

QUANTIFYING "THE RIPPLE IN THE POND": THE DEVELOPMENT AND
VALIDATION OF THE TEACHER CHANGE AGENT SCALE

by

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DEDICATION

This dissertation is dedicated with much love to the three people who are responsible for the biggest, best, and most wonderful changes in my life: my husband, Michael; my daughter, Matilda; and my son, Michael B.

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ABSTRACT

QUANTIFYING “THE RIPPLE IN THE POND”: THE DEVELOPMENT AND VALIDATION OF THE TEACHER CHANGE AGENT SCALE

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The purpose of this study was to develop and validate a reliable scale for measuring teachers' willingness to initiate change efforts in their schools. A 64-item pilot instrument was developed by a panel of experts (n=4) and administered to a group of classroom teachers (n=76). While it was hypothesized that eight factors (content/pedagogical knowledge, ownership, self-efficacy, empowerment, motivation, risk-taking, micropolitical expertise, and community membership) would underlie the items, an initial factor analysis suggested the presence of three factors. Fifteen items were retained for the final version, which was administered to another group of classroom teachers (n=76). A second factor analysis confirmed the presence of the three factors accounting for 49.2% of the total variance; each factor had a Cronbach's coefficient of internal reliability consistency higher than .70. These factors were subsequently labeled contextual expertise, collaborative expertise, and problem-solving expertise. Additional

data analysis indicated that the Teacher Change Agent Scale (TCAS) is a valid and reliable instrument for use with classroom teachers. It is suggested that future research should involve larger samples and/or make efforts to assess the criterion-related validity of the TCAS.

1. Introduction

Change happens. In the realm of teaching and learning, change can be reassuring, but it can also be troublesome. Maybe it is troublesome because it means teachers...have to come to deal with change – a lot of change. Things are not fixed in teaching. Circumstances change, students change, context changes, teachers change (Richert, 1991, p.113).

Statement of the Problem

As Richert (1991) notes, nothing is “fixed” in teaching, and this is especially true when considering the role of the teacher in the change process. Since the passage of the No Child Left Behind Act of 2001, teachers find themselves charged with the task of making schools “work” for all students, and the proliferation of standardized testing and academic standards has created new expectations for teachers and the role(s) they play in improving student learning and achievement (Cochran-Smith & Lytle, 1999; Garet et. al, 2001). Since teachers have been traditionally viewed as the implementers of externally mandated reform initiatives, those who study reform as it relates to teachers have tended to focus primarily on the factors that might explain teachers’ willingness to change their behaviors, attitudes, and/or beliefs (Richardson & Placier, 2001).

During the last 20 years, however, the education community has shifted its view of the teacher as the implementer/recipient of a reform strategy to one in which teachers assume leadership roles that have previously been considered the responsibilities of principals and superintendents, such as evaluating teacher performance, designing staff

development programs, and deciding school budgets (Barth, 2001). Despite arguments from proponents of the teacher leadership movement which detail the benefits of teachers extending their influence beyond their own classrooms (i.e., Hatch, Eiler-White, & Faigenbaum, 2005), the assumption that “the only job of teachers is to teach students” (Urbanski & Nickolaou, 1997, p.244) continues to persist.

Given the argument made by some that teachers themselves should be on “the front lines” of school reform (Darling-Hammond, 2003; Elmore, 2004) and the lack of much investigation into whether teachers are capable of pursuing change, it would be useful to know which teachers might be expected to embrace change and therefore become the innovators within their building. Since the terms “change agent” and “change leader” most often refer to a person outside the classroom (i.e., Chin & Benne, 1969; Rogers, 2003), little is known about teachers’ capacity to *initiate* change efforts, and the current literature makes little to no mention of how potential teacher change agents might be identified. As such, an instrument designed to assess teachers’ capacity to initiate the next iteration of changes in education practice is warranted.

Rationale

Currently, teacher change agents can be identified through the use of either site specific checklists and/or rubrics (i.e., Cobb, 2001) or through the use of the generic Change Agent Questionnaire (CAQ) developed by Hall and Williams (1995). The CAQ, first developed in 1969, is a 45-item survey designed to assess individuals’ beliefs about/attitudes toward change order for respondents to determine their change agent

“style.”¹ While the CAQ has been administered to guidance counselors (Bowers, 1981), superintendents (Tresky, 1986), university administrators (Zibrin, 1985), and principals (Kanell, 1980), it fails to be of any real use to teachers who wish to determine their own capacity to initiate change within their schools for several reasons.

First, as the authors note, the CAQ is designed for use by a number of professionals, including politicians, members of the clergy, and probation officers; no questions on the CAQ are applicable only to teachers. Second, items on the CAQ assume that a change agent must be external to the organization; for example: “To bring about a change, I am likely to express as explicitly as I can the consequences of not complying with a prescribed course of action” (Hall & Williams, 1995, p.2). Third, while the CAQ might allow teachers to determine their philosophy of how change occurs, it does not assess whether or not they are indeed capable of acting on their beliefs. Therefore, while results from the CAQ might provide interesting “food for thought,” teachers cannot use them to assess their own capacity for pursuit of educational change within their schools.

Significance

Given that the education community has only recently begun to examine the role of the teacher as change agent (i.e., Chen, 2005), the development and validation of a teacher change agent instrument would require a detailed conceptualization of teacher change agency. For those who study school reform and the role(s) that teachers play in the process, a teacher change agent conceptual framework encompassing a number of attributes culled from previous teacher change literature and more recent teacher

¹ For example, a person with a “custodial” style believes that: “The change agent’s task is to apprise the changee of the rules governing the changee’s role and situation” (Hall & Williams, 1995, p.11).

leadership studies would be a significant contribution to the current body of education research.

In addition, as the education community continues to advocate for teachers to “take the lead” in school improvement/reform (i.e., Hatch, Eiler-White, & Faigenbaum, 2005), an instrument with a particular emphasis on teachers’ willingness to be change agents could be utilized in a variety of ways by a number of stakeholders in the school reform process, including administrators and teacher education faculty. For example, a teacher change agent instrument would be valuable for school leaders, since principals and/or superintendents could use it to determine their school personnel’s readiness to embark on school improvement/reform efforts rather than to attempt to implement these strategies indiscriminately. In addition, a teacher change agent instrument could also be used by teacher education faculty in an effort to determine whether a particular class (or entire program) has affected students’ willingness to initiate change in their schools. However, for the purposes of this study, the Teacher Change Agent Scale (TCAS) will be developed and validated in an effort to help teachers themselves to determine their own capacity to initiate change efforts. This is especially significant given the traditional usage of the term “change agent.”

Overview of the Literature

Traditional usage of the term change agent refers to an implementer, facilitator, sponsor, or coach *outside* an organization who is charged with being the champion for a mandated reform effort within that organization (Buchanan, 2003; Havelock, 1995; Rogers, 2003). In this view, teachers are typically viewed as passive recipients of the

change agent's expertise and are expected to implement changes without question (Richardson & Placier, 2001). However, external change agents often are met by frustrated teachers who are wary of suggestions made by those who are removed from curriculum and students (Blase, 1987; Hutingner & Mullen, 2007; Kleine-Kracht & Wong, 1991). As Clandinin and Connelly (1995) note:

“The main reason given for the ineffectiveness of school reform mandated by those in the conduit is that teachers divert the plans. When they refuse to adopt reforms imposed on them, [they are] rising up to take charge of their professional landscape” (pp.162-163).

As a result, the efforts of change agents working from the “top-down” or from the “outside-in” to change teachers, their beliefs, and/or their practices are frequently unsuccessful (Goldenberg & Gallimore, 1991; Mayer-Smith & Mitchell, 1997). Thus, given that little is currently known about what factors might explain teachers' capacity to *initiate* change efforts in their school settings, an instrument designed to assess teachers' ability to “take charge of their professional landscape” would be of practical significance.

Purpose

The purpose of this study was to develop and validate a new scale that measures teachers' capacity to initiate educational change. This study was guided by the following research questions:

1. What items written for a self-report instrument best reflect teachers' willingness to initiate change?
2. What level of reliability can be attained with this measure?

