instrument with 35 items, the participant- to-item ratio of 10:1 would result in a needed sample of 350 participants. Initially a random sample of 700 teachers from participating systems was contacted. With an expected participation rate of 50% (Schonlau, Fricker, Jr., & Elliott, 2002), the expected yield of the initial random sample was 350 in-service teachers. Plans for a second sample, if needed due to lack of reply or agreement to participate to reach the expected participating subject sample size of 350 were as follows: a second sample of school systems based on the 1:3 ratio would be selected to be contacted by the author, for a total number of systems contacted not to exceed 100.

The author contacted each randomly selected school system to request participation in the study via written letter and email. Contact included an introductory letter explaining the purpose and procedures of the study and contact information for the author (Appendix B).

Systems personnel were encouraged to email or call the author for further information before making a decision to participate. If requested, plans for the author to make study introduction presentations on site, outlining the information included in introductory materials (Appendix B) were made and approved. When school systems made the decision to participate in the study, the number of in-service teachers in each study strata was confirmed and a contact list of 4th through 7th grade teacher email addresses of participating systems was compiled. A random sample of potential subjects based on the 1:3 ratio of Stratum AYP to Stratum Non-AYP was selected. An email was sent by the author to each potential subject (Appendix B). The email contained informed consent information (Appendix B) and an introductory letter to the study

(Appendix B). By request of the participating system or school principal, the above mentioned emailed was provided in writing at no cost to the school system or individual school.

After reviewing the study information, in-service teachers had the opportunity to indicate that they had chosen to participate or had chosen to opt out of the study. To indicate participation in the study, teachers indicated implied consent by completing the written or online survey instrument. To opt out of the study, teachers did not need to do anything. The use of implied consent was granted by The University of Alabama Institutional Review Board (Appendix C) and was utilized in this study.

In the initial letter and informed consent documents, a link to the web based research instrument was included. Subjects completed the Teaching Writing Self-Efficacy Scale (TWSES) Study Instrument, including The Teaching Writing Self-Efficacy Scale, The Teacher Efficacy Scale for Writing (Graham et al., 2001), and a demographic questionnaire; all formatted using Qualtrics online software (Appendix A). When completing study research instruments, no subject identifier was collected; no names, school names, or email addresses.

For the TWSES, participants were expected to read each item and rate whether they agreed or disagreed with their ability to teach the content in the item. According to Krosnick & Fabrigar (1997), as attitudes range from negative to positive, the concepts can be considered bipolar constructs. Using a bipolar, Likert-type rating scale, with a 6-point continuum with points at 1, ‘strongly disagree’ and point 6, ‘strongly agree’, participants rated their agreement with the item statements. Labeling all points on the rating scale has not always been routine, however doing so significantly improves reliability and validity estimates (Visser, Krosnick, & Lavrakas, 2000; Krosnick, 1999). Degrees of agreement were be provided for the remaining points, 5 ‘disagree’, 4 ‘slightly disagree’, 3 ‘slightly agree’, and 2 ‘agree’.

To respond to the Graham et al. (2001) Teacher Efficacy Scale for Writing (Appendix A), participants read each of the 16 items and respond by utilizing the 6 point Likert scale, providing options ranging from strongly disagree to strongly agree.

For the teacher demographic questionnaire (Appendix A), teachers were asked to respond to questions to the best of their ability. The teacher questionnaire included specific numeric and text-based open ended questions (Fowler, 2002) that include gender and ethnicity to determine if item or test bias is exhibited when utilizing the TWSES. Additionally, participants were asked to record the average number of students per class, amount of instructional time spent on writing, and professional development hours earned with the focus writing and self-indicated needs.

On-line access was open for 3 weeks. A reminder was sent to those systems with low participation at the end of week 2. A plan for additional weeks of data collection was available if needed to reach the appropriate sample size for the study. Each school system received a psychometric report that contains teacher TWSES scores and interpretation. If any participating school has only one teacher in a grade, i.e. one fourth grade teacher, reports were not grade specific unless permission was given by the participating teacher to assure confidentiality of responses.

In compliance with The University of Alabama Institutional Review Board (Appendix C) and participating school system guidelines, participants' rights were safeguarded as confidential. Responses were coded with only participant numbers and the names of those participating were not available for review or dissemination (Schonlau, Fricker, Jr., & Elliott, 2002). Teachers were assured of complete confidentiality with names and schools of participants not used in any data sets, reports or presentations. Data are available for participants and school boards upon request without specific names of participants.

Instrumentation

Initial instrument development of the Teaching Writing Self-Efficacy Scale.

The currently utilized teacher self-efficacy scale with regards to writing by Graham, et al. (2001) is an adapted version of the Gibson and Dembo (1984) measure, based on personal and general teacher efficacy. To measure skill and task specific self-efficacy judgments the process of developing a new instrument was initiated.

Item construction is an essential and fundamental process in the development of a new instrument. Multiple publications focused on the creation of new items that outline specific criteria intended to serve as guidelines in developing an instrument (Ary, Jacobs, Razavieh, & Sorenson, 2006; Fowler, 2002; Gall, Gall, & Borg, 2007). The following criteria appeared repeatedly throughout the survey creation criteria and were used in the development of the new measure, the Teaching Writing Self-Efficacy Scale (TWSES):

Item Development Criteria

1. Psychologically threatening items and phasing should be avoided to reduce false reporting or non-reporting of responses.
2. All terms and phases used to form instructions and item text should be comprehended by all participants.
3. All terms and phases that might illicit bias must be avoided.
4. Item and response format should be understood; while instructions are always to be provided, the format of the item and the expected response should be simple and straight forward to the participant.
5. All items should be direct and short; rarely more than 20 words and typically no more than 10.
6. Items wording must not lead or direct participants to a specific response.
7. The majority of the item should be restricted or closed response option to maximize statistical 'usefulness' of the data created. If extended or open response, the item should illicit specific information.

(Ary et al., 2006; Fowler, 2002; Gall et al., 2007)

In addition to a traditional paper administration format, the Qualtrics software, a web based survey service, was used to create a web administration format of the TWSES (Appendix

A). When designing the appearance of both the paper and web-based TWSES instruments, the criteria of Fowler (2002) were utilized. A single item format was utilized to simplify and speed administration and response by participants. The items were ordered to allow sufficient spacing so that each item is viewed without visual interference from other items or instructions (Fowler, 2002). For the web-based instrument, repetitive cues were used to remind participants of the instruction and progress made in completing the instrument (Fowler, 2002).

The Teaching Writing Self-Efficacy Scale (TWSES) was constructed containing thirty-five items (Appendix A). The theoretical basis for the instrument was to measure the self-efficacy of a teacher's ability to teach writing to students; specifically the teacher's beliefs about her ability to teach specific writing skills and tasks. Items were formulated based on topics and instructional activities found within current literature pertaining to writing education (ALSDE, 2007; NCTE, 1996; NCW, 2003; NWP & Nagin, 2003; Langer, 2002), and were developed through the constant comparative method of the grounded theory approach of Strauss and Corbin (1998; Glaser & Strauss, 1967; see also Erlandson, Harris, Skipper, & Allen, 1993). Each document or portion of the document specific to writing tasks and skills were analyzed using open coding for repetitive appearance of task and skill specific terminology, i.e. sentence formation, topic, audience, detail, genre, etc… When task and skill specific terminology emerging themes appeared in a majority of the documents, these were added to a categorical list of tasks and skills that would become individual items. In addition to the professional literature, student writing self-efficacy scales (McCarthy et al., 1985; Meier et al., 1984; Pajares & Valiante 1999; Pajares & Johnson, 1996, 1994; Shell et al., 1989) were analyzed using the same grounded theory approach (Strauss & Corbin, 1998; see also Glaser & Strauss, 1967). In a final step, both lists were analyzed to produce one final list of literature and published scale based tasks and

skills that became the 35 items of the TWSES (Strauss & Corbin, 1998; see also Glaser & Strauss, 1967).

The language of the items was dictated by the literature that related to them. Items were therefore developed to relate discursively to current language arts literature, but were written so that the concepts and skills would be relevant not only to the literature, but also to the teachers as participants; thus creating an instrument that allows teachers to accurately judge their ability to teach those concepts and skills in the classroom (Fowler, 2002).

Additional study instruments.

Currently researchers are limited to one published and utilized scale. This teacher self-efficacy scale measures self-efficacy as beliefs about "teacher competence" (personal teaching efficacy) and "external influences or outcome expectancy" (general teaching efficacy) with regards to writing (Graham et al., 2001).

The Teacher Efficacy Scale for Writing (Graham et al., 2001) is a 16 item measure based on a shortened and adapted version of Gibson and Dembo's (1984) Teacher Efficacy Scale. This measure, adapted for use with primary grade teachers, uses a 6 point Likert scale, providing options ranging from strongly disagree to strongly agree. Teachers respond to items divided into two subscales, general teacher efficacy (GTE) and personal teacher efficacy (PTE) (Graham et al., 2001). Factor loadings of 0.40 or higher on one factor were considered to be defining the factor (Graham, et al., 2001). The final two-factor varimax rotated solution accounted for 38% of the total variance for the measure, slightly higher than the 18% to 30% reported by researchers utilizing the original Gibson and Dembo (1984) measure (Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W. K., 1998). Factor analysis confirmed the existence of two factors with an alpha of 0.84 for PTE and 0.69 for GTE (Graham et al., 2001). Graham et al. found this to be

consistent with previous estimates of score reliability that fell within the 0.75 to 0.81 PTE and 0.64 to 0.77 GTE range found when administering the original Gibson and Dembo (1984) measure (Tschannen-Moran et al., 1998). According to Graham et al. (2001), evidence that the scale has convergent and discriminate validity was based on that provided by the original authors of the scale (Gibson & Dembo, 1984; Tschannen-Moran et al., 1998), not based on the adapted Teacher Efficacy Scale for Writing. No results of DIF or test bias were made available by the original or the adapted authors.

Given the discrepancies between the different versions of the scale and the lack of other psychometric knowledge, there was a need to develop the Teaching Writing Self-Efficacy Scale (TWSES). The TWSES contains 35 items using a bipolar, 6-point Likert-type rating scale. Using the statistical analysis software package, SPSS, Version 16.0 (2008), item responses were used to compute item-intercorrelation, item-total correlation, score reliability and score factorial validity (All data analyses are available in Chapter 4). Item analysis results related to item bias and test bias were used to refine the items for each subscale. Item factor loading fit to each subscale were also evaluated to determine if any items needed to be eliminated. Means and standard deviations were calculated and reported for each item and each subscale. TWSES item and subscale statistics were reported. Scale statistics for each gender and ethnic group were also reported. If items were removed, there values were reported as well. Additionally, items were reviewed for relevance and objectionable similarity to other items (DeVellis, 1991) using the grounded theory approach of Strauss and Corbin (1998; Glaser & Strauss, 1967). The Gunning Fog index was used to determine the readability level of the instrument (DeVellis, 1991; Dillman, 2000).

For the teacher demographic questionnaire, the teacher questionnaire included specific numeric and text-based open ended questions (Fowler, 2002) that include gender and ethnicity to determine if item or test bias was exhibited when utilizing the TWSES. Additionally, participants were asked to record the average number of students per class, amount of instructional time spent on writing, and professional development hours earned with the focus writing and self-indicated needs.

Validity

Evidence for content and construct validity was provided for the TWSES in this study. During the creation of the TWSES, literature was analyzed using grounded theory (Strauss and Corbin, 1998; see also Erlandson et al., 1993; Glaser & Strauss, 1967;) to ensure that the theoretical construct and items were based on empirical, professional judgment. Through this process, support for validity evidence was developed to suggest content-related validity. Additionally, the TWSES instrument was reviewed by a panel of elementary and secondary certified teachers. The four highly qualified teachers (NCLB, 2008), grades four, five and seven, each had more than 15 years of successful teaching experience in their currently taught grade. The utilization of a panel review by individuals similar to those being targeted as participants is widely documented and is supported as a form of previewing or pre-assessing the measurement instrument (Ary et al., 2006; Fink & Kosecoff, 1998; Gall et. al., 2005). The initial 35 items of the TWSES and both the paper and web-based administration formats were reviewed by the four member panel using the item development criteria (Ary et al., 2006; Fowler, 002; Gall et al., 2005) and the design and layout guidelines of Fowler (2002; Fink and Kosecoff, 1998).

Additionally, the review panel compared the results of the grounded theory analysis of literature and student self-efficacy measures (Strauss & Corbin, 1998; see also Glasser and

Strauss, 1967) with the items of the TWSES to determine if all categorical writing tasks and skills were represented. Panel members agreed that the wording and tone of the questions were appropriate and that the design of both administration methods were easily read and comprehended, without situations or phrasing that could be problematic to the proposed participants. Through three iterations, the panel made suggestions to the ordering of the items, either in order of perceived task/skill difficulty or random order, with the final suggestion exhibited in the present version of the TWSES (Appendix A).

Scale possibilities were presented to the panel for review. A 5- and 6-point Likert-type scale and a 5 and 6 point sliding scale were presented to the panel for review. The panel was notified that each point of the 5- and 6-point Likert-type scales and the upper and lower bounds of the sliding scales would be labeled for use, with commonly used options provided as examples (Graham et al., 2001; see also Graham et. al., 1993; McCarthy et al., 1985; Meier et al., 1984; Pajares & Johnson, 1994, 1996; Pajares & Valiante 1999). In addition, panel participants were supplied with example images of how the scales would appear on paper and on the web based application for the TWSES instrument. Following three iterations of suggestions, discussion, and actual use of both the paper and the web based examples, the panel experts agreed to the use of a 6-point Likert-type scale with labels 6 ‘strongly disagree’, 5 ‘disagree’, 4 ‘slightly disagree’, 3 ‘slightly agree’, 2 ‘agree’, and 1 ‘strongly agree’.

An exploration of concurrent validity was carried out to determine any similarities between the results of the TWSES with the Graham et al. (2001) Teacher Efficacy Scale for Writing. An examination of the correlation of the scores of both measures was undertaken to determine the existence of evidence of similarities between the two measures (Loewenthal, 1996).

To further investigate concurrent validity, the results of the participants were examined for group difference between those teachers in schools meeting AYP and those in schools failing to do so for the 2008 – 2009 school year. A directional, one-tailed t-test was computed to determine if those teachers in schools meeting AYP score higher on the TWSES than those teachers in schools that did not meet AYP (Loewenthal, 1996).

Joe & Mendoza stated that, "…the maximum internal correlation is an optimal measure of dependence in a set of variables …" (1989, p. 217). To determine the dependence of items on each scale, internal correlations were computed. These values were utilized in exploratory factor analysis of the measure.

Exploratory factor analysis using a maximum likelihood extraction method with direct oblimin rotation was used to examine and determine the factor structure of the TWSES and to identify the existence, if any, of subscales within the instrument (Costello & Osborne, 2005). While Tabachnick and Fidell (2001) support a 0.32 as a minimum acceptable factor loading, a minimum correlation coefficient of 0.400 was used to identify items contributing to each subscale factor. Items appearing below this value or cross loading on two or more factors were reviewed for possible removal from the instrument (Costello & Osborne, 2005). For a factor to be considered a subscale of content, the factor contained at least 5 strongly loading items, at 0.50 or higher (Costello & Osborne, 2005). When subscales were identified, each subscale was analyzed to determine if the items on the TWSES do indeed support the subscale construct. Mean and alpha results were reported in addition to an initial unrotated solution and a rotated component matrix utilizing an oblique rotation method used to produce a final solution and determine the cumulative variance and eigenvalue for each subscale (Costello & Osborne, 2005). Identified subscales were named using grounded theory analysis (Strauss and Corbin, 1998; see

also Glaser & Strauss, 1967), and those names and descriptions were used to refer to the subscales.

Reliability

There are several types of score reliability: internal consistency, split-half, test-retest, and parallel forms. This study reports internal consistency and split-half score reliability coefficients for the scores of the TWSES (Thompson, 2003). Based on participant results, the Cronbach alpha coefficient was calculated for each subscale on the instrument to provide an internal consistency estimate for responses across the items of each subscale (Thompson, 2003). A Cronbach alpha coefficient of $\alpha = 0.85$ was held as the standard for showing significant evidence for internal consistency (Lichtenberg & Goodyear, 1999).

Item Bias

Item bias is described as, "an item or subscale of a test is considered to be biased in content when it is demonstrated to be relatively more difficult for members of one group… [when] no reasonable theoretical rationale exists to explain group differences on the item [or subscale] in question" (Reynolds, 1982, p. 188). The Mantel-Haenszel chi square was computed to determine item bias. Research shows that the Mantel-Haenszel differential item function (DIF) analysis functions best when all groups have large numbers of participants (Camilli & Shepard, 1994; Fidalgo, Ferreres & Muniz, 2004). If the sample revealed small percentages of minorities, all categories of non-Caucasian groups would be combined into one "Minority" category (Camilli & Shepard, 1994; Fidalgo, Ferreres, D., & Muniz, 2004). Items exhibiting differential item function (DIF) were classified into one of three item types for the review

process (Dorans & Holland, 1993). Items classified as A (negligible DIF) were kept. Those with B (intermediate DIF) or C (large DIF) were reviewed and/or removed.

As recommended by Lichtenberg and Goodyear (1999), a panel of experts was used to remove stereotypical, offensive and culturally sensitive terminology, to eliminate content bias. In addition differential item function (DIF) analysis was used to determine the "interaction between group membership and total test scores in predicting performance on tests" (Lichtenberg & Goodyear, 1999, p. 24; see also Anastasi & Unbina, 1997; Roever, 2005; Zumbo, 1999). If items were found to be biased, a secondary examination of the items was completed to remove, reduce, and discern causes and reasoning for item bias.

Test Bias

The elimination of test bias was required for appropriate interpretation of TWSES scale scores. Test bias was calculated using the Cleary regression model (Brannick, 2008; Cleary & Hilton, 1968; Russell, 2000) to determine if any groups, based on participant reported gender or ethnicity, were under or over performing on the TWSES. If test bias had presented itself the TWSES would have been examined for external (predictive performance) and internal (item/subscale) based differences or bias in an attempt to remove, reduce, and discern causes and reasoning for test bias (Reynolds & Brown, 1984).

Score Interpretation

No transformation of the TWSES scores was necessary. A standard arithmetic average was computed for each item and the measure as a whole.

An interpretation range of scores was developed for each item and the measure as a whole. Score ranges aid participants and school systems in making appropriate teacher-specified need based professional development decisions.

CHAPTER 4: FINDINGS

Introduction

The purpose of the present study was two-fold in design to address the present gaps in writing education research. The first purpose entailed the development of the Teaching Writing Self-Efficacy Scale (TWSES), a self-report instrument that measures teachers' self-efficacy with regards to their perceived ability to teach writing. The process and resulting scale were described in Chapter 3 of the current study. The second purpose used data gathered from the TWSES with other data pertaining to the amount of training teachers received with regards to writing skills and pedagogical techniques and student outcomes to validate the TWSES as an appropriate measure of teacher self-efficacy with regards to teaching writing. Chapter 4 outlines the results of the second purpose of the study by reporting the results of the study for each research question.

Review of Research Questions

The principal questions guiding this study address the knowledge gap between personal and general teaching writing efficacy and teacher writing self-efficacy judgments pertaining to teaching writing skills and tasks. In order to explore this topic, the researcher sought to answer the following research questions about the Teaching Writing Self-Efficacy Scale (TWSES):

1. Does the TWSES exhibit evidence of score validity?
2. Is there a statistically significant difference between meet/non-meet AYP strata on TWSES subscale scores?

3. Do the item responses on the TWSES support a multidimensional construct?
4. Does the TWSES exhibit evidence of score reliability?
5. Do any of the item responses on the TWSES display item bias (DIF) with regards to gender or ethnicity?
6. Do the TWSES scores suggest test bias with regards to gender or ethnicity?

Methodology, Procedures, and Participant Demographics

A statewide proportional stratified random sample of school systems was randomly selected from two strata, those with all elementary and middle schools meeting Adequate Yearly Progress (AYP) [Stratum AYP] and those with elementary or middle schools failing to do so [Stratum Non-AYP], to match the ratio of school/teachers represented in each stratum (NCLB, 2001; ALSDE, 2009b, 2009c; Gay et al., 2009). Based on 2008 -2009 school year AYP data, available from the 2009 Adequate Yearly Progress Status of Schools List (ALSDE, 2009b, 2009c), approximately two thirds of the 132 school systems in the State of Alabama fall into Stratum AYP (91 systems) , with one third falling into the Stratum Non-AYP (41 systems). Based on the 1:3 ratio, a random sample was chosen from each stratum for an initial system sample of 60 systems (45 Stratum AYP, 15 Stratum Non-AYP). Each of the randomly selected school systems were contacted by letter and email (Appendix B), and a total of 15 Stratum AYP and 5 Stratum Non-AYP school systems agreed to participate in the current study, for a response rate of 33.3%. In 70% of participating systems, superintendents contacted principals and teachers to make the decision to participate in the study. Of the participating systems, one Stratum AYP system requested paper versions of the TWSES Study Materials (Appendix A). The request was granted and materials were delivered to the school system and administered by the author following IRB approved protocol (Appendix C).

While the option was open, it was not necessary to contact additional school systems as the initial contact resulted in a large pool of possible teacher participants, 2,299. A random sample of 700 teachers was contacted, with 412 choosing to participate, either online or through written copy; for a response rate of 58.8%. In 85% of the participating systems, teachers were first contacted by superintendents and/or principals and were knowledgeable about the study before the initial contact made by the author. Data were collected for a total of 12 weeks, as systems agreed at different times over the 3 month period. The teachers of each system were contacted with reminder emails approximately 15 days after initial email contact. Of the 412 returned/completed surveys, 352 were considered usable for the current study, resulting in a final usable response rate of 50.3%. This response rate met the 50% expectation set forth by Schonlau et al. (2002). A total of 60 submissions were considered not viable for a two reasons; the grade level of the participating teacher was outside the scope of the study or the online survey was opened and viewed without any items being completed. A total of 18 participating school systems returned at least one survey, for a response rate of 90%. Data were examined to determine response rates by grade level and strata (Tables 4.1 and 4.2).

Table 4.1

Response Rates for Grade Levels

Grade Level	Population	Returned	Percentage %
4th Grade	170	92	54.1%
5th Grade	169	81	47.9%
6th Grade	142	87	61.3%
7th Grade	219	92	42%
All Grades	700	352	50.3%

Table 4.2

Stratum AYP/Non-AYP Response Rates

Grade Level	Returned	Stratum AYP	Percentage %	Stratum Non–AYP	Percentage %
4th Grade	92	69	75%	23	25%
5th Grade	81	64	79%	17	21%
6th Grade	87	67	77%	20	23%
7th Grade	92	74	80.5%	17	18.5%
All Grades	352	275	78.1%	77	21.9%

With a participant sample size of 352 usable responses, the widely accepted “rule-of-thumb” of participant-to-item ratio of 10:1 is met (Costello & Osborne, 2005). Stable, accurate, and replicable results are expected from this sample of participants (Costello & Osborne, 2005).

In compliance with University of Alabama Institutional Review Board and participating school system guidelines, participants' rights were safeguarded as confidential. Responses were coded with participant numbers and data collected through the study instruments were utilized only to examine the properties of the TWSES instrument.

In response to the teacher demographic questionnaire (Appendix A), teachers responded to questions to the best of their ability. The teacher questionnaire included specific numeric and text-based open ended questions (Fowler, 2002) that included gender and ethnicity to determine if item or test bias was exhibited when utilizing the TWSES (Table 4.3).

Table 4.3

Frequency of Self-Indicated Gender and Ethnicity of Participants

Gender			Ethnicity		
	Frequency	Percent		Frequency	Percent
Male	43	12.2			
			Caucasian	294	83.5
Female	309	87.8			
			African American	41	12.2
			Native American	0	0.0
			Asian/ Pacific Islander	5	1.4
			Other	3	0.9
			Not Indicated	7	2.0

Male and Female percentages at 12% and 87% are similar to national reported gender distributions. National gender distributions are, on average, 21/79% Male/Female (National Center on Educational Statistics [NCES], 2003). Likewise, ethnicity distribution of the study is also similar to national distributions. National ethnicity distributions are, on average, 83.7/16.3%, Caucasian/Minority (NCES, 2005).

Additionally, participants were asked to record the average number of students per class, amount of instructional time spent on writing, and professional development hours earned with the focus writing and self-indicated needs. Results from these questions were utilized to establish reports for the participating school systems and lend evidence to the current state of writing instruction and professional development in the participating school systems. Table 4.4 outlines descriptive statistics of the demographic questionnaire responses of the participants.

Table 4.4

Demographic Questionnaire Descriptive Statistics

Questionnaire Variable	HowLong (years)	NumStud	TimeWrit (minutes)	OverAllPD (hours)	WritePD (hours)
Mean	9	23	29	66	14
Standard Deviation	7	7	25	82	31
Range	37	32	120	500	400
Minimum	1	3	0	0	0
Maximum	38	35	120	500	400

HowLong – Number of years teaching; NumStud – Average number of students in each class TimeWrit – Average amount of time for writing/writing instruction each day; OverAllPD – Number of personally chosen professional develop hours over the last 5 years; WritePD – Number of professional development hours over the last 5 years for the specific topic of writing/writing instruction

Participants reported an average of 9 years teaching experience and 23 students per class. With a mean of 29 minutes time on task each with writing each day, it would appear that students are spending nearly 30 minutes each day writing. But given the range of time reported, from 0 to 120, it is obvious that this may not be the case for all students. With regards to professional development, the mean for over-all professional development is 66 hours, or about 7 hours per year. If we look at professional development for writing, the mean is 14 hours, or about 1.5 hours per year. Participants who reported more than 250 hours of over–all professional development and 100 hours of writing specific typically included a statement as to why their hours were so high. Statements included reasoning such as earning a master's and/or administrative degree, re-certification matters, and summer writing workshops.

Item and total score frequencies and descriptive statistics were computed for each item of the TWSES and the TESW (Graham, et al., 2001) and are available in Appendices D and E. For the TWSES and TESW the descriptive statistics are presented in Table 4.5.

Table 4.5

TWSES and TESW Total Score Descriptive Statistics

	TWSES	TESW
Mean	168.83	63.92
Standard Deviation	24.44	6.88
Range	154	46
Minimum	56	40
Maximum	210	86

For the Teaching Writing Self-Efficacy Scale, the average total score for the instrument is 168.83 or an average of 4.82 for each item (slightly agree approaching agree). For the Teaching Efficacy Scale for Writing by Graham and colleagues, the average total score for the 16 item instrument is 63.92, or an average of 4.00 for each item (slightly agree). For the TESW, the study average of 63.92 is lower than the mean reported by Graham, 67.03. Individual item means contributed by participants were similar to that of the Graham study for all items, with a difference in means between .02 and .37.

Validity

Examination of research question 1.

Does the TWSES exhibit evidence of score validity?

Content validity.

Expert Panel.

Evidence for content and construct validity is provided for the TWSES in this study. During the creation of the TWSES, literature was analyzed using grounded theory (Strauss and Corbin, 1998; see also Erlandson et al., 1993; Glaser & Strauss, 1967) to ensure that the theoretical construct and items were based on empirical, professional judgment. Through this process, support for validity evidence was developed to suggest content-related validity. Additionally, the TWSES instrument was reviewed by a panel of elementary and secondary certified teachers, specifically grades four through seven, to further provide evidence of content validity. The utilization of a panel review by individuals similar to those being targeted as participants is widely documented and is supported as a form of previewing or pre-assessing the measurement instrument (Ary et al., 2006; Fink and Kosecoff, 1998; Gall et. al., 2005). The initial 35 items of the TWSES and both the paper and web-based administration formats were

reviewed by the four member panel using the item development criteria (Ary et al., 2006; Fowler, 2002; Gall et al., 2005) and the design and layout guidelines of Fowler (2002; see also Fink and Kosecoff, 1998).

Additionally, the review panel compared the results of the grounded theory analysis of literature and student self-efficacy measures (Strauss & Corbin, 1998; see also Glasser and Strauss, 1967) with the items of the TWSES to determine if all categorical writing tasks and skills were represented. Panel members agreed that the wording and tone of the questions were appropriate and that the design of both administration methods were easily read and comprehended, without situations or phrasing that could be problematic to the proposed participants. Through three iterations, the panel made suggestions to the ordering of the items, either in order of perceived task/skill difficulty or random order, with the final suggestion exhibited in the present version of the TWSES (Appendix A).

Scale possibilities were presented to the panel for review. A 5- and 6-point Likert-type scale and a 5 and 6 point sliding scale were presented to the panel for review. The panel was notified that each point of the 5- and 6-point Likert-type scales and the upper and lower bounds of the sliding scales would be labeled for survey use, with commonly used options provided as examples (Graham et al., 2001; Pajares & Valiante 1999; Pajares & Johnson, 1996, 1994; Graham, Schwartz & Macarthur, 1993; Shell et al., 1989; McCarthy, Meier, &, Rinderer, 1985; Meier, McCarthy, & Schmeck 1984). In addition, panel participants were supplied with example images of how the scales would appear on paper and on the web based application for the TWSES instrument. Following three iterations of suggestions, discussion, and actual use of both the paper and the web based examples, the panel experts agreed to the use of a 6-point Likert-

type scale with labels 6 ‘strongly disagree’, 5 ‘disagree’, 4 ‘slightly disagree’, 3 ‘slightly agree’, 2 ‘agree’, and 1 ‘strongly agree’.

Gunning Fog Readability Index.

A Gunning Fog Readability Level was established for the TWSES instrument (DeVellis, 1991; Dillman, 2000). The Gunning Fog Index algorithm examines sentence structure and the number of complex terms, typically three or more syllables in length, thus establishing the readability of the text. Analysis of the TWSES revealed a Gunning Fog Index of 9.663 indicating that on average, an individual completing the 9th grade would be capable of discerning meaning from the text of the TWSES (DeVellis, 1991; Dillman, 2000).

Examination of research question 2.

Is there a statistically significant difference between meet/non-meet AYP strata on TWSES subscale scores?

Concurrent validity.

To investigate concurrent validity, the results of the participants were examined for group difference between participant teachers in Stratum AYP and those in Stratum Non-AYP (ALSDE, 2009a). A directional, one-tailed t-test was computed to determine if those teachers in Stratum AYP (M = 169.63, SD = 1.51) scored higher on the TWSES than those teachers in Stratum Non-AYP (M= 165.78, SD =2.48) (Loewenthal, 1996). The results for the directional, one-tailed t-test show that there is not a significant difference between the TWSES total scores of those in the Stratum AYP and those in Stratum Non-AYP, $t_{(138)} = 1.66$, $p = 0.09$.

Correlation.

Internal correlation is an, "…optimal measure of dependence in a set of variables …" (Joe & Mendoza 1989, p. 217). To determine the dependence of items on each scale, item intercorrelation was computed (Appendix F). For The Teaching Writing Self-Efficacy Scale, item-to-item correlation had a range of $r = 0.405$ to $r = 0.675$ and item-total correlation had a range of $r = 0.608$ to $r = 0.816$. For The Teaching Writing Self-Efficacy Scale all correlations were significant at $p < .001$ (Appendix F). The strong to moderate, positive coefficients with significant p values indicate a strong relationship between the 35 items of the TWSES and further support the content validity of the instrument and the single construct design.

For the current study, the Teacher Efficacy Scale for Writing (Graham et al., 2001) displays an internal consistency of $\alpha = 0.575$ and item-to-item and item-to-total correlations for the Graham et al. scale range from $r = -0.335$ to $r = 0.513$, exhibiting moderate, significant relationships with significance level ranging from $p > .05$ to $p < .001$ (Appendix F).

To explore the relationship between the TWSES and TESW, item intercorrelation and item-to-total correlation for the TWSES and the TESW were examined. The correlation matrices, available in Appendix F, reveal a range of relationship from $r = -0.077$ to $r = 0.255$, revealing some low level, weak relationships between some of the items. The relationship between the two measures was further explored through factorial analysis.

Examination of research question 3.

Do the item responses on the TWSES support a multidimensional construct?

Factor analysis.

Exploratory factor analysis was examined for the TWSES and for the combined measures of the study, TWSES and TESW. All results are reported in Appendix G. Exploratory factor analysis using a maximum likelihood extraction method with direct oblimin rotation was used to examine and determine the factor structure of the TWSES and to identify the existence, if any, of subscales within the instrument and a relationship to the TESW (Costello & Osborne, 2005). Initial and extracted rotation loadings for both the TWSES and the TESW are available in Appendix G. For the TWSES, the extracted factor loadings for each of the 35 items exhibited a range of 0.558 to 0.826. While Tabachnick and Fidell (2001) support a 0.320 as a minimum acceptable factor loading, a minimum correlation coefficient of 0.400 was used to identify items contributing to each factor. All items appearing below this value were removed from factor consideration for the instrument. For the Teaching Writing Self-Efficacy Scale, all items surpassed the 0.400 minimum loading.

To examine the similarities between the two measures, the TESW was examined using the same extraction, rotation, and factor loading thresholds as the TWSES. For the TESW, the extracted factor loadings for each of the 16 items exhibited a range of 0.272 to 0.672. For the Teaching Efficacy Scale for Writing (Graham, et al. 2001), items 2, 5, 10, 15 and 16 failed to meet the minimum loading value of 0.400 and were thus removed from further examination for a relationship with the TWSES. This result is different from the Graham et al. (2001) reported factor loading, with all loadings on the original administration exhibiting loadings above 0.400.

Factor analysis of the TWSES revealed a rotated component matrix, utilizing a Maximum Likelihood extraction method with direct oblimin rotation method, and a final solution of one factor, with a cumulative variance of 51.729 and an eigenvalue = 18.105 (18.105 > 1.00 threshold for significance) (Appendix G). All items of the TWSES loaded with values of

0.575 or higher, meeting the guideline suggested by Costello & Obsborne (2005). For the single factor, it contains all items loading at least 0.50 or higher. The mean for the items of the single factor, items 1 – 35 for the total score is *M* = 168.83, with a SD = 24.44, and a Cronbach Alpha = 0.973.

Factor analysis of the TESW in conjunction with the TWSES (Appendix G), revealed a second factor in which all of the remaining TESW items loaded; the second factor, with a range of -0.663 to 0.773 contained at least 5 items with loadings of at least 0.50 or higher. Additional items were removed due to low loadings on the second factor. These items included items 1, 6, and 7 (Appendix A). The rotated component matrix utilizing a Maximum Likelihood extraction method with direct oblimin rotation method produced a final solution of one factor for the remaining items of the TESW (items 3, 4, 8, 9, 11, 12, 13, and 14), with an additional cumulative variance of 7.902 and an eigenvalue = 4.553 (4.553 > 1.00 threshold for significance), a value well below the amount reported by Graham et.al (2001) for the original administration. In addition, the loading of all remaining items of the TESW on a single factor is also a departure from the reports of Graham et al. (2001). The mean for the items of the single factor, TESW items 3, 4, 8, 9, 11, 12, 13, and 14, is *M* = 29.76, with a SD = 1.414, and an α = .595. The reliability of the TESW for this administration is lower than that reported by Graham et al. (2001).

When used in conjunction, as with the administration of this study, a combined cumulative TWSES/TESW variance of 59.631(Appendix G). The TESW items failed to crossload on factor one and all of the TWSES items failed to cross load onto factor two. Being that the TWSES items identified as one factor and the TESW items identified as a separate, second factor, true subscales were neither identified nor named.

Reliability

Examination of research question 4.

Does the TWSES exhibit evidence of score reliability?

Internal reliability.

For the current study, internal consistency and split-half score reliability was calculated for the TWSES. Based on participant results, a study of internal consistency revealed a value of $\alpha = 0.973$. Cronbach Alpha comparison ($0.973 > 0.85$) provides strong evidence to suggest that the instrument yields reliable scores on self-efficacy with regards to writing education for 4th through 7th grade educators (Thompson, 2003; Lichtenberg & Goodyear, 1999).

Split-half reliability.

Due to the nature of the administration of the instruments in the current study, separate versions of the TWSES or a second administration of the TWSES was impractical. Split-Half Reliability was utilized as secondary source of evidence for score reliability (Cohen & Swerdlik, 2001). The TWSES was examined for split-half reliability with results for unequal lengths was $r = 0.943$. A Spearman-Brown comparison ($0.943 > 0.90$) provides strong evidence to suggest that the instrument yields reliable scores on self-efficacy with regards to writing education (Cohen & Swerdlik, 2001). Results from an administration of the TWSES are therefore suitable for suggesting the levels of self-efficacy for these participating educators.

Item Bias

Examination of research question 5

Do any of the item responses on the TWSES display item bias (DIF) with regards to gender or ethnicity?

The Mantel-Haenszel chi square was computed to determine the existence of item bias for the TWSES. Mantel-Haenszel differential item function (DIF) analysis functions best when all gender and ethnic groups included in the analysis have large numbers of participants (Camilli & Shepard, 1994; Fidalgo, Ferreres, D., & Muniz, 2004). The sample exhibited limited numbers of individual minority groups (Table 4.3), therefore all categories of non-Caucasian groups were combined into one "Minority" category for analysis (Camilli & Shepard, 1994; Fidalgo, Ferreres, D., & Muniz, 2004). After combining all non-Caucasian ethnicity categories, the "Minority" category included 16.5% of the total sample. Items exhibiting differential item function (DIF) were classified into one of three item types for the review process (Dorans & Holland, 1993). Items classified as "A" (negligible DIF) were kept. Those with "B" (intermediate DIF) or "C" (large DIF) were reviewed.

The Mantel- Haenszel process of analysis revealed that some of the items on the TWSES performed differently for different genders and/or ethnic groups. A complete listing of the results is available in Appendix H. Twenty three of the TWSES items were classified an "A" level item. No significant difference between gender or ethnicity were revealed though analysis and those items (1 – 7, 10 – 14, 17, 19, 22, 27 – 33, 35) remained unchanged.

The panel experts that aided in the development of the items for the TWSES were consulted and the items in question (Table 4.6) were examined and reviewed for instances in bias in the text of the instrument. The panel reviewed each of the "B" and "C" classified items and attempted to locate, and if necessary, to remove stereotypical, offensive or culturally sensitive terminology (Lichtenberg & Goodyear, 1999). As the panel did not identify any items with

offensive terminology, the panel suggested that all "B" classified items remain. In addition, the panel suggested the removal of all "C" classified items if those items continued to exhibit DIF when larger samples of male and minority participants were included. Researchers have shown that the Mantel-Haenszel differential item function (DIF) analysis functions best when all groups have large numbers of participants (Camilli & Shepard, 1994; Fidalgo, Ferreres, & Muniz, 2004).

Table 4.6

Item Bias Analysis

Item	M-H χ^2	Significance	Classification	Decision
8 Gender	4.371	0.037	B	retain
9 Gender	4.492	0.034	B	retain
15 Gender	5.185	0.023	B	retain
16 Gender	8.927	0.003	C	remove*
18 Race	6.700	0.010	B	retain
20 Gender	7.554	0.006	C	remove*
20 Race	4.264	0.039	B	retain
21 Gender	3.878	0.049	B	retain
23 Gender	4.145	0.042	B	retain
24 Gender	4.073	0.044	B	retain
25 Race	8.113	0.004	C	remove*
26 Gender	14.109	0.000	C	remove*
26 Race	5.244	0.022	B	retain
34 Gender	5.543	0.019	B	retain

* Indicates that the item would be removed if administrations with larger male and/or minority groups continued to indicate group differences associated with bias.

Test Bias

Examination of research question 6.

Do the TWSES scores suggest test bias with regards to gender or ethnicity?

The elimination of test bias is required for appropriate interpretation of TWSES scale scores. Test bias was calculated using the Cleary Model of Test Bias (Brannick, 2008; Cleary & Hilton, 1968; Russell, 2000) to determine if any groups, based on participant reported gender or ethnicity, are under or over performing on the TWSES.

With Cleary Model testing a direct method was utilized for regression analyses. For gender, the two variables produced an adjusted $R^2 = 0.007$ (F (2,349) = 2.305, $p = 0.101$) for the prediction of TWSES Total Score (Appendix I). The results indicate that there is no significant difference in the prediction of TWSES Total Score for males and females, thus there is no evidence to suggest that test bias with regards to gender exists for the TWSES. For ethnicity, the five variables produced an adjusted $R^2 = 0.015$ (F (5,346) = 2.103, $p = 0.065$) for the prediction of TWSES Total Score (Appendix I). The results indicate that there is no significant difference in the prediction of TWSES Total Score for any ethnic group, thus no evidence is provided to suggest test bias with regards to ethnicity exists for the TWSES.

Score Interpretation

No transformations of the TWSES scores are necessary. A standard arithmetic sum and item responses were computed and provided for each participant completing the TWSES as only one factor exist for the measure. Average total and individual item scores were calculated for grade/school/school system analysis.

For individual and group analysis, total score ranges and an individual item scale was developed for the analysis of the results of the TWSES for decision making purposes. Total score ranges and an individual item response scale allow individual educators and administrators/coordinators to make informed, teacher-specified, need-based professional development decisions with regards to writing and writing instruction. The total score ranges

(Table 4.7) and the individual item response scale (Table 4.8) were developed though analysis of item and total score frequencies and descriptive statistics for the TWSES scale (Appendices D and E).