3. What evidence of construct validity can be demonstrated?

Definitions of Terms

Change efforts are pursuits of improvement in teaching and/or student learning beyond individual classrooms.

Teacher change agents are classroom teachers who choose to initiate actions in support of an improvement in teaching and/or student learning beyond their own classrooms.

2. Literature Review

Given that the purpose of this study was to develop and validate a new scale that measures teachers' capacity to initiate educational change, a discussion the role of the teacher in change is necessary. There is a vast and ever growing amount of literature related to both educational change and the teacher's role in it; a basic ERIC search (limited to peer-reviewed journal articles only) reveals that there are over 23,000 articles concerning the former and over 1,000 concerning the latter. In the interest of clarity, I provide a brief overview of the pertinent literature in this introduction, while I discuss relevant research more fully in subsequent sections by addressing the following questions:

- What is the role of the teacher in change?
- What skills, attributes, and/or knowledge do teachers need to participate effectively in change?

In the sections concerning teacher leaders and teacher change agents, the following question will also be addressed:

- How are teachers identified as either leaders or change agents?

A review of the literature indicates that there are three roles for the teacher in the change process: 1) recipient, 2) leader, and 3) change agent. In the first section of this literature review, I discuss research with a teacher as recipient focus. In this view, the

role of the teacher in educational change is that of an *implementer* of an externally mandated and controlled change; in essence, the teacher does not necessarily choose to participate in the change process, but instead is expected or told to do so. It is assumed that teachers are both willing and able to implement proposed changes in their classrooms due to the fact that they are rational human beings (Richardson & Placier, 2001).

However, in the teacher as recipient research, teachers tend to see change as “extremely difficult and painful” (Richardson & Placier, 2001, p. 906) due to the fact that someone outside the classroom determines whether or not it has been successfully implemented. As a result, the majority of teacher as recipient research attempts to describe what personal characteristics (i.e., personal/professional experiences) might influence teachers’ willingness to change their attitudes, beliefs, and/or practices.

In the second section of this literature review, I discuss research with a teacher as leader focus. In this view, the role of the teacher in the change process is that of a willing participant who shares the power over change with those in more traditional leadership roles (i.e., principals); as Barth (2001) puts it: “Teacher leaders [are] owners and investors rather than mere tenants” (p.449). The teacher is seen as a *liaison* or “*bridge*” between classroom teachers and administrators, and leadership status is conferred either formally through assignment by principals or informally through selection by colleagues. Regardless of how teacher leaders are identified, they share several common attributes: they are practicing classroom teachers (Fay, 1992; McLaughlin & Yee, 1988; Wasley, 1991) who have highly developed pedagogical expertise, interpersonal skills, and an ability to reflect on their practice (Snell & Swanson, 2000). However, in the teacher as

leader research, the skills and attributes of teacher leaders can only be fostered or promoted by the principal or through professional development programs designed for that purpose (Fullan, 2002; Murphy, 2005; Pankake & Moller, 2007).

In the third section of this literature review, I discuss research with a teacher as change agent focus. In this view, the role of the teacher is that of an active pursuer of change; in short, the teacher is seen as an *initiator* of change. Given that current literature seldom makes a distinction between the teacher as leader and the teacher as change agent and that the two terms are often used interchangeably (Chapman, 2006), I will also discuss the differences between teacher leaders and teacher change agents in this section.

In the fourth section of this literature review, I construct a conceptual framework of what a teacher change agent “looks like,” since an understanding of these attributes and skills will inform the development of the Teacher Change Agent Scale (TCAS). Components discussed include the following: content/pedagogical knowledge, ownership, self-efficacy, empowerment, motivation, risk-taking, micropolitical expertise, and community membership.

Finally, in the fifth section, I will discuss instrument development in general. Developing a quantitative measure is a complex process involving many different phases. These include: generating items, eliciting feedback from a panel of experts, organizing items, launching an experimental pilot, and administering a final version. In addition, I will discuss a number of statistical analyses that are necessary in order to develop a reliable and valid instrument.

The Teacher's Role in Educational Change

Teacher as Recipient

In early education reform literature, little mention is made of teachers' capacity to initiate change efforts; the primary focus is on the course and progression of change as determined by someone other than the teacher who is experiencing the change process (Richardson & Placier, 2001). This conceptualization of teacher change emphasizes the role of "others" (i.e., policymakers or administrators) who direct the implementation of the proposed changes, while teachers are viewed as recipients expected to adopt the change without question; in short, teachers are seen as "cog[s]-in-the-wheel" of school reform (Griffin, 1995, p.30). In this view, a change is considered to be successful if its implementation corresponds with the outsider's view of what results should look like. Thus, an underlying assumption of this research is that teachers can only change if they are given a directive to do so, and teachers who do not actualize the outsider's vision are considered difficult (McLaughlin, 1987).

In contrast, Cuban's (1988) conceptualization of teacher change suggests that teachers initiate change on a daily basis without needing to be instructed to do so. Arguing that teachers' willingness to change could be prompted by any number of situations (i.e., discussions with other teachers or an assignment to a new grade level), Cuban (1988) posits that teachers change in one of two ways. First order changes are situation specific (i.e., reorganization of the classroom organization or curriculum), while second order changes (i.e., different ways of thinking, teaching, and learning) are specific to the individual. In recent teacher change literature, a great deal of attention has been

paid to teachers' second order changes and what might explain how, why, and when these kinds of changes occur. As such, a number of studies focus on the individual factors which contribute to teachers' willingness to change their attitudes, beliefs, or practices.

In their review of the literature, Richardson and Placier (2001) categorize studies seeking to examine the individual factors which explain teachers' willingness to change their attitudes, beliefs, or practices into three different groups: 1) naturalistic or voluntary changes, 2) stages of development, and 3) formal programs. In studies with a naturalistic change orientation, teachers' willingness to change can be explained by their personal experiences. In stages of development research, it is thought that teachers' willingness to change can be explained by their placement in one of several phases of development, such as the five stages of expertise (novice, advanced beginner, competent, proficient, and expert) developed by Berliner (1994). Lastly, formal program studies seek to examine whether teacher education or professional development affects teachers' willingness to change. Yet while each group has a different research focus, the role of the teacher in the change process is characterized as a recipient of change rather as a leader or an initiator of it. In other words, this body of research is concerned with how teachers might change themselves rather than with how they might change their schools.

Naturalistic Changes

Studies with a naturalistic orientation stress that teachers' attitudes towards change are the result of their wide ranges of both personal and professional experiences. A common theme of naturalistic change studies is teachers' reliance on "the authority of experience" (Russell, 1995, p.100), and as such, the role of teachers' biographies (Butt,

Raymond, McCue, & Yamagishi, 1992), use of metaphors (Bullough & Baughman, 1997), emotional attributes (Reio, 2005), and practical knowledge (Au, 1990) have been examined in an effort to determine how teachers' personal experiences affect their attitudes towards change. Given the emphasis placed on the uniqueness of each individual's experiences in the naturalistic perspective, it is perhaps unsurprising that studies also show that teachers who experience the same change initiative react to it differently. For example, Lindblad (1990) conducted a study involving 19 teachers in a Swedish school system that had adopted a new curriculum in order to determine their attitudes about the change. Interviews with participants revealed six responses, ranging from "the alienated" to "the loyal official." As a result, Ball and Goodson (1985) argue that teachers' attitudes towards change are idiosyncratic, and difficult to explain or quantify, thus supporting the notion of naturalistic change.

Stages of Development

Studies with a developmental stage orientation stress that teachers' attitudes towards change can be explained by stage theory, in which teachers move through different phases of their development in a hierarchical manner. For example, in the Stages of Concern model developed by Hall and Loucks (1978), teachers tend to progress from an initial awareness of an innovation (Stage 0) to an ability to "refocus" the innovation by suggesting improvements (Stage 6). However, the assumption that teachers who are higher up (i.e., "refocusers") are more likely to be willing to change is not always a reasonable one. For example, the last phase of the career development theory described by Huberman (1989) is called "disengagement" and is typified by burnout and

job dissatisfaction. In addition, stage development theories often do not explain what factors promote teachers' movement through the stages (Richardson & Placier, 2001)².

Thus, stage development theories do little to assist researchers seeking to determine what general and observable factors might explain teachers' willingness to change.

Formal Programs

Teacher preparation. With regard to the effects of teacher preparation programs, most studies emphasize that preservice teachers' beliefs about and attitudes towards change are difficult to alter (Chicoine, 2004; Cobb, 2001; Newman, 1998). For example, Tillema and Knol (1997) compared student teachers in two groups; one in a conceptual change process and the other in a direct instruction program. While they found that students in the conceptual change group did outperform those in the direct instruction group in some teaching tasks, the authors also found that neither group changed their core beliefs or assumptions about what constituted good teaching. Further, many researchers have determined that teacher education programs do little to develop preservice teachers' reflective skills (Bolin, 1990; Munro, 1993) and in some cases, preservice teachers resist becoming reflective at all (Tickle, 1991). Other researchers have reported similar difficulties in changing teachers' perspectives on multicultural education (McDiarmid, 1992) and pedagogical content knowledge (Phillip, Armstrong, & Bezuk, 1993). In contrast, Winitzky (1992) did find that teacher education students' cognitive organization capabilities became more efficient and sophisticated as a result of an experiment involving concept maps. Since most of the evidence highlights the difficulties associated

² An exception can be found in the work of Kelchtermans and Vandenberghe (1994), who found that "critical incidents" (i.e., influential situations and/or people in a teacher's life) often prompted teachers to progress through different career stages.

with changing preservice teachers' beliefs and attitudes, Mayer-Smith and Mitchell (1997) conclude: "...[it is] illogical to suggest that change begins and ends with a single methods course" (p.149).

Professional development. With regard to the effects of professional development programs on teachers' willingness to change, previous research has examined both how professional development programs change behaviors and how they change teachers' ways of thinking/acting. Professional development programs designed to change behaviors can be said to use a more "traditional" approach in which a person (or an organization) outside the classroom determines that a process, method, or system should be implemented inside the classroom while teachers are viewed as passive learners (Birchak, et. al, 1998). Typically, these programs are conducted in a short period of time with limited follow up activities (Goldenberg & Gallimore, 1997; Speck & Knipe, 2005). Sparks and Loucks-Horsley (1990) note that traditional professional development approaches operate on two primary assumptions: one, that the behaviors espoused by the outsider are worth replicating, and two, that teachers are capable of transferring these behaviors into their classrooms. Further, it is argued that because traditional professional development strategies fail to incorporate teacher input, these strategies often do not have teacher "buy-in" (Hutinger & Mullen, 2007; Silin & Schwartz, 2003; Turnbull, 2002), which results in low levels of strategy implementation (Meyer, 1988). Findings such as these lead Darling-Hammond (1995) to posit: "The conventional view of staff development as a transferable package of knowledge to be distributed to teachers in bite-sized pieces needs radical rethinking" (p.592).

As a result of the arguments stressing the importance of teachers' input, there has been a shift in the focus of professional development programs from an emphasis on teaching behaviors to an emphasis on influencing and informing teachers' ways of thinking/acting. This more contemporary approach to professional development stresses the importance of context, cognition, and collaboration. For example, in a follow-up study of the Practical Argument Staff Development (PASD) process, Valdez (1992) found that teachers who had participated in PASD two years prior were able to maintain robust reflective skills and reported an increase in confidence, autonomy, and empowerment as a result of their experiences. Additional studies (Palincsar, Magnusson, Marano, Ford, & Brown, 1998; McLaughlin, 1994; McLaughlin & Talbert, 1993) have also demonstrated that collaborative professional development models which highlight the roles of community and the dialogue it generates are "productive," "important," and "helpful" as teachers consider creating change in their schools. Findings such as these which stress the importance of collaboration and community in teachers' lives helped lay the theoretical groundwork for the teacher leadership movement.

Teacher as Leader

Definition(s) of Teacher Leader

Based on the premise that school improvement strategies that do not include teachers' participation and leadership are "doomed to failure" (Lieberman & Miller, 1999, p. xi) because they do not emphasize collaboration, the idea of teacher leadership is a relatively recent phenomenon (Yarger & Lee, 1994) that is often ill defined (Johnson & Hynes, 1997; Katzenmeyer & Moller, 2001; O'Hair & Reitzug, 1997) and "means

different things to different groups” (Murphy, 2005, p.11). Moreover, it has been suggested that leadership does not take on any new meaning(s) when qualified by the term “teacher” (Sirotnik & Kimball, 1996). In an effort to address this “ambiguity surrounding [teacher leadership] in the literature” (Crowther, Kaagan, Ferguson, & Hann, 2002, p.5), Murphy (2005) conducted an extensive review of the teacher leadership literature which revealed 13 different definitions of the term teacher leader. Taken together, Murphy (2005) argues that three critical elements of teacher leadership emerge from these definitions: a sense of vision, relational considerations, and enabling conditions.

As Murphy (2005) notes, a primary component of leadership in general is a sense of vision towards which the organization should direct its efforts; in the teacher leadership literature, promoting school community (i.e., Crowther et al., 2002), improving classroom practice (i.e., Hart, 1995), and enhancing student learning (i.e., LeBlanc & Shelton, 1997) are the predominant goals. However, as in the teacher as recipient literature, it is often the case that a school’s vision is not the product of teachers themselves; the role of the teacher leader in defining a school’s vision is often a passive one in which the goals are predetermined by those in traditional leadership roles (Heller and Firestone, 1994; Kalin & Zuljan, 2007) and are “generally presented as givens” (Murphy, 2005, p.15).

In addition, nearly all of the definitions reviewed by Murphy (2005) make some mention of teacher leaders’ relationships with others and their ability to influence them (i.e., Brownlee, 1979), whether they are colleagues, administrators, students, or members

of the community. However, in the teacher leadership literature, a teacher leader's ability to influence others often depends on factors outside their own control, or what Murphy (2005) calls "enabling conditions." For example, Crowther (1997) posits that, in order to reach their full potential, teacher leaders must work in "contexts where system and school structures are facilitative and supportive" (p.15). The current literature also suggests that teacher leaders need specific skills, attributes, and knowledge in order to participate effectively in school improvement efforts.

Skills, Knowledge, and/or Attributes of Teacher Leaders

While Crowther et al. (2002) caution that "behavioral and trait approaches to [teacher] leadership can deny the capabilities of individuals whose characteristics and talents lie in areas other than those identified" (p.32), an understanding of the skills, attributes, and knowledge of teacher leaders is necessary, especially if teacher leaders are to be identified for participation in school improvement efforts. However, it is important to note that the majority of teacher leader attributes discussed in the literature are seldom derived from empirical studies; as Murphy (2005) notes: "systematic exploration of...teacher leadership...is nearly conspicuous by its absence from the literature" (p.66). As a result, discussions of what personal characteristics and/or competencies teacher leader must have in order to participate successfully in school improvement efforts are often the personal beliefs of a "committed commentator" (Gunter, 2003, p.118), a position in which the author does not write as a neutral facilitator, but rather with the purpose of either promoting debate or advancing a particular viewpoint. Of the empirical studies that have been conducted, many seek to elicit from teachers either what principals

can do to foster teacher leadership or how teacher leadership affects students (i.e., Leithwood, Jantzi, & Steinbach, 1999).

In terms of personal characteristics, Yarger and Lee (1994) assert: “The most important factors for teacher leadership reside within the teachers themselves” (p.228) and the exhaustive list provided by Murphy (2005) echoes this statement. Among the attributes mentioned are well developed pedagogical and content knowledge (Wilson, 1993), passion (Snell & Swanson, 2000), personal accountability (Killion, 1996), and a tendency to engage in reflective practice (Katzenmeyer & Moller, 2001).