The individual response scale is based on the scale of the TWSES and the means and frequencies of the participants. Cut scores for the total scale ranges were established by exploring quartile markings for the participants of the administration of the TWSES. It is understood that the interpretations of the score may change as the sample size for the TWSES increases. Score interpretations for future administrations would be affected by these changes and administrators would be notified if results of future TWSES administrations resulted in changes to the score interpretations. Lower scores (<154) would suggest that intense training is needed, while higher scores (>186) indicate that teacher writing self-efficacy is present. Scores of the TWSES ranged from 56 to 210 for the sample.

Table 4.7

TWSES Total Score Ranges: Interpretation of General Writing Self-Efficacy

Score Range	Interpretation for Educator
< 154	Intense general writing/writing instruction training necessary
155 – 169	General review of all writing/writing instruction skills/techniques
170 – 185	Continued support of knowledge of skill/technique; Review of specific self-indicated skills/techniques
>186	Only self-indicated training needed when expressed as personal or professional issue

Table 4.8

TWSES Individual Item Score Interpretation for Individual Skill or Task

Score	Interpretation for Educator
1 – 2.9	Intense training necessary
3 – 3.9	Review of skill/technique
4 – 4.9	Continued support of knowledge of skill/technique
5 – 6	Only self-indicated training needed when expressed as personal or professional issue

CHAPTER 5: SUMMARY AND DISCUSSION

Summary of the Study

We recognize that the process of writing is challenging and that the quality of the instruction students receive is vital. We realize that teachers spend countless hours in preparation and professional development that exposes them to varied instructional techniques, yet students in the US are failing to meet proficient expectations for writing achievement and the development of writing as a lifelong skill. The 2007 Nation's Report Card on writing achievement reported that only 35% of 8th graders and 25% of 12th graders reached a proficient level (Salahu-Din et al., 2008). Expanded research is essential if the area of teacher self-efficacy with regards to writing is to provide data-driven, content-specific professional development opportunities, currently lacking in school districts across the country (Lieberman & Wood, 2003).

The purpose of the present study was two-fold in design to address the present gaps in writing education research. The first purpose entailed the development of the Teaching Writing Self-Efficacy Scale (TWSES), a self-report instrument that measures teachers' self-efficacy with regards to their perceived ability to teach writing. The second purpose sought to validate the TWSES as an appropriate measure of teacher self-efficacy with regards to teaching writing. Data gathered from the TWSES along with other data pertaining to the amount of training teachers received with regards to writing skills and pedagogical techniques and student outcomes were utilized to explore multidimensionality of the instrument, reliability, validity, item bias

(DIF), and test bias. A final phase of the second purpose developed a score interpretation model for the TWSES for use by researchers, administrators, and teachers.

This study adds to the existing research in the field of domain specific teacher efficacy, specifically writing teacher efficacy. The findings from this study establish the relationship between knowledge of pedagogical techniques to teach writing and the personal self-efficacy beliefs of the teachers who utilize those techniques. From this study, a new instrument, The Teaching Writing Self-Efficacy Scale, a research based tool for determining the needs for teacher training across the writing domain, was created and validated for use with upper elementary and middle school educator to explore their self-efficacy beliefs with regards to specific writing skills. The TWSES is capable of being utilized for writing specific academic, instructional, and predictive decision making with regards to writing instruction, and professional development. Given the focus on teaching writing, self-efficacy deficits of teachers with regards to pedagogical or orthographical knowledge can be addressed and used to provide teacher-specific professional development. The analysis of TWSES teacher responses serves to provide information for professional development and the ability to target specific areas of concern within the classroom. Identifying important teacher professional development activities allows school districts to better utilize professional development funds. In addition, awareness of teacher self-efficacy deficits in teaching writing could influence the way pre-service teachers are taught in order to address areas of deficiency in programs of academic study and professional development.

Review of Methodology

The present study was two-fold in design to address the present gaps in writing education research. The first objective involved the development of the Teaching Writing Self-Efficacy Scale (TWSES), a self-report instrument that measures teachers' self-efficacy with regards to

their perceived ability to teach writing. The TWSES was constructed containing thirty-five items each of which were formulated based on topics and instructional activities found within current literature pertaining to writing education (ALSDE, 2007; NCTE, 1996; NCW, 2003; NWP & Nagin, 2003; Langer, 2002), and student writing self-efficacy scales (Graham et al., 1993; Pajares & Johnson, 1994, 1996; Pajares & Valiante 1999; McCarthy et al., 1985; Meier et al., 1984; Shell et al., 1989). Through grounded theory analysis and review by a panel of experts, a single item format for the 35 items of the TWSES were developed.

The second objective sought to provide evidence that the TWSES produces valid and reliable results that indicate the level of teacher self-efficacy with regards to teaching writing. A statewide proportional stratified random sample of school systems was selected. From participating school systems, a simple random sample of 4th through 7th grade in-service teachers was contacted for participation in this study. A total of 412 in-service teachers participated, with a final sample size of 352 completed the instrument, meeting the widely accepted participant-to-item "rule-of-thumb" ratio of 10:1 (Costello & Osborne, 2005). Subjects completed all TWSES Study instruments, including the Teaching Writing Self-Efficacy Scale (TWSES), The Teacher Efficacy Scale for Writing (Graham et al., 2001), and a demographic questionnaire.

Collected data were analyzed to assess the evidence for score validity and score reliability of the TWSES. Internal consistency and split-half reliability estimates were evaluated to provide evidence for score reliability. Inter-item correlations, item-total correlations, factor analysis, strata means analysis were utilized to establish evidence of content and concurrent validity for the TWSES. Mantel- Haenszel Chi Square and the Cleary Model were used to examine the TWSES for DIF and Test Bias. Finally frequencies, quartiles, and cut scores were

analyzed to establish interpretation scales for both the total score and individual items of the TWSES with regards to suggestions for professional development training needs.

Each of the objectives were met with the accomplishments that allow the developed Teacher Writing Self-Efficacy Scale to be utilized with 4th through 7th grade educators in order to pinpoint teacher-specified professional development needs.

Major Findings

The primary purpose of the study was to create an instrument of teachers' personal beliefs about their abilities to teach writing. Major findings that provided evidence of the TWSES score reliability and score validity emerged from both the expert judgment panel review of objective one and the data analysis of objective two of this study.

Validity.

Expert panel.

The main findings from the work with the expert judgment panel were related to the content validity of TWSES items. The primary purpose of the panel was to review draft TWSES for design and content principals. Evidence for content validity was provided for the TWSES through this process. Following the initial creation of the TWSES items, the instrument was reviewed by a panel of elementary and secondary certified teachers, specifically grades four through seven, to further provide evidence of content validity. The initial 35 items of the TWSES and both the paper and web-based administration formats were reviewed by the four member panel using the item development criteria (Ary et al., 2006; Fowler, 2002; Gall et al., 2005) and the design and layout guidelines of Fowler (2002; see also Fink and Kosecoff, 1998). Panel members agreed that the wording and tone of the questions were appropriate and that the

design of both administration methods were easily read and comprehended, without situations or phrasing that could be problematic to the proposed participants. To provide further support to the panel decisions, the Gunning Fog Readability Index was utilized to determine the readability level of the TWSES instrument. With a result of 9.663, or approximately a 9th grade reading level, the results of the index supported the panel's statement that the wording and tone of the questions were appropriate for those who would utilize the instrument.

Stratum analysis.

To investigate concurrent validity, the results of the participants were examined for group difference between participant teachers in Stratum AYP and those in Stratum Non-AYP (ALSDE, 2009a). The results for the directional, one-tailed t-test show that there was not a significant difference between the TWSES total scores of those in the Stratum AYP and those in Stratum Non-AYP. The determination of AYP, or adequate yearly progress, does lend one explanation for the non-significance. While one of the components of AYP is language arts academic achievement, three-fourths of the AYP decision is based on academic achievement of other subjects, attendance, and graduation rates (ALSDE, 2009a). Without controlling for other academic achievement, attendance, and graduation rates of participating systems and school, it is not unexpected to see that there is no difference in the self-efficacy with regards to the specific academic construct of writing.

Correlation.

As an optimal measure of dependence, internal correlations were computed for the TWSES. For The Teaching Writing Self-Efficacy Scale all correlations were significant at $p <$

.001. The significant p values indicate a strong relationship between the 35 items of the TWSES and further support the content validity of the instrument and the single construct design.

To explore the relationship between the TWSES and Teaching Efficacy Scale for Writing (Graham, et al., 2001), inter item and item-total correlations for the TWSES and the TESW were examined. The correlation matrices revealed low level relationships between some of the items. As the two scales measures the personal self-efficacy belief of teachers with regards to writing, it is not surprising that some level of a relationship exists between the two measures. The limited level of the relationship can be explained by the nature of the two measures. The Graham et al. (2001) scale, adapted from the Gibson and Dembo scale (1984) measures the personal and general self-efficacy beliefs of teachers with regards to writing. The TWSES measures personal self-efficacy with regards to specific writing pedagogy and orthographic knowledge. The relationship between the two measures was further explored through factorial analysis.

Factor analysis.

Exploratory factor analysis was examined for the TWSES and for the combined measures of the study, TWSES and TESW. Exploratory factor analysis using a maximum likelihood extraction method with direct oblimin rotation was utilized to examine and determine the factor structure of the TWSES and to identify the existence, if any, of subscales within the instrument and a relationship to the TESW (Costello & Osborne, 2005). For the TWSES, the extracted factor loadings for each of the 35 items exceeded the 0.400 expectation for strong factor loadings. Further analysis of the TWSES revealed a rotated component matrix and a final solution of one factor, with a cumulative variance of almost 52% and an eigenvalue over 18. By exploring the self-efficacy of teachers with regards to writing pedagogy and orthographic knowledge, almost 52% of the variance of the construct of self-efficacy with regards to writing

was explained. All items of the TWSES loaded meeting the 0.500 guideline suggested by Costello & Osborne (2005). This further supports construct validity and validates that the TWSES measures one construct, teaching writing self-efficacy, specifically self-efficacy of writing pedagogical and orthographic knowledge.

To further explore the TESW, factor analysis was conducted resulting in the extracted factor loadings for each of the 16 items exhibiting a range of 0.272 to 0.672. For the Teaching Efficacy Scale for Writing (Graham, et al. 2001), items 1, 2, 5, 6, 7, 10, 15 and 16 failed to meet the minimum loading values and were thus removed from further examination for a relationship with the TWSES. This result was surprising as it differed from the Graham et.al (2001) reported factor loading, with all loadings on the original administration exhibiting loadings above 0.400. Factor analysis revealed a component matrix and a final solution of one factor for the remaining items of the TESW (items 3, 4, 8, 9, 11, 12, 13, and 14), with an additional cumulative variance of almost 8% and an eigenvalue over 4; these values are well below the amount reported by Graham et.al (2001) for the original administration. In addition, the loading of the TESW on a single factor is also a departure from the reports of Graham et al. (2001).

The Teaching Efficacy Scale for Writing (Graham et al. 2001) was designed and validated for use with primary grades, specifically first through third grade. The instrument was utilized for this study with a sample of intermediate elementary and middle grades, secondary educators. It is suggested that the cause of the change in factor structure and reliability is due, at least in large part, to the differences in the definitions of writing, content of writing instruction, autonomy of students, and view of parental inclusion by the samples of the two different studies.

When used in conjunction, as with the administration of this study, a combined cumulative TWSES/TESW variance of 59.631. The two instruments used together measure

almost 60% of the variance of the construct of teaching writing self-efficacy. The TESW items fail to cross load on factor one, TWSES, and all of the TWSES items failed to cross load onto factor two, TESW. While low level correlation was exhibited between the two instruments, it is not surprising that through factor analysis, the two were found to measure very different potions of the teacher efficacy with regards to writing construct. Although both examine teaching efficacy with regards to writing, the two instruments measure very different portions of the construct.

Reliability.

Measures of score reliability provided an indication that the score would produce similar results for similar sets of respondents. If the TWSES was to be used to make informed decisions about teacher self-efficacy and professional development needs, it was important that results could be used to make decisions that are fair and accurate. Based on participant results, a study of internal consistency revealed a value of $\alpha = 0.973$. Cronbach Alpha comparison ($0.973 > 0.85$) provides strong evidence to suggest that the instrument yields reliable scores on self-efficacy with regards to writing education (Thompson, 2003; see also Lichtenberg & Goodyear, 1999). The TWSES was examined for split-half reliability with results for both equal and unequal lengths was $r = 0.943$. A comparison ($0.943 > 0.85$) provides strong evidence to suggest that the instrument yields reliable scores on self-efficacy with regards to writing education (Cohen & Swerdlik, 2001). Results from an administration of the TWSES are therefore suitable for suggesting the levels of writing self-efficacy for 4th through 7th grade educators. One explanation for the high alpha values is that the content of the instrument measures one construct or main idea, that of a teacher's beliefs about her ability to teach writing. From initial concept of

the instrument, the construct has lead to the ability of the TWSES to be used with 4th through 7th grade educators for self-efficacy determination and professional development needs.

Item bias.

The Mantel-Haenszel process of analysis revealed that some of the items on the TWSES performed differently for different genders and/or ethnic groups. Twenty three of the TWSES items were classified an "A" or items with negotiable levels of DIF; that level of DIF that can be defined as actually being caused by true differences between the group in question. No significant difference between gender or ethnicity were revealed though analysis and those items (1 – 7, 10 – 14, 17, 19, 22, 27 – 33, 35) remained unchanged. Following the intermediate and large classifications for 12 items, the panel experts that aided in the development of the items for the TWSES were consulted and the items in question were examined and reviewed for instances in bias in the text of the instrument. As the panel did not identify any items with offensive terminology, the panel suggested that all "B" (intermediate DIF) classified items remain. In addition, the panel suggested the removal of all "C" (large DIF) classified items if those items continued to exhibit DIF when larger samples of male and minority participants were included. Research shows that the Mantel-Haenszel differential item function (DIF) analysis functions best when all groups have large numbers of participants (Camilli & Shepard, 1994; Fidalgo, Ferreres, D., & Muniz, 2004) and given the limited percentages of males (12.2%) and minorities (16.5%) in the study participants, additional samples are needed in order to determine whether the intermediate and large DIF classifications are indeed due to item bias, rather than small sample sizes; therefore, all 35 items were retained for the TWSES.

Test bias.

The elimination of test bias is required for appropriate interpretation of TWSES scale scores. Test bias was calculated using the Cleary Model of Test Bias (Brannick, 2008; Cleary & Hilton, 1968; Russell, 2000) to determine if any groups, based on participant reported gender or ethnicity, were under or over performing on the TWSES. For gender, the results indicate that there is no significant difference in the prediction of TWSES Total Score for males and females, thus there is no evidence to suggest that test bias with regards to gender exists for the TWSES. For ethnicity, the results indicate that there is no significant difference in the prediction of TWSES Total Score for any ethnic group, thus no evidence is provided to suggest test bias with regards to ethnicity exists for the TWSES. The results of the Cleary regression provide evidence for the statement that the TWSES instrument does not discriminate based on gender or ethnicity.

Score interpretation.

For the TWSES, the goal of the instrument interpretation was for it to be simple to interpret for educators and administrators. The TWSES score is a standard arithmetic sum and individual item responses, computed and provided for each participant (individual, school, system) completing the TWSES.

For individual and group analysis, total score ranges and an individual item scale was developed for the analysis of the results of the TWSES for decision making purposes. Total score ranges and an individual item response scale allow individual educators and administrators/coordinators to make informed, teacher-specified, need-based professional development decisions with regards to writing and writing instruction.

For example, an analysis of the total score and sample individual score averages for a grade level (Table 5.1) would be interpreted by an administrator in the following way: A total score for a school or system of 161 would indicate a need for a general review of all writing pedagogy and orthographic knowledge. To pinpoint the exact skills needing to be reviewed, the administrator would examine the means for the individual items. For this example, the 5th grade teachers need to review the skills and knowledge involved with aiding children in choosing a topic for essay writing. In addition, the teachers would benefit from continued pedagogical support for aiding children in reading and interpreting a writing prompt, choosing the correct genre, and writing a thesis statement.

Table 5.1

Example TWSES Score Results: Grade 5

Score	Value	Interpretation
Total Score	161	General review of all writing pedagogy and orthographic knowledge
Individual Skill		
"choose a topic for an essay"	3.56	Review of skill/technique
"writing prompt and choose the correct genre"	4.59	Continued support of knowledge of skill/technique
"writing a thesis statement"	5.67	Only self-indicated training needed when expressed as personal or professional issue
"outline a topic"	4.01	Continued support of knowledge of skill/techniques

For the participants of the TWSES Study, 48.3% of the teachers need at least a general review of all writing pedagogy and orthographic knowledge; 74.7% of the teachers would need at least continued support of knowledge of skills/techniques and a review of specific self-indicated skills/techniques. The case for the need for teacher-specified professional development is made.

Regardless of the facility, technology, or even curriculum, teachers are the most important influence on student learning in the classroom (Sparks, 2000; Zeichner & Klehr, 1999). As the key to raising student achievement (U.S. Department of Education 1996; Darling-Hammond, 2000), professional development is needed to maximize ongoing development and support. Through meaningful professional development, school systems may provide the most cost-effective, direct route to improving student learning by improving the quality of teaching. Providing teacher-specified professional development allows teachers to take a primary role in the improvement of the achievement of the students in her room and school.

Findings Related to the Literature

Considering that the positive predictive effects of self-efficacy with regards to specific contexts of knowledge are firmly grounded in a decade of extensive psychological and educational research (Bandura, 1997; Henson et al., 2001; Pajares, 1996), it is difficult to believe that teachers' self-efficacy has widely been ignored by the writing research community (Ross et al., 1996). This study sought to add to the growing knowledge base of self-efficacy with regards to writing. Showing the relationship between writing and perceived teacher efficacy, this study supports the findings of Graham, et al. (2001) and adds to the construct the idea of self-efficacy with regards to writing pedagogy and orthographic knowledge. It is clear that a mutual exchange exists between writing and perceived teacher efficacy and this study has furthered the

exploration into the relationship and has expanded and refined the beliefs about how the relationship works.

Teacher self-efficacy.

In order to aid students in the development of strong writing skills and methods, a clear understanding of the importance of writing, and the self-efficacious beliefs that allow them to move successfully through the writing process for varied purposes, teachers must make a place for writing in the curriculum. When participants of the study were asked about their placement of writing in the curriculum, a wide range of time allotments per day revealed that while teachers spend 29 minutes per day on student writing and writing instruction on average, 11.1% spent 5 minutes or less, 46.9% spent no more than 20 minutes per day. While research has shown that writing is a complex task, students can learn to write proficiently through regular, meaningful practice of writing within a variety of genres (Graham & Harris, 1997; Isaacson, 2004; Sadoski et al., 1997). With nearly 50% of participating teachers spending 20 minutes or less on any type of student writing and/or writing instruction, this finding supports the belief that writing is quickly losing its "place" in the curriculum (Golson, 2005; Jinks & Morgan, 1999). In order to develop as proficient writers, students need time and experience to develop a positive self-efficacy with regards to writing. Only teachers with a strong sense of teaching self-efficacy develop varied and numerous opportunities for student to experience writing and writing instruction in the midst of the high stakes classroom curriculum (Klassen, 2002; Pajares, 2003; Tschannen-Moran & Hoy, 2007).

One of the key impacts on the time writing instruction received in the classrooms was the high stakes testing of reading and mathematics (Henck, et al. 2003). The amount of time deemed as strictly for reading or mathematics increased causing other subjects, including

writing, to be pushed to the margins of the curriculum. During a commonly imposed ninety minute reading block, writing is not a part of the curriculum. Writing is no longer a portion of literacy instruction in many schools, especially those with mandated scripted instructional programs that do not allow for additions to the set curriculum of the literacy block (Darden, 2009). Teachers prioritize instructional time based on the new policies, mandates, and adoption of specific literacy programs of instruction; often citing these issues in opposition to their own beliefs about the *place* that writing should have in the curriculum (Brooks, 2007; Darden, 2009; Golson, 2005; Manning, 2006).

The role of curricular decision-making and professional development.

Most educators would support the belief that teachers, especially the "effective" ones, have insight and knowledge into what works within the curriculum for their students (Golson, 2005). As early as the mid-1990s, murmurs of change in the direction of literacy instruction began. "With the time needed to cover the curriculum assessed and pressure of high stakes testing blocking out large quantities of time for teaching writing is difficult" (Jinks & Morgan,1999, p.229).

Teachers are faced with making changes to their beliefs and the curriculum, not based on the needs of the children or new research findings supporting an writing instructional process for the children taught, but because of school policies and state and federal mandates (Manning, 2006). In order to bridge the gap between personal beliefs and mandated curriculum, Manning (2006) proposes that teachers find a way to honor their own beliefs and the curriculum mandates. Through the Teaching Writing Self-Efficacy Scale, teachers are afforded the opportunity to share with administrators and coordinators their specific needs with regards to writing pedagogy and

orthographic knowledge. The TWSES provides administrators with a research driven, teacher-specified tool with which to provide professional development. Such data-driven decisions can lead to teachers designing professional development opportunities in which the classroom instructional opportunities creatively integrate writing practices while adhering to the established school policies and mandates. The need for innovative writing curriculum is significant, yet without proper preparation and high self-efficacy beliefs with regards to the writing instruction, the ability of teachers to meet the demands of finding a *place* for writing in the curriculum will not be met (Golson, 2005).