In addition, empirical studies confirm the importance of teacher leaders’ personal characteristics. For example, in their study designed to explore the nature of teacher leadership, Leithwood et al. (1999) administered a questionnaire which asked teachers to identify the colleagues whom they considered to be leaders in their schools to the entire faculties of several Canadian secondary schools (n=6). The teachers (n=18) who were identified most often as teacher leaders were then asked in interviews what they felt made others see them as leaders. Findings derived using the constant comparative coding method for data analysis suggest that teacher leadership can be thought of as a collection of traits (i.e., having a sense of commitment to the school), capacities (i.e. ability to work with others), practices (i.e., administrative tasks performed), and outcomes (i.e., gaining respect of colleagues). Given that teacher leaders are typically either informally chosen by their colleagues (i.e., Murphy, 2005) or are designated as leaders by principals (i.e.,

Pankake & Moller, 2007)³, findings such as those of Leithwood et al. (1999) serve to assist these groups in the identification of teacher leaders.

Identification of Teacher Leaders

Currently, teacher leaders are most often either informally chosen by their colleagues (i.e., Murphy, 2005) or are designated as leaders by principals (i.e., Pankake & Moller, 2007). However, the instrument “Assessing Your Readiness for Teacher Leadership” (Professional Development Center, 1994) is designed to allow teachers to estimate their own leadership knowledge and skills. Yet while at first glance this instrument may seem to be a tool for teachers’ use alone, Katzenmeyer & Moller (2001) note that it is intended to be administered by principals to teachers as part of a professional development experience, and thus underscores the importance of “others” in the identification of teacher leaders. As such, while the “Assessing Your Readiness for Teacher Leadership” instrument may serve as “a tool to generate conversation” (p.48), it does not recognize teachers as potential initiators of change.

Thus, while in many ways different from the “teacher as recipient” view, the teacher leadership perspective also does not consider the role of the teacher as an *initiator* or agent of change. Instead, the focus is on the teacher leader as a bridge or liaison between traditional leaders and the classroom teachers who work in their buildings. Further, this bridging role is one that teachers typically do not choose for themselves, and their leadership knowledge and skills can be nurtured only through professional development programs designed for that purpose and with principals’ direct support.

³ It is important to note that teachers who have been formally prepared for leadership roles through their attainment of an advanced degree in education leadership are also considered by some to be teacher leaders (i.e., Fay, 1992).

Teacher as Change Agent

Definition(s) of Teacher Change Agent

A review of the literature reveals that the role of the teacher change agent in school wide reform is difficult to define for several reasons. First, as Fasold (1992) notes: “Teachers barely exist in the change agent literature” (p.5), due both to the fact that teachers do not typically realize their importance to the change process and that principals are commonly viewed as the only ones with the power to initiate change efforts in schools (Fullan, 1982; Lortie, 1975). Second, the meaning of teacher change agent in the literature is highly dependent on who is using it. For example, teacher change agents are described alternatively as “transformer[s] of the present social order” (Cobb, 2001), “internal facilitator[s]” (Crandell, 1982), “school steward[s]” (Lovingfoss, Molloy, Harris, & Graham, 2001) and as “positive deviant[s]” (Fullan, 2002). These alternate descriptors do little to clarify the exact nature of the teacher change agent’s role in school reform. Yet even when more clearly defined, discussions of the role(s) of teacher change agents in school reform result in lists of requisite teacher behaviors (Cobb, 2001) or imply a “go between” status (Buchanan, 2003; Havelock 1995), in which the teacher is seen as the implementer, facilitator, sponsor, or coach charged with being the “champion” for a reform effort mandated from “on high.”

Third, the majority of teacher change agent literature has examined how teachers work to effect change in their own curricular areas, individual classrooms, or specific teaching skills rather than on how they pursue wide scale change efforts (i.e., Wasley, 1991), which is consistent with conception of teaching as an isolated rather than a

connected or collaborative profession. Lastly, and more recently, discussion of teacher leaders sometimes includes reference to leading change efforts; as Chapman (2006) notes: “The literature on teachers as change agents is closely intertwined with that of teachers as leaders” (p.32). For example, Rossman, Rallis, Phlegar, and Abeille (1995) include the task of being a “changemaker” in their discussion of the possible roles that teacher leaders fulfill in their schools. As a result of the fact that both teacher leader and teacher change agent are often ill defined in the literature, it can be difficult to determine how they differ from one another, especially in terms of the role of each in school reform efforts. In essence, while there is little empirical support for such a claim, the assumption in the literature seems to be as Chapman (2006) remarks: “Teacher leaders are often change agents by default” (p.32).

While teacher leaders and teacher change agents share some commonalities, I believe that there are also salient differences between them worth noting. For example, teacher leaders experience heightened empowerment, ownership, commitment, and self-efficacy only *as a result* of becoming teacher leaders (Murphy, 2005); I argue that possessing these attributes (and others) is a prerequisite for teacher change agents. Another difference between teacher leaders and teacher change agents can be found in the role of the “other” in their professional lives. Where the teacher leader is chosen by administrators or colleagues to participate in a pre-determined course of action, the teacher change agent self-selects by initiating their own pursuit of change. Further, since the role of the “other” is so crucial for teacher leaders, so too is the role of context; for example, as Pankake and Moller (2007) note: “If principals expect to reap the full

benefits of having teacher leaders...they should create working conditions that encourage positive relationships, reduce risks, and provide leadership development” (p.32). In contrast, since teacher change agents pursue reform efforts on their own initiative, a supportive context---while certainly helpful---is not necessarily of utmost importance; in fact, it is sometimes a school’s unsupportive culture that causes teacher change agents to take action (Kelchtermans, 2005).

Skills, Knowledge, and/or Attributes of Teacher Change Agents

In an attempt to explain the skills, knowledge, and/or attributes of teacher change agents, Cobb (2001) conducted a literature search using the terms “change agent” and “public school reform.” While the review did not yield “a definitive profile” (Cobb, 2001, p.91) of a teacher change agent, several observable behaviors were identified by two or more sources, leading Cobb (2001) to conclude that a teacher change agent: creates a student-centered learning environment, uses of a variety of assessment and teaching methods, does not rely only on textbooks and teacher’s manuals, integrates instruction, incorporates technology into the curriculum, seeks continually to improve their pedagogical/content knowledge, and has high expectations for all students. This list, while informative, serves to highlight the assumption that teachers are change agents only in their own classrooms and offers little insight into either how teachers can be change agents on a larger scale or what makes them capable of pursuing such change efforts.

In an effort to explore teachers’ willingness to pursue school wide change efforts, Lukacs, Holincheck, Fuhrman, and Galluzzo (2007) conducted a mixed-methods study designed to determine what (if any) common characteristics existed among teachers who

are open to becoming change agents. The participants, 24 Masters degree students with 3 to 8 years of teaching experience, were asked to reflect on their own learning, growth, and change, as well as to provide specific examples of how their students' learning was affected by these in their responses to the following reflective prompt: "...now think about yourself as a leader in your school and community, as well as the steps you have taken to grow in this role. Your reflection should address (teacher as change agent)..."

Thematic coding revealed five attributes of teacher change agents: ownership, empowerment, confidence, community membership, and activism. Further, using the maximum variation procedure, the authors provided case studies of two early career teachers: one who embodied all five attributes and one who did not. These profiles demonstrate that teachers who show the propensity to bring about change in their schools actively seek solvable problems in their settings, have the ideas, energy, and confidence to work with others in the building, and feel a sense of power to act which results in efforts to make changes in order to improve their schools or classrooms.

Identification of Teacher Change Agents

Currently, teacher change agents can be identified through the use of either site specific checklists and/or rubrics (i.e., Cobb, 2001) or through the use of the generic Change Agent Scale (CAQ) developed by Hall and Williams (1995). The CAQ, first developed in 1969, is a 45-item survey designed to assess individuals' beliefs about/attitudes toward change order for respondents to determine their change agent

“style.”⁴ While the CAQ has been administered to guidance counselors (Bowers, 1981), superintendents (Tresky, 1986), university administrators (Zibrin, 1985), and principals (Kanell, 1980), it fails to be of any real use to teachers who wish to determine their own capacity to initiate change within their schools for several reasons.

First, as the authors note, the CAQ is designed for use by a number of professionals, including politicians, members of the clergy, and probation officers; no questions on the CAQ are applicable only to teachers. Second, items on the CAQ assume that a change agent must be external to the organization; for example: “To bring about a change, I am likely to express as explicitly as I can the consequences of not complying with a prescribed course of action” (Hall & Williams, 1995, p.2). Third, while the CAQ might allow teachers to determine their philosophy of how change occurs, it does not assess whether or not they are indeed capable of acting on their beliefs. Therefore, while results from the CAQ might provide interesting “food for thought,” teachers cannot use them to assess their own capacity for pursuit of educational change within their schools.

In sum, there is a scarcity of literature which focuses solely on the teacher as change agent for several reasons, including the ambiguity surrounding the term and the overlap with the teacher as leader literature. Further, current means of identifying teacher change agents are either based on the assumption that teachers can be change agents only within their own classrooms or do not assess teachers’ capacity to initiate change in their schools.

⁴ For example, a person with a “custodial” style believes that: “The change agent’s task is to apprise the changee of the rules governing the changee’s role and situation” (Hall & Williams, 1995, p.11).

Conceptual Framework of Teacher Change Agent

In order to determine teachers' capacity to initiate change in their schools, it is necessary to construct a model of what a teacher change agent "looks like" (Cronbach & Meehl, 1955). For the purposes of this study, the following operational definition of teacher change agent was used: *A teacher change agent is someone who initiates an improvement in teaching and/or learning beyond his/her own classroom.* As such, it is hypothesized that teacher change agents have well-developed content and pedagogical knowledge (see Shulman, 1987; Torff & Sessions, 2005), recognize and accept responsibility for solving the problems in their schools (see Ayers, 1992; Barksdale-Ladd & Thomas, 1996; Fagan, 1989), feel confident and empowered to do something about those problems (see Ashton, 1984; see also Bandura, 1997), and are motivated and willing to take risks in order to purposefully work with (or within) a group of like-minded individuals to solve them (see Argyris, 1999; see also Blase & Blase, 1997; Brophy, 2004; Smylie, 1988). My resulting model (see Figure 1) of a teacher change agent emphasizes that, while each attribute is distinct, together they are interrelated pieces of a bigger picture. Consequently, an instrument designed to capture teachers' capacity to initiate change will need to take each into account, which could be accomplished through the use of a quantitative instrument such as the TCAS.

Content/Pedagogical Knowledge

As Firestone (1993) notes: "...without attention to [teachers'] pedagogical content knowledge, [school] reforms may not be entirely successful." Thus, in order to be able to work as a change agent within his/her school, a teacher needs to have well-developed

content and pedagogical knowledge (Shulman & Sparks, 1992). Defined as expertise in the subject taught (Torff & Sessions, 2005) and expertise in teaching techniques

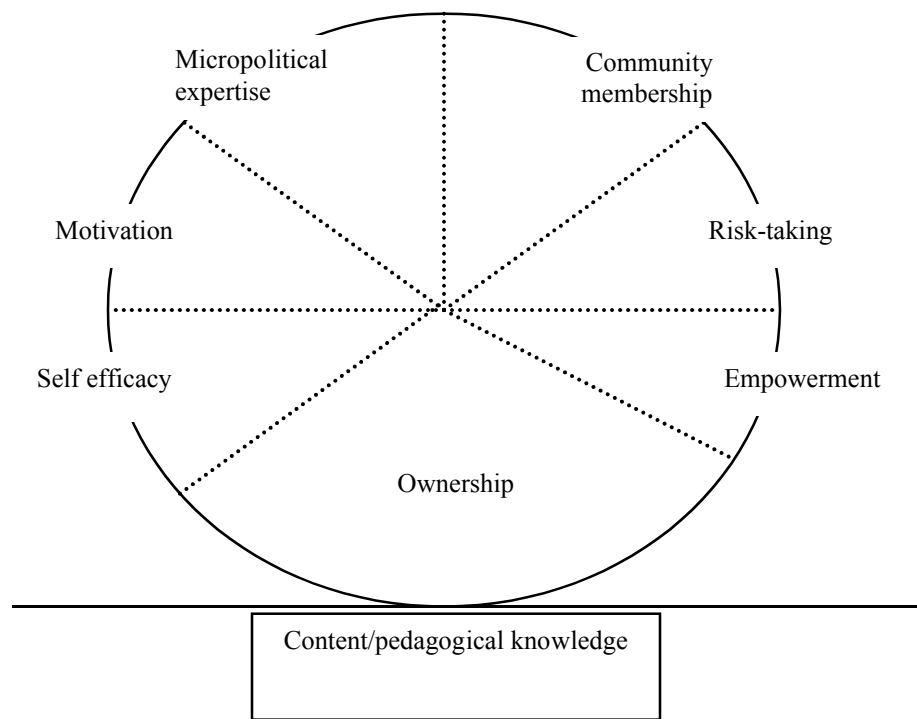


Figure 1. Conceptualization of teacher change agent.

(Shulman, 1987) respectively, content and pedagogical knowledge are both positively correlated with improvement in student achievement (e.g., Hill, Rowan, & Ball, 2005; Monk, 1994). Therefore, it is reasonable to assume that since content/pedagogical knowledge allows teachers to identify more easily how to help students in their

classrooms, a deep understanding of both curriculum and instruction will also allow them to identify more easily the problems in their schools.

For example, it is difficult to imagine a teacher who does not understand fully either the content or the strategies involved in the delivery of a mathematics curriculum as being able to identify ways in which that curriculum could be made more effective. In other words, a sophisticated understanding of both subject matter and teaching strategies allows for teachers to acknowledge that a “problem” exists in their schools, which, as can be seen in the graphic (Figure 1), is the foundation of teacher change agency.⁵

Ownership

Acknowledgment of the existence of problems within a school alone does not make a teacher change agent; surely anyone who has worked in a school is aware that there is no shortage of people who are adept at identifying what is “wrong” with the way things are. In order to be a teacher change agent, a teacher must accept that they have a role in creating a “right” way of doing things; as David (1989) notes: “change requires ownership” (p.46).

With roots in critical pedagogy, the concept of problem “ownership” can be thought of as “naming the problem” (see Wink, 2000) taken one step further. In other words, teachers own a problem in their school when they both identify a problem *and* realize a personal responsibility for solving it. Moreover, there is a need for teachers to have a sense of autonomy that is tied to the ownership of change (Ayers, 1992; Barksdale-Ladd & Thomas, 1996; Fagan, 1989); as Rudduck (1988) states:

⁵ It is important to note that a teacher’s content/pedagogical knowledge is not necessarily dependent on his/her years of experience in the profession.

“I see ownership of change as bringing about a motivation towards change that is personally founded, and I see it [ownership] as being about meaning that is explored in relation to the self as well as in relation to the professional situation” (p.213).

Accordingly, in the conceptual framework graphic (Figure 1), I allot ownership a larger section in order to reflect that it is the primary factor in determining whether a teacher is capable of becoming a teacher change agent. Put simply, if teachers cannot (or do not) “own” their personal role in school reform, there can be no action (Copland, 2003; David, 1989; Lukacs, Holincheck, Fuhrman, & Galluzzo, 2007).

Self-Efficacy and Empowerment

While it is vital that teachers own the problems in their schools, taking the necessary action(s) to solve them requires something more. For example, teachers who believe that they are incapable of taking action and/or feel powerless to do so are unlikely to pursue improvement in either teaching or learning outside of their own classrooms. As such, both self-efficacy and empowerment are key attributes of a teacher change agent.

Self-efficacy refers to an individual’s perceptions that he/she can solve the problems put before him/her (Bandura, 1997), while Lightfoot (1986) defines empowerment as “the opportunities a person has for autonomy, responsibility, choice and authority”(p.9). Given that teachers with a greater sense of self-efficacy are more willing to change practices than those with less (Ashton, 1984) and that a teacher’s feeling of empowerment is an integral component of successful school reform (Muijs & Harris, 2003; Rosenholtz & Simpson, 1990), it can be argued that teachers must feel self-assured

in their capabilities to achieve their goal(s) if they are to move from acceptance to action. In short, without feelings of confidence and an increased sense of being able to affect interactions (and the products of those interactions), school-wide change cannot occur (Dembo & Gibson, 1985).