Professional development achieves its greatest success if targeted to a specific context (Guskey, 1995). The implementation of data driven, site-based professional development has been shown to have the greatest positive impact on perceived teacher efficacy and classroom practices (Dilworth & Imig, 1995; Gersten et al., 2000). Local level decision making with regards to method and content of professional development through the TWSES provides teachers with the power to create a dynamic learning environment (Dilworth & Imig, 1995; Logan et al., 1999).

Recommendations for Future Research

This study sought to develop and validate a new instrument for the measurement of teacher self-efficacy with regard to specific writing pedagogy and orthographic knowledge. While the study meet both of the purposes set forth, there are still areas of research and study that need to be explored for the Teaching Writing Self-Efficacy Scale.

The first need would be to expand the participant sample so that further analysis could be completed for differential item functioning. Research suggests that studies of item bias are best

and most reliably conducted with groups of 500 or more. Given the limited percentages of males (12.2%) and minorities (16.5%) in the study participants, additional samples are needed in order to determine whether the intermediate and large DIF classifications are indeed due to item bias, rather than small sample sizes. Additional analysis of total score and individual score interpretations would also be possible with an increased sample size.

Given that the expert panel found no language to suggest bias toward any gender or ethnicity, a second need with regards to differential item functioning would be to explore the TWSES items for group differences according to grade level. As each grade level brings new and more challenging expectations with regards to writing knowledge and skill, it is suggested that the grade level differences in participants be examined to explore whether DIF is occurring due to grade level content differences, rather than gender or ethnic differences of the sample.

As criterion validity was not established in the current study, further research would need to explore this through a comparison of individual teacher level Alabama Direct Assessment of Writing (ADAW) Scores. Being that adequately yearly progress is a measurement of many variables, a more appropriate measure for concurrent validity may be teacher level ADAW scores. This level of data is not publicly available and would be best gained and utilized through a pre/post designed measure of the TWSES. In such a future study, the TWSES would be administered, professional development based on teacher-specified needs administered, use of the learned/reviewed pedagogical and writing knowledge documented, and the TWSES administered a second time. During this study, it is suggested that the ADAW scores for individual teachers and even individual classes could be collected and analyzed alongside the pre/post TWSES scores.

A portion of the content validity of the TWSES is that it is built upon current literature and standards for writing and language arts. For this portion of the validity to remain strong, it is necessary to revisit the text and analysis of the TWSES instrument as new standards and literature emerge. It is suggested that this review would need to take place at least every two years, with updates more frequently for all state or national standards changes.

As the TWSES explained approximately 52% of the variance of the construct, it is necessary to continue the study of teacher self-efficacy with regards to writing in order to develop the most appropriate and complete definition of the construct. Further examination of the classroom, curriculum policies, and school climate will be a part of future research. In additions, the adaptation of the TWSES instrument for varied grade levels and pre-service teachers would be a useful tool for further examination of the teacher self-efficacy of writing construct.

Conclusion

This study has added to the existing research in the field of domain specific teacher efficacy, specifically writing teacher efficacy. The findings from this study have furthered the establishment of the relationship between knowledge of pedagogical techniques to teach writing and the personal self-efficacy beliefs of the teachers who utilize those techniques. From this study, a new instrument, the TWSES was created and validated for use with upper elementary and middle school educators to explore their self-efficacy beliefs with regards to specific writing skills. Its development provides a research based tool for determining the needs for teacher training across the writing domain. The TWSES is capable of being utilized for writing specific academic, instructional, and predictive decision making with regards to writing instruction, and

professional development. Given the focus on teaching writing, self-efficacy deficits of teachers with regards to pedagogical or orthographical knowledge could be addressed and used to provide teacher-specific professional development. The analysis of TWSES teacher responses serve to provide information for professional development and the ability to target specific areas of concern within the classroom. Identifying important teacher professional development activities allows school districts to better utilize professional development funds. In addition, awareness of teacher self-efficacy deficits in teaching writing could influence the way pre-service teachers are taught in order to address areas of deficiency in programs of academic study and professional development.

The ability to carry out a given task is highly dependent on one's perceived ability to perform that task (Bandura 1986, 1997). Even if teachers are appropriately prepared to teach writing, they may not feel confident in their ability to teach the necessary skills to their students. The purpose of the present study was two-fold in design in order to address the present gaps in writing education research. The first purpose entailed the development of the Teaching Writing Self-Efficacy Scale (TWSES), a self-report instrument that measures teachers' self-efficacy with regards to their perceived ability to teach writing. The second purpose used data gathered from the TWSES with other data pertaining to the amount of training teachers received with regards to writing skills and pedagogical techniques and student outcomes to validate the TWSES as an appropriate measure of teacher self-efficacy with regards to teaching writing.

This study developed a new instrument to measure a teacher self-efficacy when teaching writing to students. The Teaching Writing Self-Efficacy Scale (TWSES), explains approximately 52% of the variance of the construct and is reports an $\alpha = .973$ with 4th through 7th

grade educators. The TWSES can be used to assess in-service educators' knowledge gaps in teaching writing for teacher-driven, research-based, professional development.

Expanded research was essential if the area of teacher self-efficacy with regards to writing is to provide data-driven, content-specific professional development opportunities, currently lacking in school districts across the country (Lieberman & Wood, 2003). Research in the area of teacher self-efficacy with regards to writing, specifically the creation and validation of the TWSES, provides school districts with a cost, time, and material-effective professional development tool to determine and develop the needs and interests of the teachers of each specific school, district, or state.

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APPENDIX A

Teaching Writing Self-Efficacy Study Instrument

Thank you for participating in the Teaching Writing Self-Efficacy Study.

The following survey items are being asked so that a simple and effective method for measuring your personal self-efficacy beliefs in your training and ability to teach writing to your students. Some items explore your beliefs about your ability to teach writing to your students and some items are being requested to determine if the item or instrument is biased in any way so that problematic items can be removed.

The results of this scale will be used to adapt courses and professional development to best meet your needs. Please rate the statements below as accurately and honestly as possible.

All responses will be held in strict confidence. Your name and the name of your school will never be collected or used in any reports, presentations, or publications.

You may leave any item blank and/or leave the study at any point without any repercussions.

Once your responses are returned, no changes can be made.

For questions or concerns, please contact Principal Investigator, Stacy Hughey Surman at ughe003@bamaed.ua.edu

Please answer the following items openly and honestly to ensure that the most accurate information is gathered.

Each of the items below is being collected to assist in the development of the Teaching Writing Self-Efficacy Scale (TWSES) and will be held in strict confidence.

You have the option of leaving any of the items below blank, but please only do so if you must.

_____ What grade level do you currently teach?

_____ What school system are you employed by?

_____ How long have you been teaching?

_____ What is the average number of students enrolled in your classes each day?

_____ On an average day, how many minutes of your instructional time do you devote to writing and writing instruction?

_____ Over the last 5 school years (or less if you are newly hired), please estimate how many professional development hours you have earned on your own self-indicated needs?

_____ Over the last 5 school years (or less if you are newly hired), please estimate how many professional development hours have you earned with a specific content as writing and/or writing instructional methods?

_____ Please identify your gender?

_____ Please identify your race/ethnicity?

The following items explore your beliefs about your ability to teach specific writing related skills to your students.

These items make up the Teaching Writing Self-Efficacy Scale (TWSES).

Please respond using the scale choices below by circling your agreement level to each of the statements below.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

For example: A response of Strongly Agree would indicate that you strongly agree with your ability to successfully teach the specific skill to your students.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully choose a topic for an essay.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully read a writing prompt and choose the correct genre in which to write.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully write a thesis statement.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully outline a topic.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully brainstorm a topic.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully reduce a brainstorming exercise into topics for writing.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully write a complete sentence.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully combine sentences to form a compound sentence.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully add adjectives, adverbs, and action verbs to form detailed sentences.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully combine thoughts to form a complex sentence.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use transition words to connect ideas.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully choose a paragraph topic.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully combine sentences to form a paragraph.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully write in first, second, and third person.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to use commas accurately.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to use capitalization accurately.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to use periods, question marks, and exclamation points accurately.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to use colons and semi-colons accurately.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully narrative essay.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use dialog with quotation marks in written work.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully include a specific time frame and a clear sequence of events in a written work.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use transition words to indicate a passage of time in a narrative essay.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully write a descriptive essay.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use adjectives, adverbs, and action verbs to describe a mental picture.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully write an expository essay.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use sequence words (first, second, next, finally, etc…) to describe a process.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully give examples and use details to explain and elaborate a non-fiction composition.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully write a persuasive essay.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully state an opinion or position.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully include logical reasons to support an opinion or position.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use phrases like "I believe", "in my opinion", or "from my point of view" to focus the reader on the opinion or position.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully use clincher sentences to sum up an opinion or position.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully edit work for grammatical errors.
For Example: misspelled words, subject/verb agreement, punctuation mistakes.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully edit work for syntactical errors.
For Example: Correct arrangement of words within a sentence –
Incorrect: The dog's brown is coat.
Correct: The dog's coat is brown.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

I am confident in my ability to teach my students to successfully edit work for contextual errors.
For example: Deviating from the intended topic – A student is writing about the habitat of snapping turtles and begins to elaborate about holding a turtle at the pet store within the same paragraph.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

The last items explore your beliefs about general and personal teacher efficacy with regard to teaching writing to your students.

These items are included in this study as a comparison to the TWSES items you responded to above. The Principal Investigator, Stacy Hughey Surman, did not design or author any of the items below.

The items below make up the Teacher Efficacy Scale for Writing, authored by Steve Graham, Karen R. Harris, Barbara Fink, and Charles A. MacArthur and were published in the *Scientific Studies of Reading* 5(2), 177 – 202, in 2001.

Please respond using the scale choices below by circling your agreement level to each of the statements below.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

For example: A response of Strongly Agree would indicate that you strongly agree with the statement about teaching writing to your students.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

When a student's writing performance improves, it is usually because I found improved ways of teaching that student.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

Even a good writing teacher may not reach many students.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If a student did not remember what I taught in a previous writing lesson, I would know how to increase his/her retention in the next lesson.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

The hours in my class have little influence on students' writing performance compared to the influence of their home environments.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If a student masters a new writing concept quickly, this is because I knew the necessary steps in teaching this concept.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If I try really hard, I can help students with the most difficult writing problems.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

When a student does better than usual in writing, it is because I exerted a little extra effort.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If students are not disciplined at home, they are not likely to accept any discipline during the writing period.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

When a student is having difficulty with a writing assignment, I would have no trouble adjusting it to his/her level.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

The influence of a student's home experience on writing can be overcome by good teaching.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her writing achievement.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If one of my students could not do a writing assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

The amount a student can learn in writing is primarily related to family background.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If a student becomes disruptive and noisy during writing time, I feel assured that I know some techniques to redirect him/her quickly.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

When students' writing performance improves, it is usually because I found more effective teaching approaches.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

If parent would do more in writing with their children, I could do more.

Strongly Agree	***Agree***	***Slightly Agree***	***Slightly Disagree***	***Disagree***	***Strongly Disagree***

Please check to assure that your marked responses accurately reflect your beliefs.

Thank you for your honest and open responses. Your participation in the Teaching Writing Self-Efficacy Study is greatly appreciated.

If you have any questions or concerns following completion of this survey, please contact the Principal Investigator, Stacy Hughey Surman at hughe003@bamaed.ua.edu

Appendix B

Introductory Information to Systems and Teachers

Introductory information to system.

Stacy Hughey Surman
The University of Alabama
Box 870232
Tuscaloosa, AL 35487-0232
September 9, 2009

[**Recipient Name**]
Superintendent
_____School System
[**Street Address**]
_____, AL _____

Dear [**Recipient Name**]:

I am a Ph.D. candidate at The University of Alabama completing my doctoral dissertation under the guidance of the Educational Studies Department in the College of Education and Dr. Randall Schumacker.

I am conducting a research study to explore teachers' belief about their ability to successfully teach specific writing skills to their students. Self-efficacy has been widely ignored by the writing research community and has been found to be an important factor to consider in the successful teaching of writing. This study will develop the Teaching Writing Self-Efficacy Scale (TWSES), a new instrument for the measurement of a teacher's self-efficacy when teaching specific writing skills to students.

The skills of the TWSES instrument were designed to represent the skills outlined by the *English Language Arts Course of Study* for the State of Alabama, training information for the planning and preparing of students for the Alabama Direct Writing Assessment, the National Commission on Writing in America's Schools and Colleges, and the *Standards for English Language Arts* prepared by the National Council of Teachers of English.

I am asking for your permission to contact and request the participation of the fourth through seventh grade classroom teachers in your system. Participation of the system would require your office to provide contact information (email addresses preferred) for the fourth through seventh grade classroom teachers. I will take sole responsibility for contacting and obtaining participation from the teachers, but will request that you notify administrators and teachers that

participation in the TWSES Study is allowed. Participation of the teacher will require him/her to complete an online survey as a part of the TWSES Study.

The survey is expected to take no more than 20 minutes to complete and can be completed using any computer with internet access.

The participation of the _____ School System and the classroom teachers is completely voluntary. In return for participation, the school system will receive grade level reports outlining teacher-specified professional development needs with regards to writing pedagogy. This report will allow your curriculum development team to make research-based, teacher-specified, professional development plans for your system with regards to writing pedagogy needs.

The school system reports will be made available to your office; however, published or presented results of the TWSES Study will never include the names of teachers, schools, or school systems.

(For emailed letter -) If you approve permission for the fourth through seventh grade teachers to participate in the TWSES Study please complete one of the following notification methods:

> Reply directly to this email message with a message stating approval for teachers to participate and your full name for record purposes (this will serve as your electronic signature);
>
> Mail a letter of approval for teachers to participate with your signature to Stacy Hughey Surman, The University of Alabama, Project TEEACH, Box 870232, Tuscaloosa, AL, 35487-0232.

(For written letter -) If you approve permission for the fourth through seventh grade teachers to participate in the TWSES Study please complete one of the following notification methods:

> Email a message of approval including a statement that approves participation for teachers in the TWSES study and your full name for record purposes (this will serve as your electronic signature);
>
> Mail a letter of approval for teachers to participate with your signature to Stacy Hughey Surman, The University of Alabama, Project TEEACH, Box 870232, Tuscaloosa, AL, 35487-0232.

If you have any questions or concerns about providing permission for the teachers to participate or the system/teacher requirements, please contact me via email at hughe003@bamaed.ua.edu or s.hugheysurman@gmail.com , or via phone at (205) 366-3496. The Institutional Review Board (IRB) at The University of Alabama has approved this study. If you have any concerns as to your rights, the rights of the _____ School System, or the rights of the teachers, you may contact The Research Compliance Officer of The University of Alabama, Tanta Myles, by telephone (205) 348-8461 or toll free (877) 820-3066.

Sincerely,

Stacy Hughey Surman
Ph.D. Candidate, Educational Studies

The University of Alabama
Project TEEACH
Box 870232
Tuscaloosa, AL 35487-0232

Introductory information to teachers.

Dear Classroom Teacher,
The _____ School System has agreed to allow its valued classroom educators to participate in a study conducted to validate the Teaching Writing Self-Efficacy Scale. This instrument seeks to outline how teachers feel about their ability to teach writing to their students. The aim of the study is to validate this instrument so that it may be used by the academic community to pinpoint areas of need for research and professional development.

If you agree to participate, you will be asked to reply to items that will request demographic information about you and items pertaining to your beliefs about your ability to teach writing.

At the conclusion of the study, the school system will receive a system wide report divided only by grade levels; a grade level report for 4th grade, 5th grade, etc… These reports will be used to make teacher- driven, professional development decisions with regards to writing pedagogical knowledge and techniques. At no time will names of participants or non-participants be shared with the system. At no time will your responses or the responses of your school be shared with the system.

Your decision to participate and your responses will be confidential. As a principal investigator with no employees, I will be the sole individual with access to your responses. At no time will your name or the name of your school ever be connected to your decision or responses.

As a former classroom teacher, I know how valuable your time is. Please take a moment to consider participation in this study.

Your participation would require no more than 20 minutes of your time.
Your participation is Confidential.
Your participation is voluntary.
Your participation is valued.
Your participation is vital to the quality of this study.

If you wish to participate, please read the enclosed Informed Consent Document and follow the participation instructions.

Please contact me at hughe003@bamaed.ua.edu or s.hugheysurman@gmail.com for more information with any questions or concerns.

Sincerely,

Stacy Hughey Surman, PhD Candidate

Principal Investigator
TWSES Study
The University of Alabama

Reminder email to teachers.

Reminder Request for Participation in the TWSES Study from The University of Alabama

Dear Classroom Teacher,
A few weeks ago I contacted you to request your participation in the Teaching Writing Self-Efficacy Study.

This reminder is being sent to all of the valued classroom educators of the Jefferson County Schools to invite those who would like to participate to do so by January 15, 2010. If you have completed the study instrument or have chosen not to participate, please allow me to thank you for your time and your continued support for the development of teacher-driven research.

The Jefferson County School System has agreed to allow its valued classroom educators to participate in a study conducted to validate the Teaching Writing Self-Efficacy Scale. This instrument seeks to outline how teachers feel about their ability to teach writing to their students. The aim of the study is to validate this instrument so that it may be used by the academic community to pinpoint areas of need for research and professional development.

If you wish to participate, but have not had a chance to do so at this point, please read the enclosed Informed Consent Document and follow the participation instructions by January 15, 2010. The link to the survey is located on the last page of the informed consent documents.

Please contact me at hughe003@bamaed.ua.edu or s.hugheysurman@gmail.com for more information with any questions or concerns.

Sincerely,

Stacy Hughey Surman, PhD Candidate

Principal Investigator
TWSES Study
The University of Alabama

Informed consent document.

Valued Classroom Educator:

You are being asked to take part in a research study. This study is called “The Teaching Writing Self-Efficacy Scale”. The study is being conducted by Stacy Hughey Surman, Ph.D. Candidate

in Educational Studies at The University of Alabama, under the guidance of Dr. Randall Schumacker, Professor of Educational Research at The University of Alabama.

Your participation has been approved by your school system and your contact information was provided by the central office of your system.

What is the purpose of this study?

The purpose of conducting this research study is to explore teachers' belief about their ability to successfully teach specific writing skills to their students. This study will develop the Teaching Writing Self-Efficacy Scale (TWSES), a new instrument for the measurement of a teacher's self-efficacy when teaching specific writing skills to students.

Why is this study important--What will the results be utilized for?

Self-efficacy has been widely ignored by the writing research community and has been found to be an important factor to consider in the successful teaching of writing. Currently only one instrument is currently available that fails to focus on specific writing skills.

The skills outlined for examination in the TWSES instrument were designed to represent the skills outlined by the *English Language Arts Course of Study* for the State of Alabama, training information for the planning and preparing of students for the Alabama Direct Writing Assessment, the National Commission on Writing in America's Schools and Colleges, and the *Standards for English Language Arts* prepared by the National Council of Teachers of English.

Results of the TWSES Study will be used to outline teacher-specified course and professional development needs with regards to writing pedagogy. The reports created will allow system curriculum development teams and course administrators to make research-based, teacher-specified, course and professional development plans for school systems and universities. In addition, the TWSES Scale will become a research supported instrument for use by administrators, educators, and writing researchers.

Why have I been asked to take part in this study?

In order for the TWSES Scale to be developed appropriately for research purposes, in-service teachers employed by school systems in the state of Alabama will be the subjects for this study. Teachers of grade four through seven are being asked to participate as the preparation for and the administration of the Alabama Direct Writing Assessment yields a solid emphasis on writing instruction in these grade levels.

How many people besides me will be in this study?

The study is expected to collect results from at least 350 participants.

What will I be asked to do in this study?

If you make the decision to participate in the TWSES study, you will be asked to complete an online survey exploring your personal beliefs about your abilities to teach specific writing skills to your students. The survey can be completed from any computer with internet access.

How much time will I spend being in this study?

20 minutes to complete the online survey.

Will I be paid for being in this study?

You will not be paid for being in this study. Your school system will receive grade level results outlining the professional development needs specified by teachers in your district. At no time will your name or the name of your school ever be included in this report. The report is intended only to show system-wide, grade level needs for writing pedagogy support.

Will being in this study cost me anything?

There is no cost to you except for your time in completing the online survey.

What are the benefits of being in this study?

The responses you provide will be used to develop system-wide, grade level writing pedagogy support needs. A report of these needs will be provided to your system in an attempt to provide the curriculum development team access to teacher-specified, research-supported needs that can be met with professional development that meets those specific writing pedagogy needs.

What are the risks to me if I am in this study?

No risks, danger, or harm exists for participating in this study. You may choose to leave any item blank or to leave the study at any time. Neither your name nor the name of your school will ever be provided to the school system.

How will my confidentiality (privacy) be protected? What will happen to the information the study keeps on me?

Protection includes the use of ID numbers on all study documents, limiting access to the principal investigator only, and destruction of raw data after it has been transcribed or entered on a database. Your name will never be attached to your results. Neither your name nor the name of your school will ever be provided to your school system. The study will never present or publish results that include school system names, school names, or the names of study participants.

What are the alternatives to being in this study? Do I have other choices?

The alternative/other choice is not to participate in this study.

What are my rights as a participant?

Taking part in this study is completely voluntary. You may choose not to take part at all. If you start the study, you can stop at any time.

The University of Alabama Institutional Review Board (IRB) is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems?

If you have questions about the TWSES study, please ask. Please call the principal investigator, Stacy Hughey Surman, at 205-366-3496 or email her at hughe003@bamaed.ua.edu or s.hugheysurman@gmail.com; Dr. Randall Schumacker, at 205-348-6062 or email him at rschumacker@ua.edu. If you have any questions about your rights as a research participant you may contact Ms. Tanta Myles, The University of Alabama Research Compliance Officer, at (205) 348-8461 or toll-free (877) 820-3066.

What do I do next?

If you choose to participate in the TWSES Study, complete the TWSES online survey instrument using the internet link below. Copy and paste or type the address into the address bar of your internet browser. You will be directed to the survey instrument. Please follow the on-screen instructions to complete the survey.

At no time will you be asked to provide your name or the name of your school.

If you would rather complete the survey in paper format, please contact the principal investigator, Stacy Hughey Surman, using the contact information above. Please provide the email address you wish the documents to be sent to when calling or emailing.

Completion of the Survey Implies Consent to Take Part in This Research Study.

Link to the Online TWSES Survey:

http://bamaesprmc.qualtrics.com/SE?SID=SV_0Cd2OaAYSL6B9ru&SVID=Prod

Appendix C

Institutional Review Board Approval

Office for Research

Institutional Review Board for the
Protection of Human Subjects

THE UNIVERSITY OF
ALABAMA
RESEARCH

September 28, 2009

Stacy Hughey Surman
Department of Educational Studies
College of Education
Box 870232

Re: IRB #: EX-09-CM-071, "Development of the Teaching Writing Self-Efficacy Scale"

Dear Ms. Surman:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given exempt approval according to 45 CFR part 46.101(b)(2) as outlined below:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

This approval expires on 9/28/10. If the study continues beyond that date, you must complete the appropriate portion of the Continuing Review and Closure Form. If you modify the application, please complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Continuing Review and Closure for closure.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB application number.

Good luck with your research.

Sincerely,

Carpantato T. Myles, MSM, CIM
Director & Research Compliance Officer
Office of Research Compliance
The University of Alabama

152 Rose Administration Building
Box 870117
Tuscaloosa, Alabama 35487-0117
(205) 348-5152
FAX (205) 348-8882

Appendix D

Descriptive Statistics

Item and total score frequencies and descriptive statistics.

Descriptive statistics: All items.

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
TQ1	352	5	1	6	4.81	.999
TQ2	352	5	1	6	4.62	1.108
TQ3	352	5	1	6	4.42	1.135
TQ4	352	5	1	6	4.70	1.060
TQ5	352	4	2	6	5.14	.794
TQ6	352	5	1	6	4.77	1.013
TQ7	352	5	1	6	5.38	.726
TQ8	352	5	1	6	5.21	.869
TQ9	352	5	1	6	5.11	.808
TQ10	352	5	1	6	4.85	.942
TQ11	352	5	1	6	4.96	.919
TQ12	352	5	1	6	4.96	.855
TQ13	352	5	1	6	4.94	.905
TQ14	352	5	1	6	4.45	1.108
TQ15	352	5	1	6	4.63	1.018
TQ16	352	5	1	6	5.34	.785
TQ17	352	5	1	6	5.42	.708
TQ18	352	5	1	6	4.61	1.112
TQ19	352	4	2	6	4.73	.977
TQ20	352	5	1	6	4.75	1.029
TQ21	352	4	2	6	4.73	.942
TQ22	352	5	1	6	4.77	1.015
TQ23	352	4	2	6	4.85	.912
TQ24	352	5	1	6	4.87	.938
TQ25	352	5	1	6	4.66	1.092
TQ26	352	5	1	6	5.09	.895
TQ27	352	4	2	6	4.78	.909
TQ28	352	5	1	6	4.62	1.031
TQ29	352	4	2	6	4.78	.865
TQ30	352	5	1	6	4.66	.937
TQ31	352	5	1	6	4.76	.961
TQ32	352	5	1	6	4.44	1.113
TQ33	352	5	1	6	4.66	1.030
TQ34	352	5	1	6	4.74	1.150
TQ35	352	5	1	6	4.62	1.063
OQ1	352	4	2	6	4.73	.989
OQ2	352	5	1	6	3.94	1.410
OQ3	352	5	1	6	4.10	1.136
OQ4	352	5	1	6	3.25	1.430
OQ5	352	5	1	6	3.87	1.158

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
OQ6	352	5	1	6	4.46	.981
OQ7	352	5	1	6	4.15	1.128
OQ8	352	5	1	6	3.51	1.419
OQ9	352	5	1	6	4.24	1.196
OQ10	352	5	1	6	4.55	1.005
OQ11	352	5	1	6	3.37	1.326
OQ12	352	5	1	6	4.02	1.153
OQ13	352	5	1	6	3.00	1.395
OQ14	352	5	1	6	4.33	1.353
OQ15	352	5	1	6	4.45	1.027
OQ16	352	5	1	6	4.14	1.127

		OtherSum	TWSESSum
N	Valid	352	352
	Missing	0	0
	Mean	63.92	168.83
	Std. Deviation	6.884	24.444
	Range	46	154
	Minimum	40	56
	Maximum	86	210

Appendix E

Frequencies

Frequencies: All items TWSES and TESW.

TQ1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.6	.6	.6
	Disagree	12	3.4	3.4	4.0
	Slightly Disagree	17	4.8	4.8	8.8
	Slightly Agree	72	20.5	20.5	29.3
	Agree	166	47.2	47.2	76.4
	Strongly Agree	83	23.6	23.6	100.0
	Total	352	100.0	100.0	

TQ2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.0	2.0	2.0
	Disagree	10	2.8	2.8	4.8
	Slightly Disagree	26	7.4	7.4	12.2
	Slightly Agree	99	28.1	28.1	40.3
	Agree	134	38.1	38.1	78.4
	Strongly Agree	76	21.6	21.6	100.0
	Total	352	100.0	100.0	

TQ3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.1	1.1	1.1
	Disagree	20	5.7	5.7	6.8
	Slightly Disagree	40	11.4	11.4	18.2
	Slightly Agree	106	30.1	30.1	48.3
	Agree	123	34.9	34.9	83.2
	Strongly Agree	59	16.8	16.8	100.0
	Total	352	100.0	100.0	

TQ4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.4	1.4	1.4
	Disagree	10	2.8	2.8	4.3
	Slightly Disagree	26	7.4	7.4	11.6
	Slightly Agree	78	22.2	22.2	33.8
	Agree	159	45.2	45.2	79.0

TQ4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	74	21.0	21.0	100.0
	Total	352	100.0	100.0	

TQ5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	.9	.9	.9
	Slightly Disagree	10	2.8	2.8	3.7
	Slightly Agree	42	11.9	11.9	15.6
	Agree	178	50.6	50.6	66.2
	Strongly Agree	119	33.8	33.8	100.0
	Total	352	100.0	100.0	

TQ6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.9	.9	.9
	Disagree	8	2.3	2.3	3.1
	Slightly Disagree	22	6.2	6.2	9.4
	Slightly Agree	86	24.4	24.4	33.8
	Agree	148	42.0	42.0	75.9
	Strongly Agree	85	24.1	24.1	100.0
	Total	352	100.0	100.0	

TQ7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	2	.6	.6	.9
	Slightly Disagree	5	1.4	1.4	2.3
	Slightly Agree	14	4.0	4.0	6.2
	Agree	162	46.0	46.0	52.3
	Strongly Agree	168	47.7	47.7	100.0
	Total	352	100.0	100.0	

TQ8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.9	.9	.9
	Disagree	1	.3	.3	1.1

TQ8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly Disagree	12	3.4	3.4	4.5
	Slightly Agree	31	8.8	8.8	13.4
	Agree	160	45.5	45.5	58.8
	Strongly Agree	145	41.2	41.2	100.0
	Total	352	100.0	100.0	

TQ9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	1	.3	.3	.6
	Slightly Disagree	9	2.6	2.6	3.1
	Slightly Agree	55	15.6	15.6	18.8
	Agree	169	48.0	48.0	66.8
	Strongly Agree	117	33.2	33.2	100.0
	Total	352	100.0	100.0	

TQ10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.6	.6	.6
	Disagree	4	1.1	1.1	1.7
	Slightly Disagree	24	6.8	6.8	8.5
	Slightly Agree	71	20.2	20.2	28.7
	Agree	166	47.2	47.2	75.9
	Strongly Agree	85	24.1	24.1	100.0
	Total	352	100.0	100.0	

TQ11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	2	.6	.6	.9
	Slightly Disagree	23	6.5	6.5	7.4
	Slightly Agree	64	18.2	18.2	25.6
	Agree	155	44.0	44.0	69.6
	Strongly Agree	107	30.4	30.4	100.0
	Total	352	100.0	100.0	

TQ12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	3	.9	.9	1.1
	Slightly Disagree	17	4.8	4.8	6.0
	Slightly Agree	57	16.2	16.2	22.2
	Agree	185	52.6	52.6	74.7
	Strongly Agree	89	25.3	25.3	100.0
	Total	352	100.0	100.0	

TQ13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	4	1.1	1.1	1.4
	Slightly Disagree	18	5.1	5.1	6.6
	Slightly Agree	67	19.0	19.1	25.6
	Agree	164	46.6	46.7	72.4
	Strongly Agree	97	27.6	27.6	100.0
	Total	352	100.0	100.0	

TQ14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.4	1.4	1.4
	Disagree	15	4.3	4.3	5.7
	Slightly Disagree	42	11.9	11.9	17.6
	Slightly Agree	101	28.7	28.7	46.3
	Agree	134	38.1	38.1	84.4
	Strongly Agree	55	15.6	15.6	100.0
	Total	352	100.0	100.0	

TQ15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	12	3.4	3.4	3.7
	Slightly Disagree	32	9.1	9.1	12.8
	Slightly Agree	92	26.1	26.1	38.9
	Agree	148	42.0	42.0	81.0

TQ15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	67	19.0	19.0	100.0
	Total	352	100.0	100.0	

TQ16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	1	.3	.3	.6
	Slightly Disagree	8	2.3	2.3	2.8
	Slightly Agree	29	8.2	8.2	11.1
	Agree	143	40.6	40.6	51.7
	Strongly Agree	170	48.3	48.3	100.0
	Total	352	100.0	100.0	

TQ17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	1	.3	.3	.6
	Slightly Disagree	2	.6	.6	1.1
	Slightly Agree	23	6.5	6.5	7.7
	Agree	143	40.6	40.6	48.3
	Strongly Agree	182	51.7	51.7	100.0
	Total	352	100.0	100.0	

TQ18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.1	1.1	1.1
	Disagree	11	3.1	3.1	4.3
	Slightly Disagree	38	10.8	10.8	15.1
	Slightly Agree	94	26.7	26.7	41.8
	Agree	125	35.5	35.5	77.3
	Strongly Agree	80	22.7	22.7	100.0
	Total	352	100.0	100.0	

TQ19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	2.0	2.0	2.0

TQ19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly Disagree	32	9.1	9.1	11.1
	Slightly Agree	89	25.3	25.3	36.4
	Agree	144	40.9	40.9	77.3
	Strongly Agree	80	22.7	22.7	100.0
	Total	352	100.0	100.0	

TQ20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	12	3.4	3.4	3.7
	Slightly Disagree	24	6.8	6.8	10.5
	Slightly Agree	86	24.4	24.4	34.9
	Agree	142	40.3	40.3	75.3
	Strongly Agree	87	24.7	24.7	100.0
	Total	352	100.0	100.0	

TQ21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	2.3	2.3	2.3
	Slightly Disagree	24	6.8	6.8	9.1
	Slightly Agree	96	27.3	27.3	36.4
	Agree	151	42.9	42.9	79.3
	Strongly Agree	73	20.7	20.7	100.0
	Total	352	100.0	100.0	

TQ22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.6	.6	.6
	Disagree	11	3.1	3.1	3.7
	Slightly Disagree	21	6.0	6.0	9.7
	Slightly Agree	81	23.0	23.0	32.7
	Agree	153	43.5	43.5	76.1
	Strongly Agree	84	23.9	23.9	100.0
	Total	352	100.0	100.0	

TQ23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	1.7	1.7	1.7
	Slightly Disagree	22	6.2	6.2	8.0
	Slightly Agree	75	21.3	21.3	29.3
	Agree	166	47.2	47.2	76.4
	Strongly Agree	83	23.6	23.6	100.0
	Total	352	100.0	100.0	

TQ24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	5	1.4	1.4	1.7
	Slightly Disagree	20	5.7	5.7	7.4
	Slightly Agree	79	22.4	22.4	29.8
	Agree	153	43.5	43.5	73.3
	Strongly Agree	94	26.7	26.7	100.0
	Total	352	100.0	100.0	

TQ25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.1	1.1	1.1
	Disagree	10	2.8	2.8	4.0
	Slightly Disagree	34	9.7	9.7	13.6
	Slightly Agree	86	24.4	24.4	38.1
	Agree	136	38.6	38.6	76.7
	Strongly Agree	82	23.3	23.3	100.0
	Total	352	100.0	100.0	

TQ26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.6	.6	.6
	Disagree	3	.9	.9	1.4
	Slightly Disagree	10	2.8	2.8	4.3
	Slightly Agree	59	16.8	16.8	21.0
	Agree	152	43.2	43.2	64.2
	Strongly Agree	126	35.8	35.8	100.0
	Total	352	100.0	100.0	

TQ27

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	1.1	1.1	1.1
	Slightly Disagree	25	7.1	7.1	8.2
	Slightly Agree	93	26.4	26.4	34.7
	Agree	152	43.2	43.2	77.8
	Strongly Agree	78	22.2	22.2	100.0
	Total	352	100.0	100.0	

TQ28

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	16	4.5	4.5	4.8
	Slightly Disagree	23	6.5	6.5	11.4
	Slightly Agree	104	29.5	29.5	40.9
	Agree	140	39.8	39.8	80.7
	Strongly Agree	68	19.3	19.3	100.0
	Total	352	100.0	100.0	

TQ29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	1.4	1.4	1.4
	Slightly Disagree	17	4.8	4.8	6.2
	Slightly Agree	98	27.8	27.8	34.1
	Agree	163	46.3	46.3	80.4
	Strongly Agree	69	19.6	19.6	100.0
	Total	352	100.0	100.0	

TQ30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	9	2.6	2.6	2.8
	Slightly Disagree	22	6.2	6.2	9.1
	Slightly Agree	103	29.3	29.3	38.4
	Agree	157	44.6	44.6	83.0
	Strongly Agree	60	17.0	17.0	100.0
	Total	352	100.0	100.0	

TQ31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	8	2.3	2.3	2.6
	Slightly Disagree	21	6.0	6.0	8.5
	Slightly Agree	93	26.4	26.4	34.9
	Agree	150	42.6	42.6	77.6
	Strongly Agree	79	22.4	22.4	100.0
	Total	352	100.0	100.0	

TQ32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.4	1.4	1.4
	Disagree	15	4.3	4.3	5.7
	Slightly Disagree	40	11.4	11.4	17.0
	Slightly Agree	112	31.8	31.8	48.9
	Agree	121	34.4	34.4	83.2
	Strongly Agree	59	16.8	16.8	100.0
	Total	352	100.0	100.0	

TQ33

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.7	1.7	1.7
	Disagree	8	2.3	2.3	4.0
	Slightly Disagree	21	6.0	6.0	9.9
	Slightly Agree	94	26.7	26.7	36.6
	Agree	157	44.6	44.6	81.2
	Strongly Agree	66	18.8	18.8	100.0
	Total	352	100.0	100.0	

TQ34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.7	1.7	1.7
	Disagree	14	4.0	4.0	5.7
	Slightly Disagree	25	7.1	7.1	12.8
	Slightly Agree	72	20.5	20.5	33.2
	Agree	140	39.8	39.8	73.0
	Strongly Agree	95	27.0	27.0	100.0
	Total	352	100.0	100.0	

TQ35

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.7	1.7	1.7
	Disagree	9	2.6	2.6	4.3
	Slightly Disagree	29	8.2	8.2	12.5
	Slightly Agree	90	25.6	25.6	38.1
	Agree	153	43.5	43.5	81.5
	Strongly Agree	65	18.5	18.5	100.0
	Total	352	100.0	100.0	

OQ1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	13	3.7	3.7	3.7
	3	15	4.3	4.3	8.0
	4	99	28.1	28.1	36.1

OQ1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	151	42.9	42.9	79.0
	6	74	21.0	21.0	100.0
	Total	352	100.0	100.0	

OQ2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	5.1	5.1	5.1
	2	63	17.9	17.9	23.0
	3	61	17.3	17.3	40.3
	4	65	18.5	18.5	58.8
	5	105	29.8	29.8	88.6
	6	40	11.4	11.4	100.0
	Total	352	100.0	100.0	

OQ3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	.9	.9	.9
	2	37	10.5	10.5	11.4
	3	46	13.1	13.1	24.4
	4	128	36.4	36.4	60.8
	5	113	32.1	32.1	92.9
	6	25	7.1	7.1	100.0
	Total	352	100.0	100.0	

OQ4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	41	11.6	11.6	11.6
	2	98	27.8	27.8	39.5
	3	73	20.7	20.7	60.2
	4	66	18.8	18.8	79.0
	5	52	14.8	14.8	93.8
	6	22	6.2	6.2	100.0
	Total	352	100.0	100.0	

OQ5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	2.6	2.6	2.6
	2	33	9.4	9.4	11.9
	3	58	16.5	16.5	28.4
	4	133	37.8	37.8	66.2
	5	104	29.5	29.5	95.7
	6	15	4.3	4.3	100.0
	Total	352	100.0	100.0	

OQ6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.3	.3	.3
	2	12	3.4	3.4	3.7
	3	39	11.1	11.1	14.8
	4	107	30.4	30.4	45.2
	5	151	42.9	42.9	88.1
	6	42	11.9	11.9	100.0
	Total	352	100.0	100.0	

OQ7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	2.0	2.0	2.0
	2	36	10.2	10.2	12.2
	3	50	14.2	14.2	26.4
	4	116	33.0	33.0	59.4
	5	118	33.5	33.5	92.9
	6	25	7.1	7.1	100.0
	Total	352	100.0	100.0	

OQ8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	34	9.7	9.7	9.7
	2	82	23.3	23.3	33.0
	3	60	17.0	17.0	50.0
	4	88	25.0	25.0	75.0
	5	62	17.6	17.6	92.6
	6	26	7.4	7.4	100.0
	Total	352	100.0	100.0	

OQ9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	2.0	2.0	2.0
	2	23	6.5	6.5	8.5
	3	50	14.2	14.2	22.7
	4	90	25.6	25.6	48.3
	5	138	39.2	39.2	87.5
	6	44	12.5	12.5	100.0
	Total	352	100.0	100.0	

OQ10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	1.1	1.1	1.1
	2	19	5.4	5.4	6.5
	3	28	8.0	8.0	14.5
	4	103	29.3	29.3	43.8
	5	147	41.8	41.8	85.5
	6	51	14.5	14.5	100.0
	Total	352	100.0	100.0	

OQ11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	28	8.0	8.0	8.0
	2	90	25.6	25.6	33.5
	3	69	19.6	19.6	53.1
	4	93	26.4	26.4	79.5
	5	49	13.9	13.9	93.5
	6	23	6.5	6.5	100.0
	Total	352	100.0	100.0	

OQ12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	12	3.4	3.4	3.4
	2	33	9.4	9.4	12.8
	3	48	13.6	13.6	26.4
	4	124	35.2	35.2	61.6
	5	114	32.4	32.4	94.0
	6	21	6.0	6.0	100.0
	Total	352	100.0	100.0	

OQ13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	53	15.1	15.1	15.1
	2	76	21.6	21.6	36.6
	3	78	22.2	22.2	58.8
	4	77	21.9	21.9	80.7
	5	51	14.5	14.5	95.2
	6	17	4.8	4.8	100.0
	Total	352	100.0	100.0	

OQ14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	4.3	4.3	4.3
	2	32	9.1	9.1	13.4
	3	39	11.1	11.1	24.4
	4	66	18.8	18.8	43.2
	5	140	39.8	39.8	83.0
	6	60	17.0	17.0	100.0
	Total	352	100.0	100.0	

OQ15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	.6	.6	.6
	2	24	6.8	6.8	7.4
	3	23	6.5	6.5	13.9
	4	112	31.8	31.8	45.7
	5	152	43.2	43.2	88.9
	6	39	11.1	11.1	100.0
	Total	352	100.0	100.0	

OQ16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	1.4	1.4	1.4
	2	32	9.1	9.1	10.5
	3	33	9.4	9.4	19.9
	4	150	42.6	42.6	62.5
	5	99	28.1	28.1	90.6
	6	33	9.4	9.4	100.0
	Total	352	100.0	100.0	

Frequencies: TWSES total and TESW total.