Motivation and Risk-Taking

It can be argued that strong feelings of self-efficacy and empowerment will propel the teacher change agent to take action. However, the sense of “I can do it” which results from increased feelings of self-efficacy and empowerment is often put to the test when unexpected challenges arise. Given that the pursuit of change can be time-consuming, especially when the intended change is to be adopted by more than one individual (Rogers, 2003), teacher change agents must possess qualities that will sustain them through any difficulties they encounter; otherwise the sense of “I *can* do it” might easily devolve into “I *could* do it, but I don’t want to.” As a result, teacher change agents need to be both motivated and capable of taking risks in order to maintain their commitment to see their goals through to fruition on a school-wide level (Day, Elliot, & Kington, 2005; Lukacs, Holincheck, Fuhrman, & Galluzzo, 2007).

Defined respectively as the desire to invest attention and effort in a particular pursuit (Brophy, 2004) and the ability and willingness to adopt new behaviors (Argyris, 1999), motivation and risk-taking help teacher change agents to carry on in the face of adversity. When faced with an unanticipated obstacle, teachers who are unmotivated to see their intended improvement in teaching and/or student learning through to its actualization are unlikely to take the risks necessary to overcome the difficulty. Likewise,

teachers' willingness to take risks will affect their motivation to bring about educational change. In other words, if teachers do not feel comfortable with trying something "new," they will likely be unmotivated to continue their pursuit of school-wide change (Leinwand, 1992; Maeroff, 1993; Reio, 2005; Reitzug & Burrello, 1995). Therefore, teachers' abilities both to take risks and to remain focused on their goals despite unexpected roadblocks are essential attributes of teacher change agency.

Micropolitical Expertise and Community Membership

It is argued that teachers who do not feel self-efficacious, empowered, motivated and/or willing to take risks are unlikely to be change agents and that they need support in their pursuit of reform. Given that school-wide change cannot take place without the cooperation of others, teachers must be members of a professional community, a joint effort to generate new knowledge which supports members' professional growth in order for the change to extend beyond their own classrooms (Louis & Marks, 1998; Maeroff, 1993).

Membership in a community of like-minded others is important for a number of reasons. For one, if a change is to extend beyond one's own classroom, the participation of others in implementing that change is essential. Second, while teachers who are not involved in a professional community often report fatigue and low morale, membership in a professional learning community allows participants to feel efficacious and motivated (Smylie, 1988), which in turn helps teacher change agents to persist in their efforts. Lastly, community membership is necessary in order for feelings of collective

efficacy, which is strongly related to improvement in student achievement (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000).

Collective efficacy is “the perceptions of group members about a faculty’s conjoint capability to successfully educate students” (Goddard, 2002, p.98). Worded differently, collective efficacy can be thought of as a “We can do it” attitude. When this “We can do it” attitude is present among members of a professional learning community, there is a stronger “press” for teachers to persist in their educational efforts (Goddard, 2001). Therefore, it is doubtful that teachers who work alone to affect changes beyond their classrooms will be successful in their efforts.

However, working with others is often not easy, since collaboration often requires negotiation, compromise, and at times, the ability to wield influence over others. As such, changes rarely happen in school without some form of “backstage activity” which is inherent in nearly every social context. In order for teacher change agents to accomplish their goals, they must have a sophisticated understanding of formal/informal power (Blase & Blase, 1991). In short, a well-developed knowledge of the intentions, desires, and viewpoints of others and the ability to use this knowledge efficiently allows teachers to be successful in their pursuit of change. Teacher change agents must have micropolitical expertise, which ensures that they will be able to recruit others to their cause and to sustain fellow community members’ feelings of self-efficacy, empowerment, motivation, and ability to take risks. If teacher change agents are unable to work actively and effectively with others in their quest for reform, it is unlikely that their intended change(s) will ever be realized (Miles, Saxl, & Lieberman, 1988).

In summary, teachers who are disposed to be change agents need to have robust content and pedagogical knowledge, own the problem(s) in their schools, perceive themselves as confident and empowered, be motivated and willing to take risks, and actively work with (or within) a community. The degree to which these attributes are necessary for teachers to lead change remains an empirical question, but one that is needed in this standards-based era of continuous improvement where change is a constant. Given that there is currently no scale for identifying teachers who can initiate change from within and that if effective educational change is to occur it will require the initiative of teachers (O’Hair & Odell, 1995), there is a need for an instrument that would identify teachers who have the potential to be change agents.

Instrument Development

The creation of a quantitative instrument is a complex process, and there are a number of different methods for quantitative instrument development (i.e., Dillman, 2007; Fowler, 2002; Rea & Parker, 2005). However, it is generally accepted that in order to create a valid and reliable instrument, the following steps are necessary: item generation (Crocker & Algina, 1986; DeVellis, 2003); evaluation conducted by a panel of experts or focus group (Czaja & Blair, 2003; Rea & Parker, 2005); item organization, formatting, and re-evaluation (Collins, 2003; Dillman, 2000); experimental pilot, preliminary analysis, and instrument revision (Thompson, 2002; Yaffee, 2003); and final administration and analysis. While Blalock (2007) notes that these steps may occur simultaneously and thus are not necessarily mutually exclusive, each phase of the

instrument development process is discussed as though the instrument developer follows each step in turn.

Item Generation

As DeVellis (2003) notes, the first step in creating a reliable and valid scale---determining clearly what one wants to measure---is “deceptively obvious” (p. 60). In other words, in order to have an understanding of the constructs underlying the instrument, it is necessary to first conduct an extensive literature review. In addition to giving one a more definite grasp of the constructs involved, the literature review can also provide a starting point for item generation. For example, interview questions used in previous qualitative research can be modified for use in a quantitative instrument (Blalock, 2007).

When generating items for possible inclusion in a quantitative instrument, the developer should not avoid redundancy of items (DeVellis, 2003). For example, both “I prefer to work alone” and “I don’t like working with others” are acceptable when one begins writing items for an instrument (as long as only one is included in the final version) because they provide the scale developer with a “rich source” (DeVellis, 2003, p.70) of options from which to choose for the final version of the instrument. Similarly, as many items as possible should be generated in this phase with attention paid to the following questions (Salant and Dillman, 1994):

- Is each question getting the information it is intended to get?
- Are the words used easily understood?
- Will all respondents interpret the item in the same way?

- Do all close-ended questions have an answer that will apply to each respondent?
- Does any part of the instrument suggest the developer's bias?

In sum, the goal of this phase of instrument development is to generate a large number of possible items for consideration by the panel of experts.

Panel of Experts

A panel of experts typically consists of colleagues who are familiar with the construct(s) being measured (DeVellis, 2003) and serve many functions for the instrument developer (Czaja & Blair, 2003; Rea & Parker, 2005). For example, members assess items' content validity (DeVellis, 2003), evaluate items in terms of relevance and clarity (Collins, 2003), create or revise items (Blalock, 2007), and/or suggest new ways of addressing the construct(s) to be measured (DeVellis, 2003). Once the feedback from the panel of experts has been incorporated, the instrument developer has a set of items that has been reviewed by knowledgeable others and is therefore ready to begin organizing the items.

Item Organization

After items have been reviewed by the panel of experts, it is necessary to organize them so that they most closely represent the best instrument for the construct(s) being measured. As such, there are several concerns during this phase. First, when choosing the number of items to be used in the instrument, it is important to ensure that there are enough items to measure the construct(s) accurately, but not so many as to cause respondents to become fatigued or bored (Collins, 2003). Second, when formatting the items into a draft version of the instrument, careful attention should be paid to the

wording of the instructions, the selection of the first question, the order of the remaining items, and the arrangement and style of answer choices (i.e., Likert-style) in order to reduce non-response and error (Dillman, 2007; Salant & Dillman, 1994). Third, the method of data collection (i.e., mail administration) is determined based on the sample population, desired response rate, costs, and available facilities (Fowler, 2002).