TWSESSum

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	56	1	.3	.3	.3
	89	1	.3	.3	.6
	97	1	.3	.3	.9
	101	1	.3	.3	1.1
	102	1	.3	.3	1.4
	108	1	.3	.3	1.7
	113	2	.6	.6	2.3
	114	1	.3	.3	2.6
	116	1	.3	.3	2.8
	117	1	.3	.3	3.1
	123	1	.3	.3	3.4
	125	4	1.1	1.1	4.5
	126	1	.3	.3	4.8
	127	3	.9	.9	5.7
	128	2	.6	.6	6.2
	131	1	.3	.3	6.5
	132	1	.3	.3	6.8
	133	2	.6	.6	7.4
	134	3	.9	.9	8.2
	135	4	1.1	1.1	9.4
	136	2	.6	.6	9.9
	137	2	.6	.6	10.5
	138	3	.9	.9	11.4
	139	3	.9	.9	12.2
	140	3	.9	.9	13.1
	141	2	.6	.6	13.6
	142	4	1.1	1.1	14.8
	143	1	.3	.3	15.1
	144	6	1.7	1.7	16.8
	145	1	.3	.3	17.0
	146	2	.6	.6	17.6
	147	2	.6	.6	18.2
	148	2	.6	.6	18.8
	150	6	1.7	1.7	20.5
	151	1	.3	.3	20.7
	152	6	1.7	1.7	22.4
	153	3	.9	.9	23.3
	154	2	.6	.6	23.9
	155	7	2.0	2.0	25.9

TWSESSum

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	156	5	1.4	1.4	27.3
	157	5	1.4	1.4	28.7
	158	2	.6	.6	29.3
	159	5	1.4	1.4	30.7
	160	5	1.4	1.4	32.1
	161	3	.9	.9	33.0
	162	6	1.7	1.7	34.7
	163	6	1.7	1.7	36.4
	164	5	1.4	1.4	37.8
	165	10	2.8	2.8	40.6
	166	6	1.7	1.7	42.3
	167	3	.9	.9	43.2
	168	9	2.6	2.6	45.7
	169	9	2.6	2.6	48.3
	170	9	2.6	2.6	50.9
	171	5	1.4	1.4	52.3
	172	5	1.4	1.4	53.7
	173	9	2.6	2.6	56.2
	174	11	3.1	3.1	59.4
	175	12	3.4	3.4	62.8
	176	4	1.1	1.1	63.9
	177	9	2.6	2.6	66.5
	178	1	.3	.3	66.8
	179	3	.9	.9	67.6
	180	6	1.7	1.7	69.3
	181	2	.6	.6	69.9
	182	1	.3	.3	70.2
	183	3	.9	.9	71.0
	184	10	2.8	2.8	73.9
	185	3	.9	.9	74.7
	186	4	1.1	1.1	75.9
	187	7	2.0	2.0	77.8
	188	3	.9	.9	78.7
	189	1	.3	.3	79.0
	190	3	.9	.9	79.8
	191	4	1.1	1.1	81.0
	192	4	1.1	1.1	82.1
	193	2	.6	.6	82.7
	194	5	1.4	1.4	84.1
	195	3	.9	.9	84.9
	196	2	.6	.6	85.5
	197	4	1.1	1.1	86.6

TWSESSum

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	198	5	1.4	1.4	88.1
	199	2	.6	.6	88.6
	200	3	.9	.9	89.5
	201	5	1.4	1.4	90.9
	202	1	.3	.3	91.2
	203	1	.3	.3	91.5
	204	3	.9	.9	92.3
	205	3	.9	.9	93.2
	206	8	2.3	2.3	95.5
	207	5	1.4	1.4	96.9
	209	2	.6	.6	97.4
	210	9	2.6	2.6	100.0
	Total	352	100.0	100.0	

OtherSum

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	40	1	.3	.3	.3
	47	1	.3	.3	.6
	48	1	.3	.3	.9
	49	3	.9	.9	1.7
	50	4	1.1	1.1	2.8
	51	3	.9	.9	3.7
	52	1	.3	.3	4.0
	53	11	3.1	3.1	7.1
	54	4	1.1	1.1	8.2
	55	7	2.0	2.0	10.2
	56	8	2.3	2.3	12.5
	57	14	4.0	4.0	16.5
	58	14	4.0	4.0	20.5
	59	21	6.0	6.0	26.4
	60	22	6.2	6.2	32.7
	61	19	5.4	5.4	38.1
	62	19	5.4	5.4	43.5
	63	14	4.0	4.0	47.4
	64	22	6.2	6.2	53.7
	65	15	4.3	4.3	58.0
	66	24	6.8	6.8	64.8
	67	16	4.5	4.5	69.3
	68	18	5.1	5.1	74.4
	69	19	5.4	5.4	79.8
	70	14	4.0	4.0	83.8
	71	10	2.8	2.8	86.6
	72	11	3.1	3.1	89.8
	73	5	1.4	1.4	91.2
	74	12	3.4	3.4	94.6
	75	4	1.1	1.1	95.7
	76	1	.3	.3	96.0
	77	2	.6	.6	96.6
	78	5	1.4	1.4	98.0
	79	4	1.1	1.1	99.1
	80	1	.3	.3	99.4
	83	1	.3	.3	99.7
	86	1	.3	.3	100.0
	Total	352	100.0	100.0	

Appendix F

Correlations

Correlations: All items TWSES and TESW and totals.

Correlations

		TQ1	TQ2	TQ3	TQ4	TQ5	TQ6	TQ7
TQ1	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
TQ2	Pearson Correlation	.591**	1.000					
	Sig. (2-tailed)	.000						
	N	352	352.000					
TQ3	Pearson Correlation	.534**	.495**	1.000				
	Sig. (2-tailed)	.000	.000					
	N	352	352	352.000				
TQ4	Pearson Correlation	.567**	.451**	.566**	1.000			
	Sig. (2-tailed)	.000	.000	.000				
	N	352	352	352	352.000			
TQ5	Pearson Correlation	.571**	.489**	.460**	.580**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.000			
	N	352	352	352	352	352.000		
TQ6	Pearson Correlation	.615**	.570**	.462**	.538**	.740**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	352	352	352	352	352	352.000	
TQ7	Pearson Correlation	.405**	.591**	.489**	.534**	.468**	.406**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	352	352	352	352	352	352	352.000
TQ8	Pearson Correlation	.462**	.436**	.571**	.435**	.515**	.519**	.675**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ9	Pearson Correlation	.403**	.420**	.538**	.440**	.510**	.489**	.631**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ10	Pearson Correlation	.502**	.506**	.405**	.476**	.466**	.539**	.585**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ11	Pearson Correlation	.504**	.484**	.447**	.495**	.522**	.538**	.533**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ12	Pearson Correlation	.635**	.513**	.474**	.565**	.571**	.614**	.476**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ13	Pearson Correlation	.541**	.438**	.481**	.585**	.522**	.546**	.536**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		TQ8	TQ9	TQ10	TQ11	TQ12	TQ13	TQ14
TQ1	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ2	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ3	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ4	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ5	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ6	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ7	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ8	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
TQ9	Pearson Correlation	.751**	1.000					
	Sig. (2-tailed)	.000						
	N	352	352.000					
TQ10	Pearson Correlation	.725**	.661**	1.000				
	Sig. (2-tailed)	.000	.000					
	N	352	352	352.000				
TQ11	Pearson Correlation	.641**	.673**	.678**	1.000			
	Sig. (2-tailed)	.000	.000	.000				
	N	352	352	352	352.000			
TQ12	Pearson Correlation	.526**	.559**	.586**	.647**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.000			
	N	352	352	352	352	352.000		
TQ13	Pearson Correlation	.606**	.630**	.599**	.627**	.707**	1.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		TQ8	TQ9	TQ10	TQ11	TQ12	TQ13	TQ14
TQ13	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	352	352	352	352	352	352.000	
TQ14	Pearson Correlation	.481**	.520**	.606**	.486**	.571**	.613**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	352	352	352	352	352	352	352.000
TQ15	Pearson Correlation	.504**	.522**	.511**	.509**	.486**	.564**	.600**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ16	Pearson Correlation	.613**	.618**	.485**	.522**	.425**	.515**	.455**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ17	Pearson Correlation	.581**	.605**	.473**	.554**	.506**	.505**	.511**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ18	Pearson Correlation	.453**	.455**	.513**	.518**	.489**	.523**	.603**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ19	Pearson Correlation	.490**	.548**	.547**	.576**	.597**	.621**	.487**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ20	Pearson Correlation	.473**	.559**	.501**	.548**	.558**	.603**	.564**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ21	Pearson Correlation	.565**	.558**	.663**	.607**	.594**	.607**	.648**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ22	Pearson Correlation	.497**	.571**	.627**	.644**	.590**	.606**	.587**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ23	Pearson Correlation	.480**	.544**	.579**	.544**	.569**	.606**	.545**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ24	Pearson Correlation	.498**	.619**	.565**	.586**	.512**	.528**	.531**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ25	Pearson Correlation	.553**	.518**	.612**	.609**	.549**	.585**	.560**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ26	Pearson Correlation	.573**	.535**	.542**	.592**	.519**	.574**	.496**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		TQ15	TQ16	TQ17	TQ18	TQ19	TQ20	TQ21
TQ13	Sig. (2-tailed)							
	N							
TQ14	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ15	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
TQ16	Pearson Correlation	.457**	1.000					
	Sig. (2-tailed)	.000						
	N	352	352.000					
TQ17	Pearson Correlation	.448**	.761**	1.000				
	Sig. (2-tailed)	.000	.000					
	N	352	352	352.000				
TQ18	Pearson Correlation	.602**	.448**	.461**	1.000			
	Sig. (2-tailed)	.000	.000	.000				
	N	352	352	352	352.000			
TQ19	Pearson Correlation	.520**	.488**	.489**	.524**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.000			
	N	352	352	352	352	352.000		
TQ20	Pearson Correlation	.536**	.448**	.503**	.549**	.572**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	352	352	352	352	352	352.000	
TQ21	Pearson Correlation	.509**	.454**	.508**	.592**	.600**	.613**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	352	352	352	352	352	352	352.000
TQ22	Pearson Correlation	.539**	.492**	.526**	.574**	.596**	.617**	.728**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ23	Pearson Correlation	.507**	.482**	.507**	.511**	.655**	.622**	.668**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ24	Pearson Correlation	.558**	.525**	.539**	.488**	.570**	.565**	.623**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ25	Pearson Correlation	.584**	.444**	.448**	.566**	.666**	.613**	.663**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ26	Pearson Correlation	.538**	.539**	.541**	.406**	.505**	.580**	.591**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		TQ22	TQ23	TQ24	TQ25	TQ26	TQ27	TQ28
TQ13	Sig. (2-tailed)							
	N							
TQ14	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ15	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ16	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ17	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ18	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ19	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ20	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ21	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ22	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
TQ23	Pearson Correlation	.695**	1.000					
	Sig. (2-tailed)	.000						
	N	352	352.000					
TQ24	Pearson Correlation	.679**	.738**	1.000				
	Sig. (2-tailed)	.000	.000					
	N	352	352	352.000				
TQ25	Pearson Correlation	.682**	.712**	.605**	1.000			
	Sig. (2-tailed)	.000	.000	.000				
	N	352	352	352	352.000			
TQ26	Pearson Correlation	.579**	.609**	.627**	.577**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.000			

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		TQ22	TQ23	TQ24	TQ25	TQ26	TQ27	TQ28
TQ26	N	352	352	352	352	352.000		
TQ27	Pearson Correlation	.628**	.643**	.603**	.620**	.541**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	352	352	352	352	352	352.000	
TQ28	Pearson Correlation	.628**	.614**	.581**	.600**	.535**	.668**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	352	352	352	352	352	352	352.000
TQ29	Pearson Correlation	.601**	.585**	.566**	.491**	.572**	.655**	.733**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ30	Pearson Correlation	.572**	.490**	.519**	.533**	.530**	.629**	.705**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ31	Pearson Correlation	.543**	.505**	.467**	.448**	.507**	.602**	.616**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ32	Pearson Correlation	.535**	.490**	.440**	.508**	.440**	.559**	.575**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ33	Pearson Correlation	.553**	.537**	.576**	.581**	.510**	.478**	.462**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ34	Pearson Correlation	.583**	.554**	.590**	.626**	.550**	.495**	.482**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
TQ35	Pearson Correlation	.516**	.513**	.529**	.518**	.474**	.538**	.395**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
OQ1	Pearson Correlation	.244**	.284**	.285**	.243**	.235**	.216**	.228**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
OQ2	Pearson Correlation	.152**	.122*	.166**	.080	.052	.108*	.135*
	Sig. (2-tailed)	.004	.022	.002	.134	.327	.043	.011
	N	352	352	352	352	352	352	352
OQ3	Pearson Correlation	.111*	.111*	.099	.057	.098	.123*	.077
	Sig. (2-tailed)	.038	.038	.062	.282	.066	.021	.148
	N	352	352	352	352	352	352	352
OQ4	Pearson Correlation	.066	.045	.074	-.006	-.075	.079	.081
	Sig. (2-tailed)	.218	.402	.166	.913	.162	.139	.128
	N	352	352	352	352	352	352	352

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		TQ29	TQ30	TQ31	TQ32	TQ33	TQ34	TQ35
TQ26	N							
TQ27	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ28	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ29	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
TQ30	Pearson Correlation	.699**	1.000					
	Sig. (2-tailed)	.000						
	N	352	352.000					
TQ31	Pearson Correlation	.683**	.689**	1.000				
	Sig. (2-tailed)	.000	.000					
	N	352	352	352.000				
TQ32	Pearson Correlation	.557**	.592**	.604**	1.000			
	Sig. (2-tailed)	.000	.000	.000				
	N	352	352	352	352.000			
TQ33	Pearson Correlation	.434**	.456**	.420**	.504**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.000			
	N	352	352	352	352	352.000		
TQ34	Pearson Correlation	.422**	.465**	.458**	.471**	.697**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
	N	352	352	352	352	352	352.000	
TQ35	Pearson Correlation	.400**	.497**	.434**	.469**	.585**	.709**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	352	352	352	352	352	352	352.000
OQ1	Pearson Correlation	.233**	.147**	.221**	.227**	.217**	.217**	.182**
	Sig. (2-tailed)	.000	.006	.000	.000	.000	.000	.001
	N	352	352	352	352	352	352	352
OQ2	Pearson Correlation	.150**	.142**	.145**	.098	.064	.119*	.187**
	Sig. (2-tailed)	.005	.008	.006	.065	.233	.026	.000
	N	352	352	352	352	352	352	352
OQ3	Pearson Correlation	.106*	.042	.091	.081	.061	.067	.060
	Sig. (2-tailed)	.048	.429	.087	.128	.254	.210	.259
	N	352	352	352	352	352	352	352
OQ4	Pearson Correlation	.063	.114*	.054	.079	-.027	.027	.096
	Sig. (2-tailed)	.240	.033	.309	.138	.609	.611	.073
	N	352	352	352	352	352	352	352

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		OQ1	OQ2	OQ3	OQ4	OQ5	OQ6	OQ7
TQ26	N							
TQ27	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ28	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ29	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ30	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ31	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ32	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ33	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ34	Pearson Correlation							
	Sig. (2-tailed)							
	N							
TQ35	Pearson Correlation							
	Sig. (2-tailed)							
	N							
OQ1	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
OQ2	Pearson Correlation	.039	1.000					
	Sig. (2-tailed)	.465						
	N	352	352.000					
OQ3	Pearson Correlation	.209**	-.022	1.000				
	Sig. (2-tailed)	.000	.675					
	N	352	352	352.000				
OQ4	Pearson Correlation	-.029	.474**	-.217**	1.000			
	Sig. (2-tailed)	.588	.000	.000				
	N	352	352	352	352.000			

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		OQ1	OQ2	OQ3	OQ4	OQ5	OQ6	OQ7
OQ5	Pearson Correlation	.209**	-.083	.300**	-.225**	1.000		
	Sig. (2-tailed)	.000	.121	.000	.000			
	N	352	352	352	352	352.000		
OQ6	Pearson Correlation	.304**	-.071	.308**	-.099	.226**	1.000	
	Sig. (2-tailed)	.000	.183	.000	.063	.000		
	N	352	352	352	352	352	352.000	
OQ7	Pearson Correlation	.372**	.197**	.101	.176**	.122*	.289**	1.000
	Sig. (2-tailed)	.000	.000	.058	.001	.022	.000	
	N	352	352	352	352	352	352	352.000
OQ8	Pearson Correlation	-.081	.462**	-.095	.513**	-.011	-.035	.274**
	Sig. (2-tailed)	.128	.000	.074	.000	.836	.515	.000
	N	352	352	352	352	352	352	352
OQ9	Pearson Correlation	.093	-.046	.347**	-.147**	.236**	.250**	-.029
	Sig. (2-tailed)	.080	.385	.000	.006	.000	.000	.592
	N	352	352	352	352	352	352	352
OQ10	Pearson Correlation	.255**	-.179**	.213**	-.225**	-.035	.203**	.032
	Sig. (2-tailed)	.000	.001	.000	.000	.512	.000	.555
	N	352	352	352	352	352	352	352
OQ11	Pearson Correlation	-.081	.360**	-.335**	.520**	-.227**	-.206**	.236**
	Sig. (2-tailed)	.129	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352
OQ12	Pearson Correlation	.145**	-.066	.405**	-.167**	.292**	.311**	.014
	Sig. (2-tailed)	.006	.220	.000	.002	.000	.000	.798
	N	352	352	352	352	352	352	352
OQ13	Pearson Correlation	-.005	.215**	-.156**	.348**	-.121*	-.029	.149**
	Sig. (2-tailed)	.933	.000	.003	.000	.023	.591	.005
	N	352	352	352	352	352	352	352
OQ14	Pearson Correlation	-.092	-.249**	.254**	-.328**	.233**	.127*	-.130*
	Sig. (2-tailed)	.085	.000	.000	.000	.000	.017	.015
	N	352	352	352	352	352	352	352
OQ15	Pearson Correlation	.236**	-.024	-.061	.001	.008	.198**	.192**
	Sig. (2-tailed)	.000	.653	.251	.981	.876	.000	.000
	N	352	352	352	352	352	352	352
OQ16	Pearson Correlation	.011	.183**	.028	.247**	-.050	.086	.198**
	Sig. (2-tailed)	.835	.001	.605	.000	.353	.107	.000
	N	352	352	352	352	352	352	352
OtherSum	Pearson Correlation	.384**	.462**	.335**	.416**	.279**	.424**	.546**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	N	352	352	352	352	352	352	352

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		OQ8	OQ9	OQ10	OQ11	OQ12	OQ13	OQ14
OQ5	Pearson Correlation							
	Sig. (2-tailed)							
	N							
OQ6	Pearson Correlation							
	Sig. (2-tailed)							
	N							
OQ7	Pearson Correlation							
	Sig. (2-tailed)							
	N							
OQ8	Pearson Correlation	1.000						
	Sig. (2-tailed)							
	N	352.000						
OQ9	Pearson Correlation	-.086	1.000					
	Sig. (2-tailed)	.107						
	N	352	352.000					
OQ10	Pearson Correlation	-.258**	.002	1.000				
	Sig. (2-tailed)	.000	.965					
	N	352	352	352.000				
OQ11	Pearson Correlation	.477**	-.168**	-.361**	1.000			
	Sig. (2-tailed)	.000	.002	.000				
	N	352	352	352	352.000			
OQ12	Pearson Correlation	-.056	.486**	.180**	-.385**	1.000		
	Sig. (2-tailed)	.295	.000	.001	.000			
	N	352	352	352	352	352.000		
OQ13	Pearson Correlation	.313**	-.120*	-.154**	.476**	-.312**	1.000	
	Sig. (2-tailed)	.000	.024	.004	.000	.000		
	N	352	352	352	352	352	352.000	
OQ14	Pearson Correlation	-.216**	.359**	.019	-.309**	.368**	-.372**	1.000
	Sig. (2-tailed)	.000	.000	.727	.000	.000	.000	
	N	352	352	352	352	352	352	352.000
OQ15	Pearson Correlation	-.005	.048	.162**	.073	.031	.093	-.078
	Sig. (2-tailed)	.919	.368	.002	.173	.559	.083	.143
	N	352	352	352	352	352	352	352
OQ16	Pearson Correlation	.300**	-.034	-.062	.332**	-.004	.375**	-.180**
	Sig. (2-tailed)	.000	.528	.249	.000	.938	.000	.001
	N	352	352	352	352	352	352	352
OtherSum	Pearson Correlation	.526**	.349**	.058	.344**	.336**	.366**	.040
	Sig. (2-tailed)	.000	.000	.275	.000	.000	.000	.456
	N	352	352	352	352	352	352	352

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

		TWSESSum
TQ1	Pearson Correlation	.675**
	Sig. (2-tailed)	.000
	N	351
TQ2	Pearson Correlation	.677**
	Sig. (2-tailed)	.000
	N	351
TQ3	Pearson Correlation	.608**
	Sig. (2-tailed)	.000
	N	351
TQ4	Pearson Correlation	.670**
	Sig. (2-tailed)	.000
	N	351
TQ5	Pearson Correlation	.672**
	Sig. (2-tailed)	.000
	N	351
TQ6	Pearson Correlation	.716**
	Sig. (2-tailed)	.000
	N	351
TQ7	Pearson Correlation	.640**
	Sig. (2-tailed)	.000
	N	351
TQ8	Pearson Correlation	.718**
	Sig. (2-tailed)	.000
	N	351
TQ9	Pearson Correlation	.737**
	Sig. (2-tailed)	.000
	N	351
TQ10	Pearson Correlation	.773**
	Sig. (2-tailed)	.000
	N	351
TQ11	Pearson Correlation	.774**
	Sig. (2-tailed)	.000
	N	351
TQ12	Pearson Correlation	.763**
	Sig. (2-tailed)	.000
	N	351
TQ13	Pearson Correlation	.794**
	Sig. (2-tailed)	.000
	N	351
TQ14	Pearson Correlation	.749**

**. Correlation is significant at the 0.01 level (2-tailed).

		TWSESSum
TQ14	Sig. (2-tailed)	.000
	N	351
TQ15	Pearson Correlation	.715**
	Sig. (2-tailed)	.000
	N	351
TQ16	Pearson Correlation	.621**
	Sig. (2-tailed)	.000
	N	351
TQ17	Pearson Correlation	.668**
	Sig. (2-tailed)	.000
	N	351
TQ18	Pearson Correlation	.712**
	Sig. (2-tailed)	.000
	N	351
TQ19	Pearson Correlation	.749**
	Sig. (2-tailed)	.000
	N	351
TQ20	Pearson Correlation	.755**
	Sig. (2-tailed)	.000
	N	351
TQ21	Pearson Correlation	.816**
	Sig. (2-tailed)	.000
	N	351
TQ22	Pearson Correlation	.811**
	Sig. (2-tailed)	.000
	N	351
TQ23	Pearson Correlation	.788**
	Sig. (2-tailed)	.000
	N	351
TQ24	Pearson Correlation	.765**
	Sig. (2-tailed)	.000
	N	351
TQ25	Pearson Correlation	.798**
	Sig. (2-tailed)	.000
	N	351
TQ26	Pearson Correlation	.732**
	Sig. (2-tailed)	.000
	N	351
TQ27	Pearson Correlation	.767**
	Sig. (2-tailed)	.000
	N	351
TQ28	Pearson Correlation	.761**
	Sig. (2-tailed)	.000
	N	351
TQ29	Pearson Correlation	.733**

**. Correlation is significant at the 0.01 level (2-tailed).

		TWSESSum
TQ29	Sig. (2-tailed)	.000
	N	351
TQ30	Pearson Correlation	.738**
	Sig. (2-tailed)	.000
	N	351
TQ31	Pearson Correlation	.695**
	Sig. (2-tailed)	.000
	N	351
TQ32	Pearson Correlation	.693**
	Sig. (2-tailed)	.000
	N	351
TQ33	Pearson Correlation	.681**
	Sig. (2-tailed)	.000
	N	351
TQ34	Pearson Correlation	.734**
	Sig. (2-tailed)	.000
	N	351
TQ35	Pearson Correlation	.670**
	Sig. (2-tailed)	.000
	N	351
TWSESSum	Pearson Correlation	1.000
	Sig. (2-tailed)	
	N	351.000

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		TQ35	TWSESSum
TQ1	Pearson Correlation	.393**	.675**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ2	Pearson Correlation	.441**	.677**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ3	Pearson Correlation	.342**	.608**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ4	Pearson Correlation	.378**	.670**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ5	Pearson Correlation	.362**	.672**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ6	Pearson Correlation	.402**	.716**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ7	Pearson Correlation	.328**	.640**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ8	Pearson Correlation	.418**	.718**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ9	Pearson Correlation	.458**	.737**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ10	Pearson Correlation	.473**	.773**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ11	Pearson Correlation	.490**	.774**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ12	Pearson Correlation	.452**	.763**
	Sig. (2-tailed)	.000	.000
	N	352	351
TQ13	Pearson Correlation	.473**	.794**
	Sig. (2-tailed)	.000	.000
	N	351	351
TQ14	Pearson Correlation	.456**	.749**

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix G

Factor Analysis

Factor analysis: TWSES only.

Communalities

	Initial	Extraction
TQ1	.609	.626
TQ2	.575	.542
TQ3	.486	.437
TQ4	.553	.529
TQ5	.666	.575
TQ6	.688	.625
TQ7	.655	.650
TQ8	.768	.691
TQ9	.729	.683
TQ10	.710	.617
TQ11	.679	.621
TQ12	.680	.643
TQ13	.718	.642
TQ14	.672	.590
TQ15	.615	.569
TQ16	.711	.690
TQ17	.702	.635
TQ18	.607	.518
TQ19	.623	.590
TQ20	.603	.567
TQ21	.715	.666
TQ22	.705	.657
TQ23	.735	.628
TQ24	.702	.609
TQ25	.739	.679
TQ26	.605	.552
TQ27	.667	.643
TQ28	.722	.723
TQ29	.705	.734
TQ30	.701	.674
TQ31	.653	.641
TQ32	.561	.523
TQ33	.626	.619
TQ34	.748	.727
TQ35	.646	.559

Extraction Method: Maximum Likelihood.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.489	52.827	52.827	18.105	51.729	51.729
2	1.800	5.142	57.969	1.436	4.104	55.833
3	1.533	4.379	62.348	1.086	3.102	58.935
4	1.337	3.819	66.167	1.044	2.983	61.918
5	.908	2.593	68.760			
6	.808	2.308	71.068			
7	.707	2.020	73.088			
8	.635	1.814	74.902			
9	.599	1.712	76.614			
10	.582	1.664	78.278			
11	.551	1.575	79.853			
12	.479	1.369	81.222			
13	.477	1.362	82.584			
14	.450	1.286	83.870			
15	.429	1.226	85.096			
16	.410	1.171	86.267			
17	.400	1.142	87.408			
18	.363	1.037	88.446			
19	.355	1.016	89.461			
20	.339	.968	90.429			
21	.328	.938	91.367			
22	.319	.912	92.279			
23	.304	.869	93.148			
24	.263	.751	93.899			
25	.260	.743	94.642			
26	.253	.724	95.366			
27	.236	.675	96.040			
28	.234	.670	96.710			
29	.198	.566	97.276			
30	.188	.537	97.812			
31	.184	.526	98.338			
32	.166	.474	98.812			
33	.156	.447	99.258			
34	.132	.378	99.636			
35	.127	.364	100.000			

Extraction Method: Maximum Likelihood.

Factor Matrix[a]

	Factor			
	1	2	3	4
TQ1	.654	.126	-.121	.409

Extraction Method: Maximum Likelihood.

a. 4 factors extracted. 4 iterations required.

Factor Matrix[a]

	Factor			
	1	2	3	4
TQ2	.653	.080	.061	.324
TQ3	.575	.208	-.077	.237
TQ4	.649	.121	-.208	.225
TQ5	.662	-.032	-.211	.303
TQ6	.701	.087	-.123	.333
TQ7	.656	-.436	-.148	-.092
TQ8	.731	-.346	-.174	-.085
TQ9	.748	-.317	-.132	-.075
TQ10	.774	-.088	-.095	-.025
TQ11	.771	-.139	-.062	.054
TQ12	.757	.066	-.179	.181
TQ13	.790	-.017	-.126	.034
TQ14	.732	.204	.092	-.053
TQ15	.699	-.031	.277	-.056
TQ16	.633	-.531	-.046	-.070
TQ17	.673	-.424	-.050	.017
TQ18	.690	.127	.160	.011
TQ19	.735	-.008	.083	.209
TQ20	.742	.058	.114	-.020
TQ21	.810	.090	.007	.039
TQ22	.806	.052	.072	-.007
TQ23	.783	.050	.103	.049
TQ24	.764	-.067	.137	-.051
TQ25	.785	.067	.196	.142
TQ26	.730	-.092	.034	-.092
TQ27	.760	.241	-.008	-.091
TQ28	.761	.314	-.123	-.172
TQ29	.739	.221	-.225	-.298
TQ30	.734	.253	-.148	-.221
TQ31	.696	.131	-.173	-.331
TQ32	.670	.234	.034	-.136
TQ33	.664	-.007	.413	-.081
TQ34	.721	-.096	.441	-.056
TQ35	.651	-.004	.367	-.012

Extraction Method: Maximum Likelihood.

a. 4 factors extracted. 4 iterations required.

Goodness-of-fit Test

Chi-Square	df	Sig.
1251.769	461	.000

Pattern Matrix[a]

	Factor			
	1	2	3	4
TQ1	.653	.020	.011	-.004
TQ2	.575	-.024	.033	.118
TQ3	.649	.009	.001	.015
TQ4	.635	.266	-.086	-.038
TQ5	.706	-.014	-.184	-.117
TQ6	.702	-.013	.020	.067
TQ7	.631	.042	-.270	.015
TQ8	.728	-.019	-.197	.073
TQ9	.694	-.037	-.292	.069
TQ10	.723	.160	.047	.207
TQ11	.775	-.073	-.131	.125
TQ12	.734	.006	-.077	.005
TQ13	.638	-.081	-.119	.078
TQ14	.681	-.012	.164	-.015
TQ15	.678	-.134	-.054	.023
TQ16	.624	-.033	.067	.102
TQ17	.688	.059	.008	.358
TQ18	.684	.069	.143	.054
TQ19	.537	-.052	-.106	.201
TQ20	.741	.228	-.142	.249
TQ21	.743	.048	-.030	.163
TQ22	.704	.016	-.120	.204
TQ23	.730	-.010	-.152	.123
TQ24	.687	-.049	.055	.237
TQ25	.767	.070	-.235	.218
TQ26	.715	-.146	.013	.370
TQ27	.778	.015	.101	.131
TQ28	.639	.002	-.069	.240
TQ29	.696	-.016	-.024	-.096
TQ30	.682	.040	-.108	.134
TQ31	.718	.103	.062	.066
TQ32	.616	-.126	-.087	.216
TQ33	.610	-.088	.095	.110
TQ34	.773	-.016	-.095	.173
TQ35	.652	-.069	-.108	.152

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization

a. Rotation converged in 7 iterations.

Structure Matrix

	Factor			
	1	2	3	4
TQ1	.681	.118	.011	-.004
TQ2	.673	.011	.033	.118
TQ3	.644	-.018	.201	.015
TQ4	.526	-.016	-.086	-.038
TQ5	.561	.035	-.184	-.017
TQ6	.596	-.031	.292	-.013
TQ7	.669	.027	.166	.092
TQ8	.569	.018	.247	-.004
TQ9	.599	.005	.178	.061
TQ10	.544	-.020	.195	.046
TQ11	.503	.053	.051	.025
TQ12	.538	-.030	.246	.101
TQ13	.543	-.281	.063	.044
TQ14	.510	-.012	.164	0.31
TQ15	.509	.080	.195	.035
TQ16	.543	.118	.027	.122
TQ17	.496	-.021	.018	.151
TQ18	.692	-.059	.205	.025
TQ19	.588	.005	-.020	.168
TQ20	.637	.027	.053	.034
TQ21	.613	.032	.018	.163
TQ22	.529	.056	.105	.204
TQ23	.593	.001	-.020	.123
TQ24	.620	-.026	.053	.237
TQ25	.647	-.040	-.030	.218
TQ26	.560	-.009	-.281	.170
TQ27	.574	.074	-.012	.131
TQ28	.527	.038	.080	.040
TQ29	.512	.235	.056	-.014
TQ30	.541	-.031	.080	-.019
TQ31	.481	.027	.122	-.029
TQ32	.599	.018	.151	.024
TQ33	.530	.005	.025	-.017
TQ34	.649	-.020	.168	.124
TQ35	.543	.053	.034	.061

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization

Factor analysis: TWSES and TESW.

Communalities

	Initial	Extraction
TQ1	.626	.621
TQ2	.596	.548
TQ3	.509	.451

	Initial	Extraction
TQ4	.584	.566
TQ5	.685	.628
TQ6	.707	.658
TQ7	.673	.651
TQ8	.774	.826
TQ9	.748	.701
TQ10	.726	.746
TQ11	.701	.639
TQ12	.695	.643
TQ13	.734	.647
TQ14	.690	.632
TQ15	.642	.613
TQ16	.728	.772
TQ17	.725	.760
TQ18	.631	.573
TQ19	.645	.609
TQ20	.632	.581
TQ21	.737	.684
TQ22	.718	.685
TQ23	.757	.774
TQ24	.709	.687

TQ25	.767	.737
TQ26	.634	.577
TQ27	.682	.655
TQ28	.728	.723
TQ29	.723	.762
TQ30	.716	.710
TQ31	.679	.664
TQ32	.581	.558
TQ33	.650	.648
TQ34	.758	.757
TQ35	.667	.574
OQ1	.441	.411
OQ2	.442	.376
OQ3	.488	.440
OQ4	.526	.488
OQ5	.396	.272
OQ6	.461	.471
OQ7	.435	.437
OQ8	.517	.553
OQ9	.517	.516

Extraction Method: Maximum Likelihood.

Communalities

	Initial	Extraction
OQ10	.344	.323
OQ11	.645	.660
OQ12	.610	.672
OQ13	.509	.503
OQ14	.540	.542
OQ15	.442	.396
OQ16	.355	.307

Extraction Method: Maximum Likelihood.

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.489	52.827	52.827	18.105	51.729	51.729
2	4.553	8.927	61.754	4.030	7.902	59.631
3	2.458	4.819	66.573	1.749	3.428	63.059
4	1.778	3.486	70.059	1.398	2.741	65.800
5	1.724	3.380	73.439	1.254	2.459	68.259
6	1.496	2.934	76.373	1.170	2.294	70.553
7	1.361	2.668	79.041	1.113	2.182	72.735

8	1.075	2.107	81.148	.620	1.216	73.951
9	1.025	2.010	83.158	.637	1.248	75.199
10	.582	1.663	84.821			
11	.552	1.576	86.397			
12	.480	1.370	87.767			
13	.477	1.361	89.128			
14	.451	1.349	90.477			
15	.429	1.306	91.783			
16	.414	1.281	93.064			
17	.400	1.244	94.308			
18	.364	1.140	95.448			
19	.355	1.113	96.561			
20	.339	1.067	97.628			
21	.323	.894	98.552			
22	.242	.754	99.306			
23	.210	.694	100.000			

Extraction Method: Maximum Likelihood.

Factor Matrix[a]

	Factor								
	1	2	3	4	5	6	7	8	9
TQ1	.646	.068	.085	-.155	-.267	.301	.062	.005	.035
TQ2	.653	.010	.121	.020	-.221	.219	-.004	-.025	-.098
TQ3	.568	.113	.172	-.120	-.145	.188	.057	.090	.063
TQ4	.642	.066	.029	-.242	-.140	.209	.042	.055	.149
TQ5	.660	.058	-.098	-.140	-.142	.315	.092	.003	.177
TQ6	.698	.093	.035	-.120	-.185	.298	.079	-.104	.078
TQ7	.666	-.121	-.408	.061	.114	.009	.065	.050	-.052
TQ8	.746	-.082	-.391	-.025	.170	.033	.038	-.262	-.096
TQ9	.756	-.076	-.302	.021	.134	.037	-.030	-.080	-.067
TQ10	.781	.049	-.150	-.089	.044	-.014	-.052	-.244	-.200
TQ11	.775	-.041	-.112	-.016	.023	.091	-.058	-.100	-.042
TQ12	.751	.091	.009	-.151	-.063	.191	.063	.002	.051
TQ13	.788	-.021	-.016	-.100	.042	.100	.030	-.030	.037
TQ14	.728	.075	.207	-.036	-.010	-.098	.081	-.181	.046
TQ15	.701	-.082	.115	.224	-.003	-.101	.037	-.157	.122
TQ16	.649	-.261	-.439	.164	.050	-.002	.003	.229	.084
TQ17	.684	-.165	-.397	.100	-.071	.008	.050	.236	.181
TQ18	.687	.125	.121	.058	-.105	-.097	.087	-.143	.139
TQ19	.734	-.005	.054	.063	-.166	.135	-.123	.027	-.033
TQ20	.740	.037	.104	.070	-.050	-.066	.020	.093	.024
TQ21	.807	.084	.058	-.058	-.060	-.012	-.087	.003	-.084
TQ22	.805	.036	.095	.034	-.043	-.038	-.075	.101	-.076
TQ23	.789	.021	.128	.079	-.088	.015	-.213	.210	-.179
TQ24	.769	-.021	.039	.161	.001	-.048	-.177	.166	-.078
TQ25	.787	.041	.127	.105	-.207	-.006	-.075	-.054	-.195
TQ26	.734	-.124	-.020	.017	.023	-.083	-.045	.105	-.042
TQ27	.754	.094	.204	-.123	.024	-.090	-.053	.091	-.038
TQ28	.754	.148	.223	-.225	.144	-.094	-.011	.033	-.039
TQ29	.735	.100	.124	-.267	.285	-.140	-.007	.154	-.023
TQ30	.727	.194	.118	-.221	.177	-.142	.059	.022	.161
TQ31	.694	.068	.048	-.193	.279	-.185	.123	.054	.092
TQ32	.665	.064	.210	-.106	.053	-.150	.076	-.055	.151
TQ33	.664	-.130	.169	.245	-.115	-.240	-.034	-.071	.156
TQ34	.725	-.088	.075	.340	-.127	-.224	.036	-.159	.094
TQ35	.650	.023	.102	.266	-.121	-.165	-.032	-.081	.144
OQ1	.204	.326	.193	.209	.134	.093	.303	.102	-.286
OQ2	.082	-.397	.074	-.225	.177	.123	-.174	.038	-.054
OQ3	.170	.492	.230	.070	.240	.193	-.013	-.117	.048
OQ4	.015	.592	-.078	.221	.216	.120	-.080	.070	.095

Extraction Method: Maximum Likelihood.

a. 9 factors extracted. 5 iterations required.

Factor Matrix[a]

	Factor								
	1	2	3	4	5	6	7	8	9
OQ5	.017	.182	.174	.070	.085	.124	-.044	.018	.011
OQ6	.187	.325	.161	-.289	.161	.201	.095	.149	-.117
OQ7	.207	.385	.122	.210	.236	.220	.010	.047	-.017
OQ8	.007	.548	.026	.241	.343	.198	-.162	-.035	.095
OQ9	.116	.511	.299	.114	.166	.196	-.234	-.058	.122
OQ10	.140	.283	.085	.156	-.032	-.071	-.247	.113	-.136
OQ11	-.049	.773	-.079	.179	.085	.095	-.067	-.032	.020
OQ12	.099	.625	.290	.108	.310	.250	-.100	-.054	.061
OQ13	.070	.637	.062	.252	.033	.127	.013	-.012	.089
OQ14	.017	.663	.417	-.101	.075	.085	-.194	-.059	.105
OQ15	-.101	.259	.013	.177	.010	-.005	.218	.038	-.194
OQ16	.085	.358	.159	.257	.168	.196	-.094	-.020	.061

Extraction Method: Maximum Likelihood.

a. 9 factors extracted. 5 iterations required.