Once the items have been organized appropriately, the draft version of the instrument is re-submitted to the panel of experts for their review and assessment of construct validity, and the resulting version (revised if necessary) is administered as an experimental pilot study.

Pilot Study

Given its overall purpose---to determine how the instrument “works” under realistic conditions---conducting a pilot study is essential in the creation of a valid and reliable instrument (Blalock, 2007). As such, there are a number of steps in the pilot study process. First, a sample representative of the larger population should be selected after careful consideration with regard to how much sampling error can be tolerated, population size and heterogeneity, and the smallest subgroup within the sample for which estimates are needed (Salant & Dillman, 1994). Second, after completing the scale, respondents should be asked about the clarity of the instrument’s instructions and items, as well as whether there were any difficulties providing answers to the items (Fowler, 2002). Third, particular attention should be paid to the amount of time respondents need to complete the survey instrument (DeVellis, 2003).

Once the instrument has been completed by the sample respondents, it is necessary to evaluate the items' performance, especially in terms of the instrument's overall reliability. If the instrument has been designed to examine one specific latent variable (i.e., test taking anxiety), the items should have three qualities: high levels of intercorrelation, high variance, and means as close to the center of the range as possible (DeVellis, 2003). However, if the instrument is intended to focus on more than one variable (as would be the case with the TCAS) and there is indeed more than one variable present, there should be low levels of intercorrelation among the items. Thus, if the researcher wishes to determine how many variables underlie an instrument, an exploratory factor analysis can be conducted. Further analysis may also include a principal component analysis, which allows for assessment of how reliably the items "load" onto the factors in the expected theoretical set(s) (Blalock, 2007).

In addition, Cronbach's coefficient alpha (or α), which ranges from 0 to 1.0, is used to determine the instrument's internal reliability consistency (Thompson, 2002). The closer alpha approaches 0, the less the items are correlated, while the closer alpha approaches 1, the more the items are correlated to one another. In the social sciences, a Cronbach's alpha of .80 is generally considered "good"⁶ (Yaffee, 2003), and if statistical analysis reveals that a certain item decreases the overall alpha for the instrument, the developer may choose to omit it (Blalock, 2007).

In sum, the pilot study phase of the instrument development process is an integral one; as DeVellis (2003) notes: "This [the pilot study] is, in many ways, the heart of the

⁶ DeVellis (2003) proposes the following "personal and subjective" (p.96) groupings of alpha values: below .60, "unacceptable"; between .60 and .65, "undesirable"; between .65 and .70, "minimally acceptable"; between .70 and .80, "respectable"; between .80 and .90, "very good."

scale development process, second perhaps only to item development in its importance” (p.90). In this phase, a draft version of the instrument is administered in “real world” conditions, providing the developer with valuable feedback from the scale’s first respondents. In addition, the data analysis immediately following allows the developer to determine which items should be kept in the final version of the scale.

Final Administration

At this point in the instrument development process, the “final” version is administered to a larger population. Ideally, the instrument developer hopes for as many responses as possible in order to reduce error and increase generalizability. As such, there has been extensive research focusing on the elements that increase response rate; for example, Dillman (2007) suggests including the following elements when the instrument is an Internet survey: a respondent-friendly welcome screen, a personal identification number for limiting access, a first question that is easily answered, and presentation of each question in a format similar to that of traditional paper surveys.

Once data have been collected from the respondents, there are several analytical issues to consider, including how the data will be interpreted and their generalizability (DeVellis, 2003). If the developer considers this the “final” version of the instrument, a confirmatory factor analysis can be conducted to verify how many latent variables underlie the instrument’s items (Blalock, 2007), and results reported accordingly. However, it should be noted that many researchers believe that instrument development is an ongoing process and that one can never be truly done with instrument “tinkering” (Blalock, 2007; DeVellis, 2003).

In sum, instrument development is more than merely the assembly of a number of items. It requires that the developer give careful consideration to a number of concerns, including item wording, answer format, delivery method, and data analysis. In addition, the instrument developer must have a well thought out plan for each phase of the process. Chapter Three discusses more fully the procedures necessary for the development of the TCAS.

3. Methods

Standardized testing and academic standards have created new expectations for teachers and the role(s) they play in improving student learning and achievement (Cochran-Smith & Lytle, 1999; Garet et. al, 2001). However, there is little research available on teachers' willingness to *initiate* such change efforts since the terms “change agent” and “change leader” most often refer to a person outside the classroom such as a school principal (i.e., Chin & Benne, 1969; Rogers, 2003). While the education community continues to advocate for teachers to expand the realm of their influence beyond their own classrooms (i.e., Hatch, Eiler-White, & Faigenbaum, 2005), previous research makes little to no mention of how teachers might assess their own capacity to initiate change efforts. As such, there is a need for an instrument designed to allow teachers to assess their own potential as teacher change agents. The purpose of this study was to design and assess the reliability and validity of a self-report instrument that measures teacher change agency. It was guided by the following research questions:

1. What items written for a self-report instrument best reflect teachers' willingness to initiate change?
2. What level of reliability can be attained with this measure?
3. What evidence of construct validity can be demonstrated?

In order to address these questions, data was collected in the following three phases: scale development, pilot administration, and final administration. Table 1 outlines the purpose of each phase with respect to the research questions.

Table 1

Research Questions Addressed by Phases of Data Collection

Phase of Data Collection	Research Questions Addressed
Scale Development	1 and 3
Pilot Administration	1 and 2
Final Administration	1 and 2

Scale Development

Participants

Using the previously coded reflections from Lukacs et. al (2007), 12 teachers were selected to create a pool of possible members for the panel of experts. Participant selection was based on the high scores each person had received for the following five attributes: ownership, empowerment, confidence, community membership, and activism. An email was sent to each possible participant outlining the nature of the study, the

responsibilities of panel members, and the compensation for participating (see Appendix A). Of the 12 respondents, seven were unable to participate due to scheduling conflicts and one had moved out of the area; the remaining four agreed to serve as members of the panel of experts. The panel members were all women; the average age was 31.25 years and the average of years of teaching experience was nine years. Three of the four taught at the elementary level (specified as Kindergarten through 5th grade) and one taught at the middle school level (specified as 6th through 8th grades).

Procedures

First, a large number of survey items for possible inclusion on the TCAS were generated. In order to ensure that each construct was covered as thoroughly as possible, findings from previous research concerning teacher change agency and items from related surveys (i.e., Bandura's Teacher Self-Efficacy Scale) were used as starting points for item generation.

Following approval from the Human Subjects Review Board, a panel of experts was convened to clarify items, revise working definitions, and address face validity of items (Czaja & Blair, 2003; Rea & Parker, 2005). The panel of experts formatted the scale according to Dillman's (2000) Tailored Design Method, with particular attention paid to the order of items, survey instructions, and arrangement of response choices. In addition, the panel of experts used a blind coding technique to score the extent to which the items represented the intended factors (content validity).

Pilot Administration

Participants

Participants for the pilot version of the TCAS were classroom teachers enrolled in a Masters degree program at George Mason University (n=76). Of the respondents, 84.2% (n=64) were women. The average age was 35.66 years and the average years of teaching experience was 10.16 years. Fifty-five percent of the participants (n=42) taught at the elementary level (specified as Kindergarten through 5th grade), 33% (n=25) at the middle school level (specified as 6th through 8th grades), and 12% (n=9) at the secondary level (specified as 9th through 12th grades).

Measures

Demographic questionnaire. Teachers were asked questions regarding their age, gender, total years of teaching experience, and the grade level at which they currently taught.

Pilot TCAS. The pilot version of the TCAS was a 64-item instrument with the following Likert-type responses: Strongly Agree, Agree, Disagree, and Strongly Disagree. It was hypothesized that the following factors would underlie TCAS items: content/pedagogical knowledge, ownership, self-efficacy, empowerment, motivation, risk-taking, micropolitical expertise, and community membership. Each attribute (e.g., content/pedagogical knowledge) was represented by eight items.