Goodness-of-fit Test

Chi-Square	df	Sig.
1480.519	852	.000

Pattern Matrix[a]

	Factor								
	1	2	3	4	5	6	7	8	9
TQ1	.750	.020	.011	-.004	-.055	.083	.033	-.035	-.016
TQ2	.515	-.024	.033	.118	-.007	.127	.103	-.135	-.101
TQ3	.546	.009	.001	.015	.021	.093	.061	.101	.165
TQ4	.635	2.661E-5	-.086	-.038	-.050	-.013	-.063	.027	.210
TQ5	.706	-.014	-.184	-.017	.018	-.104	-.035	-.075	.022
TQ6	.702	-.013	.020	.067	.011	-.030	.011	-.160	-.009
TQ7	.570	.042	-.470	.015	-.018	.020	.064	-.191	.067
TQ8	.728	-.019	-.197	.073	-.016	-.097	-.016	-.090	.064
TQ9	.594	-.037	-.292	.069	.035	.056	-.014	-.194	.105
TQ10	.623	.060	.047	.107	-.031	.080	-.019	.119	.144
TQ11	.575	-.073	-.131	.125	.027	.122	-.029	.094	.095
TQ12	.534	.006	-.077	.005	.018	.151	.024	-.137	.199
TQ13	.538	-.081	-.119	.078	.005	.025	-.017	-.221	.155
TQ14	.581	-.012	.164	-.015	-.020	.168	.024	-.175	.256
TQ15	.578	-.134	-.054	.023	.053	.034	.061	-142	.031
TQ16	.724	-.033	.067	.102	-.030	.033	.060	-.137	.085
TQ17	.688	.059	.008	.158	-.061	.207	.010	-.014	-.003
TQ18	.684	.069	.043	.054	.018	.206	.024	-.078	.020
TQ19	.592	-.052	-.106	.201	.048	.292	-.013	-.108	.178
TQ20	.541	.028	-.142	.249	.028	.166	.092	.006	-.028
TQ21	.543	.048	-.030	.163	.009	.247	-.004	-.195	.241

TQ22	.504	.016	-.120	.204	.036	.178	.061	-.084	.243
TQ23	.530	-.010	-.152	.123	.080	.195	.046	-.031	.146
TQ24	.687	-.049	.055	.237	.118	.051	.025	-.059	.162
TQ25	.667	.070	-.235	.218	-.021	.246	.101	-.231	.165
TQ26	.515	-.046	.013	.170	-.059	.063	.044	.121	-.014
TQ27	.578	.015	.101	.131	.005	.164	0.31	.017	.210
TQ28	.639	.002	-.069	.040	.027	.137	.035	-.096	.147
TQ29	.796	-.016	-.024	-.096	.032	.007	.032	-0.66	-.74
TQ30	.692	.040	-.108	.134	.056	.120	.038	-.018	-.084
TQ31	.718	.003	.062	.066	.001	-.038	.058	-.094	-.058
TQ32	.516	-.026	-.087	.216	-.026	.121	.011	.066	.094
TQ33	.710	-.088	.095	.110	-.040	-.050	-.050	.039	.103
TQ34	.773	-.016	-.095	.173	-.009	-.064	-.064	-.134	-.031
TQ35	.652	-.069	-.008	.152	.074	.023	.023	-.007	.032
OQ1	-.084	.153	.095	-.046	.034	-.011	-.011	-.122	.039
OQ2	-.020	.130	.020	-.065	.130	-.113	.056	-.059	.094
OQ3	-.074	.630	.041	.037	-.010	.029	-.029	-.105	.020
OQ4	-.038	.638	-.111	-.025	-.030	-.030	.033	.042	.036
OQ5	.021	-.488	-.036	-.036	-.131	-.053	-.053	.022	.005
OQ6	.032	-.319	-.058	.045	.040	.075	.075	.094	-.002
OQ7	-.173	-.027	.059	-.010	.073	.103	.130	-.020	.021
OQ8	-.055	.746	.009	-.030	-.050	-.057	-.078	-.045	.048
OQ9	.061	.718	.019	.120	.231	.038	-.092	.064	-.046
OQ10	-.019	.036	-.100	.087	.052	-.062	.104	.039	-.014
OQ11	-.021	.616	.067	-.001	.034	.027	-.057	-.036	-.050
OQ12	-.017	.815	-.004	-.019	.029	-.011	.066	-.026	.006
OQ13	-.041	.566	.056	.143	.041	.126	.043	.073	-.074
OQ14	.010	.623	-.003	.010	.261	.018	-.167	.026	.009
OQ15	-.004	.108	.103	.096	-.029	.028	.042	.067	.059
OQ16	.024	-.089	.059	.084	.022	.062	.027	.040	-.045

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization

a. Rotation converged in 20 iterations.

Structure Matrix

	Factor								
	1	2	3	4	5	6	7	8	9
TQ1	.643	.017	.249	-.004	-.061	-.108	.178	.061	.101
TQ2	.460	.085	.245	.118	.018	.006	-.028	-.063	.027
TQ3	.617	-.014	.195	.015	.048	-.195	.241	-.035	-.075
TQ4	.564	-.016	-.315	-.038	.028	-.084	.243	.011	-.160
TQ5	.493	.018	-.201	-.017	.009	-.031	.146	.064	-.191
TQ6	.579	-.023	.292	-.013	.036	-.059	.162	-.016	-.090
TQ7	.553	.046	.166	.092	.080	-.231	.165	-.014	-.194
TQ8	.569	.068	.247	-.004	.118	.121	-.014	-.019	.119

TQ9	.629	.093	.178	.061	-.021	.017	.210	-.029	.094
TQ10	.410	-.003	.195	.046	-.059	-.096	.147	.024	-.137
TQ11	.697	.118	.051	.025	.005	-0.66	-.74	-.017	-.221
TQ12	.631	-.022	.246	.101	.027	-.018	-.084	.024	-.175
TQ13	.653	-.125	.063	.044	.032	-.094	-.058	.061	-142
TQ14	.621	-.058	.164	.031	.056	.005	.164	.060	-.137
TQ15	.610	.187	.195	.035	.001	.027	.137	.010	-.014
TQ16	.588	.141	.027	.122	-.026	.032	.007	.024	-.078
TQ17	.561	-.042	.018	.151	-.040	.056	.120	-.013	-.108
TQ18	.568	-.033	.205	.025	-.009	.001	-.038	.092	.006
TQ19	.528	.106	-.020	.168	.074	-.026	.121	-.004	-.195
TQ20	.448	.048	.053	.034	-.014	-.040	-.050	.061	-.084
TQ21	.535	.016	.018	.163	-.019	-.009	-.064	.046	-.031
TQ22	.574	.066	.105	.204	-.029	.074	.023	.025	-.059
TQ23	.738	.100	-.020	.123	.024	.034	-.011	.101	-.231
TQ24	.620	-.126	.053	.237	-.017	.130	-.113	.044	.121
TQ25	.623	-.031	-.030	.218	.024	-.010	.029	.023	.207
TQ26	.473	-.149	-.281	.170	.061	-.030	-.030	-.011	.206
TQ27	.509	.047	-.012	.131	.060	-.131	-.235	.218	.292
TQ28	.536	.035	.080	.040	.010	.040	.013	.170	.166
TQ29	.500	.059	.056	-.014	.024	.073	.101	.131	.247
TQ30	.552	-.034	.080	-.019	-.013	-.050	-.069	.040	.178
TQ31	.520	.040	.122	-.029	.092	.060	-.024	-.096	.195
TQ32	.560	.063	.151	.024	-.004	.010	-.108	.134	.051
TQ33	.685	.175	.025	-.017	.061	.024	.062	.066	.246
TQ34	.672	-.112	.168	.124	.046	-.013	-.087	.216	.063
TQ35	.654	.050	.034	.061	.025	.092	.095	.110	.164
OQ1	-.084	.192	.095	-.046	.101	-.011	-.095	.173	.137
OQ2	-.020	.126	.020	-.065	.044	-.113	.056	-.059	.007
OQ3	-.074	.641	.041	.037	0.31	.029	-.029	-.105	.120
OQ4	-.038	.542	-.111	-.025	.035	-.030	.033	.042	-.038
OQ5	.021	-.488	-.036	-.036	.032	-.053	-.053	.022	.121
OQ6	.032	-.319	-.058	.045	.038	.075	.075	.094	-.050
OQ7	-.173	-.027	.059	-.010	.058	.103	.130	-.020	-.064
OQ8	-.055	.646	.009	-.030	.011	-.057	-.078	-.045	.023
OQ9	.061	.518	.019	.120	-.050	.038	-.092	.064	-.011
OQ10	-.019	.036	-.100	.087	-.064	-.062	.104	.039	-.113
OQ11	-.021	.516	.067	-.001	.023	.027	-.057	-.036	.029
OQ12	-.017	.415	-.004	-.019	-.011	-.011	.066	-.026	.006
OQ13	-.041	.656	.056	.143	.041	.126	.043	.073	-.074
OQ14	.010	.523	-.003	.010	.261	.018	-.167	.026	.009
OQ15	-.004	.108	.103	.096	-.029	.028	.042	.067	.059
OQ16	.024	-.089	.059	.084	.022	.062	.027	.040	-.045

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization

Appendix H

Differential Item Functioning – Item Bias

Item bias: Mantel-Haenszel chi square.

Case Processing Summary

	Cases								
	Valid		Missing		Total		Mantel-Haenszel Chi Square		
	N	Percent	N	Percent	N	Percent	Value	df	Asymp. Sig. (2-sided)
TQ1 * Gender	352	100.0%	0	.0%	352	100.0%	.210	1	.646
TQ1 * Race	352	100.0%	0	.0%	352	100.0%	3.698	1	.054
TQ2 * Gender	352	100.0%	0	.0%	352	100.0%	2.982	1	.084
TQ2 * Race	352	100.0%	0	.0%	352	100.0%	.713	1	.398
TQ3 * Gender	352	100.0%	0	.0%	352	100.0%	.557	1	.456
TQ3 * Race	352	100.0%	0	.0%	352	100.0%	.006	1	.938
TQ4 * Gender	352	100.0%	0	.0%	352	100.0%	.864	1	.353
TQ4 * Race	352	100.0%	0	.0%	352	100.0%	1.981	1	.159
TQ5 * Gender	352	100.0%	0	.0%	352	100.0%	.993	1	.319
TQ5 * Race	352	100.0%	0	.0%	352	100.0%	3.598	1	.058

	Cases								
	Valid		Missing		Total		Mantel-Haenszel Chi Square		
	N	Percent	N	Percent	N	Percent	Value	df	Asymp. Sig. (2-sided)
TQ6 * Gender	352	100.0%	0	.0%	352	100.0%	.249	1	.618
TQ6 * Race	352	100.0%	0	.0%	352	100.0%	2.751	1	.097
TQ7 * Gender	352	100.0%	0	.0%	352	100.0%	2.039	1	.153
TQ7 * Race	352	100.0%	0	.0%	352	100.0%	.027	1	.869
TQ8 * Gender	352	100.0%	0	.0%	352	100.0%	4.371	1	.037
TQ8 * Race	352	100.0%	0	.0%	352	100.0%	.028	1	.868
TQ9 * Gender	352	100.0%	0	.0%	352	100.0%	4.492	1	.034
TQ9 * Race	352	100.0%	0	.0%	352	100.0%	.148	1	.701
TQ10 * Gender	352	100.0%	0	.0%	352	100.0%	2.107	1	.147
TQ10 * Race	352	100.0%	0	.0%	352	100.0%	1.341	1	.247
TQ11 * Gender	352	100.0%	0	.0%	352	100.0%	2.778	1	.096
TQ11 * Race	352	100.0%	0	.0%	352	100.0%	.771	1	.380
TQ12 * Gender	352	100.0%	0	.0%	352	100.0%	.049	1	.824
TQ12 * Race	352	100.0%	0	.0%	352	100.0%	.879	1	.348
TQ13 * Gender	352	100.0%	0	.0%	352	100.0%	3.437	1	.064
TQ13 * Race	352	100.0%	0	.0%	352	100.0%	.259	1	.611
TQ14 * Gender	352	100.0%	0	.0%	352	100.0%	3.747	1	.053

TQ14 * Race	352	100.0%	0	.0%	352	100.0%	1.621	1	.203
TQ15 * Gender	352	100.0%	0	.0%	352	100.0%	5.185	1	.023
TQ15 * Race	352	100.0%	0	.0%	352	100.0%	2.801	1	.094
TQ16 * Gender	352	100.0%	0	.0%	352	100.0%	8.927	1	.003
TQ16 * Race	352	100.0%	0	.0%	352	100.0%	.099	1	.753
TQ17 * Gender	352	100.0%	0	.0%	352	100.0%	3.453	1	.063
TQ17 * Race	352	100.0%	0	.0%	352	100.0%	1.235	1	.266
TQ18 * Gender	352	100.0%	0	.0%	352	100.0%	2.151	1	.143
TQ18 * Race	352	100.0%	0	.0%	352	100.0%	6.700	1	.010
TQ19 * Gender	352	100.0%	0	.0%	352	100.0%	7.575	1	.006
TQ19 * Race	352	100.0%	0	.0%	352	100.0%	3.362	1	.067
TQ20 * Gender	352	100.0%	0	.0%	352	100.0%	7.554	1	.006

	Cases								
	Valid		Missing		Total		Mantel-Haenszel Chi Square		
	N	Percent	N	Percent	N	Percent	Value	df	Asymp. Sig. (2-sided)
TQ20 * Race	352	100.0%	0	.0%	352	100.0%	4.264	1	.039
TQ21 * Gender	352	100.0%	0	.0%	352	100.0%	3.878	1	.049
TQ21 * Race	352	100.0%	0	.0%	352	100.0%	2.338	1	.126

TQ22 * Gender	352	100.0%	0	.0%	352	100.0%	1.740	1	.187
TQ22 * Race	352	100.0%	0	.0%	352	100.0%	1.829	1	.176
TQ23 * Gender	352	100.0%	0	.0%	352	100.0%	4.145	1	.042
TQ23 * Race	352	100.0%	0	.0%	352	100.0%	1.597	1	.206
TQ24 * Gender	352	100.0%	0	.0%	352	100.0%	4.073	1	.044
TQ24 * Race	352	100.0%	0	.0%	352	100.0%	2.519	1	.112
TQ25 * Gender	352	100.0%	0	.0%	352	100.0%	3.520	1	.061
TQ25 * Race	352	100.0%	0	.0%	352	100.0%	8.113	1	.004
TQ26 * Gender	352	100.0%	0	.0%	352	100.0%	14.109	1	.000
TQ26 * Race	352	100.0%	0	.0%	352	100.0%	5.244	1	.022
TQ27 * Gender	352	100.0%	0	.0%	352	100.0%	.414	1	.520
TQ27 * Race	352	100.0%	0	.0%	352	100.0%	2.019	1	.155
TQ28 * Gender	352	100.0%	0	.0%	352	100.0%	1.857	1	.173
TQ28 * Race	352	100.0%	0	.0%	352	100.0%	2.779	1	.096
TQ29 * Gender	352	100.0%	0	.0%	352	100.0%	1.060	1	.303
TQ29 * Race	352	100.0%	0	.0%	352	100.0%	2..360	1	.124
TQ30 * Gender	352	100.0%	0	.0%	352	100.0%	.176	1	.675
TQ30 * Race	352	100.0%	0	.0%	352	100.0%	.821	1	.365

TQ31 * Gender	352	100.0%	0	.0%	352	100.0%	.016	1	.900
TQ31 * Race	352	100.0%	0	.0%	352	100.0%	.043	1	.837
TQ32 * Gender	352	100.0%	0	.0%	352	100.0%	1.662	1	.197
TQ32 * Race	352	100.0%	0	.0%	352	100.0%	.853	1	.356
TQ33 * Gender	352	100.0%	0	.0%	352	100.0%	3.351	1	.067
TQ33 * Race	352	100.0%	0	.0%	352	100.0%	3.822	1	.051
TQ34 * Gender	352	100.0%	0	.0%	352	100.0%	5.543	1	.019
TQ34 * Race	352	100.0%	0	.0%	352	100.0%	3.783	1	.052

	Cases								
	Valid		Missing		Total		Mantel-Haenszel Chi Square		
	N	Percent	N	Percent	N	Percent	Value	df	Asymp. Sig. (2-sided)
TQ35 * Gender	352	100.0%	0	.0%	352	100.0%	.309	1	.578
TQ35 * Race	352	100.0%	0	.0%	352	100.0%	.047	1	.828

Appendix I

Test Bias

Gender.

Descriptive Statistics

	Mean	Std. Deviation	N
TWSESSum	168.83	24.444	352
IsFem	.88	.328	352
IsMale	.12	.325	352

Correlations

		TWSESSum	IsFem	IsMale
Pearson Correlation	TWSESSum	1.00	.113	-.114
	IsFem	.113	1.00	-.987
	IsMale	-.114	-.987	1.00
Sig. (1-tailed)	TWSESSum		.017	.016
	IsFem	.017		.000
	IsMale	.016	.000	
N	TWSESSum	352	352	352
	IsFem	352	352	352
	IsMale	352	352	352

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.114	.013	.007	24.354

Change Statistics				
R Square Change	F Change	df1	df2	Sig. F Change
.013	2.305	2	349	.101

ANOVA

Model	Sums of Squares	df	Mean Square	F	Sig.
Regression	2733.976	2	1366.988	2.305	.101
Residual	206999.135	349	593.121		
Total	209733.111	351			

Coefficients

Model		Unstandarized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	169.000	24.354		6.939	.000
	IsFem	.861	24.393	.012	.035	.972
	IsMale	-7.738	24.642	-.103	-.314	.754

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	161.26	169.86	168.83	2.791	352
Std. Predicted Value	-2.713	.369	.000	1.000	352
Standard Error of Predicated Value	1.385	24.354	1.734	1.433	352
Adjusted Predicated Value	160.07	170.23	168.83	2.801	352
Residual	-113.861	48.738	.000	24.285	352
Std. Residual	-4.675	2.001	.000	.997	352
Stud. Residual	-4.683	2.025	.000	1.001	352
Deleted Residual	-114.231	49.927	.000	24.444	352
Stud. Deleted Residual	-4.830	2.035	-.001	1.006	352
Mahal. Distance	.139	350.003	1.994	18.749	352
Cook's Distance	.000	.033	.002	.004	352
Centered Leverage Value	.000	.997	.006	.053	352

Ethnicity.

Descriptive Statistics

	Mean	Std. Deviation	N
TWSESSum	168.83	24.444	352
IsCauc	.84	.328	352
IsAA	.12	.328	352
IsAS	.01	.119	352
IsNORESP	.03	.158	352
IsOth	.01	.092	352

Correlations

		TWSES Sum	IsCauc	IsAA	IsAS	IsNO RESP	IsOth
Pearson Correlation	TWSESSum	1.00	-.104	.024	.118	.107	.027
	IsCauc	-.104	1.00	-.849	-.208	-.369	-.211
	IsAA	.024	-.849	1.00	-.045	-.060	-.035
	IsAS	.118	-.208	-.045	1.00	-.019	-.011
	IsNORESP	.107	-.369	-.060	-.019	1.00	.377
	IsOth	.027	-.211	-.035	-.011	.377	1.00
Sig. (1-tailed)	TWSESSum		.025	.325	.014	.022	.305
	IsCauc	.025		.000	.000	.000	.000
	IsAA	.325	.000		.201	.129	.259
	IsAS	.014	.000	.201		.358	.418
	IsNORESP	.022	.000	.129	.358		.000
	IsOth	.305	.000	.259	.418	.000	
N	TWSESSum	352	352	352	352	352	352
	IsCauc	352	352	352	352	352	352
	IsAA	352	352	352	352	352	352
	IsAS	352	352	352	352	352	352
	IsNORESP	352	352	352	352	352	352
	IsOth	352	352	352	352	352	352

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.172	.029	.015	24.255

Change Statistics				
R Square Change	F Change	df1	df2	Sig. F Change
.029	2.103	5	346	.065

ANOVA

Model	Sums of Squares	df	Mean Square	F	Sig.
Regression	6187.032	5	1237.406	2.103	.065
Residual	203546.079	346	588.283		
Total	209733.111	351			

Coefficients

Model		Unstandarized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	185.360	20.451		9.064	.000
	IsCauc	-17.682	20.445	-.267	-.865	.388
	IsAA	-14.942	20.783	-.200	-.719	.473
	IsAS	10.976	19.641	.053	.559	.577
	IsNORESP	2.019	20.625	.013	.098	.922
	IsOth	-10.706	17.153	-.040	-.624	.533

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	167.68	196.34	168.83	4.198	352
Std. Predicted Value	-.275	6.551	.000	1.000	352
Standard Error of Predicated Value	1.414	19.626	2.142	2.335	352
Adjusted Predicated Value	159.51	204.55	168.95	4.937	352
Residual	-111.678	42.322	.000	24.081	352
Std. Residual	-4.604	1.745	.000	.993	352
Stud. Residual	-4.612	1.748	-.002	1.000	352
Deleted Residual	-112.059	42.466	-.114	24.535	352
Stud. Deleted Residual	-4.754	1.753	-.003	1.004	352
Mahal. Distance	.195	228.812	4.986	22.651	352
Cook’s Distance	.000	.290	.004	.025	352
Centered Leverage Value	.000	.652	.014	.065	352