Procedures

Data collection. Following a brief explanation of the informed consent form and the purpose of the research, participants were asked to complete the pilot version of the

TCAS. Since data were collected during a class meeting, participants were offered an alternative to responding to the survey and were assured that their non-participation would not affect their course grade. All of the students present chose to complete the survey. The shortest completion time was 12 minutes and the longest 29 minutes. Once all surveys were collected, participants were asked for their feedback; there were no comments, questions, or concerns mentioned.⁷

Data analysis. After administration of the pilot version of the TCAS, the items' performance was evaluated using item-scale correlations to identify those items which contributed the least to the overall internal consistency so that they could be excluded from future versions of the TCAS. In addition, an exploratory factor analysis was conducted to determine how many factors were in the instrument; it was hypothesized that the following eight factors would be present in the TCAS: content/pedagogical knowledge, ownership, self-efficacy, empowerment, motivation, risk-taking, micropolitical expertise, and community membership.

Final Administration

Participants

Participants for the final version of the TCAS were classroom teachers enrolled in a Master's degree program at George Mason University (n=76). Of the respondents, 86.8% were women. The average age was 32.58 years and the average years of teaching experience was 7.06 years. 6.6 percent of participants (n=5) taught at the preschool level, 36.8 % (n=28) at the elementary level (specified as Kindergarten through 5th grade),

⁷ It is more accurate to say that no one responded *verbally*, since one participant (#64) wrote the following comment on her copy of the pilot TCAQ: "This is way too long to get accurate data in my opinion."

17.1% (n=13) at the middle school level (specified as 6th through 8th grades), and 39.5% (n=30) at the secondary level (specified as 9th through 12th grades).

Measures

Demographic questionnaire. Teachers were asked questions regarding their age, gender, total years of teaching experience, and the grade level at which they currently taught.

Final TCAS. The final version of the TCAS was a 15-item instrument with the following Likert-type responses: Strongly Agree, Agree, Disagree, and Strongly Disagree. It was hypothesized that three factors would underlie TCAS items. Items represented the following previously hypothesized factors: content/pedagogical knowledge, self-efficacy, empowerment, motivation, risk-taking, micropolitical expertise, and community membership.

Procedures

Following a brief explanation of the informed consent form and the purpose of the research, participants were asked to complete the final version of the TCAS. Since data were collected during a class meeting, participants were offered an alternative to responding to the survey and were assured that their non-participation would not affect their course grade. All of the students present chose to complete the survey. The shortest completion time was 4 minutes and the longest 13 minutes. Once all surveys were collected, participants were asked for their feedback; there were no comments, questions, or concerns mentioned.

Data analysis. Following the administration of the final version of the TCAS, data from the pilot version were combined with those from the final version (total n=152) to verify how many latent variables were present in TCAS items. It was hypothesized that there would be no statistically significant correlations among the attributes measured, thus ensuring that each attribute was a discrete and independent variable. In addition, it was anticipated that data analysis would indicate that use of the TCAS is reliable and valid for measuring teachers' capacity to initiate change efforts.⁸

⁸ Given that the items that best reflected teachers' self-reported willingness to change could be determined only by input received from the panel of experts and subsequent data analysis, no predictions regarding the first research question were made.

4. Results

This purpose of this study was to develop and validate a reliable scale for measuring teachers' willingness to initiate change efforts in their schools and was guided by the following three research questions:

1. What items written for a self-report instrument best reflect teachers' willingness to initiate change?
2. What level of reliability can be attained with this measure?
3. What evidence of construct validity can be demonstrated?

In order to answer each of these questions, data were collected and analyzed in three phases---scale development, pilot administration, and final administration---around which these results are organized.

Scale Development

Item Selection

As DeVellis (2003) notes, one the primary tasks of a panel of experts is to verify a scale's content validity. By determining the relevance of each item, evaluating the clarity of items, and pointing out alternate ways in which the phenomenon (or attribute) might be assessed, an expert panel ensures that the variable being studied (in this case, teacher change agency) is indeed the underlying cause of item covariation. However, in order to fulfill these tasks, the panel had to gain an understanding of the construct of teacher

change agency as it had been operationally defined. As such, each member was given a brief overview of the conceptual framework, summaries of each attribute (with references deleted so as to reduce bias), and the draft items I had written.

Over the course of the two two-hour meetings, panel members (n=4) then clarified and revised the items drafted by the researcher and also created new items they felt related to the proposed eight attributes of teacher change agency. On a number of occasions, panel members identified potentially confusing language (e.g., “rock the boat”). In general, the panel members agreed on how well each item captured a particular attribute (e.g., micropolitical expertise). However, reaching agreement on several items proved to be problematic.

Items that sparked the most debate were those that ended with “in my school” (e.g., “I can make a difference in my school”), especially in terms of whether or not the phrase should be retained in the pilot version. Two experts felt that inclusion of “in my school” would cause the TCAS to be too context-dependent; as one member put it: “You put that [“in my school”] in there and then it [the TCAS] is assessing how much a teacher is influenced by their [school] building and not whether they [teachers] can be change agents on their own.” While conceding the point, the other two experts felt as though the school (and especially the school’s administration) played a large role in whether or not teachers would feel “comfortable” suggesting changes and therefore argued that “in my school” should remain. In the end, a compromise was reached; “in my school” was removed from all items and the following item was written to address the importance of

the school context: “If my ideas for change are met with resistance from my administrator(s), I am unable to continue to pursue those ideas.”⁹

By the end of the first meeting, the panel had created an item pool consisting of 122 items (see Appendix B). Since all panel members agreed that this was too large a number, they decided to pare down the items. They began by grouping the items representing each attribute on separate pages---the 18 items for content/pedagogical knowledge were written on one page, the 16 for risk-taking on another, and so on. At this point, the panel felt uncertain as to how many items of each attribute should be selected; ultimately, it was decided that eight questions per attribute would suffice. The pages were then circulated among the panel members with each expert choosing the eight items she felt most appropriately represented the attribute in question. Items were then sorted according to the number of “votes” they had received.

Items that either had not been selected by any panel member (e.g., “I am content to allow others to make the decisions that will affect my classroom”) or that had been selected by only one (e.g., “If someone disagrees with my point of view, I usually try to persuade them to see things my way”) were excluded from further discussion, while items with 100% agreement (e.g., “If I feel it is necessary, I will speak out and express my views to my colleagues”) were considered to be a “given” for inclusion.¹⁰ Items with either two (e.g., “I am afraid to try new ways of teaching and/or learning”) or three votes (e.g., “What happens outside of my classroom is not my concern”) were then discussed at length by the panel.

⁹ Interestingly, this item had the widest range of responses in the pilot version.

¹⁰ In other words, there was no further discussion among the panel members as to whether such an item should be included on the pilot version of the TCAS.

Item Formatting

By the end of the second meeting, the panel had agreed on 64 items (see Appendix C). Keeping in mind that “No single question is more crucial than the first one” (Dillman, 2007, p.92), the panel wanted to choose a question which could be easily answered by all respondents. Given the fact that many of the items had the potential to make a respondent somewhat uncomfortable (e.g., “Sometimes I don’t feel successful as a teacher”), the panel felt that beginning with a relatively benign question would be best and chose the following: “I value working collaboratively with other teachers.”

The panel decided that formatting the remaining 63 items by attribute (i.e., community membership in Items 1-8, ownership in Items 9-16, etc.) would be “too obvious” and might lead to socially desirable responses. To better illustrate this concern, consider the items chosen to represent content/pedagogical knowledge as shown in Table 2.

Table 2

Content/Pedagogical Knowledge Items

I can adapt to the needs of my students when necessary.

I am able to assess/evaluate student understanding using a variety of techniques.

I have a difficult time monitoring and managing all of the students in my classroom.

I invest time in understanding my students' learning styles and interests.

I invest time in trying to understand my students' background knowledge.

Teachers should reflect on their teaching on a regular basis.

I don't understand how what I'm currently teaching my students relates to their overall academic development.

I believe that a good teacher knows his/her students' academic strengths and weaknesses.

Given the content of the items, the panel felt that respondents would quickly “discover” the attributes being measured and might respond in a way they felt was expected of them. In other words, since it is expected that teachers will teach all students effectively, a teacher might respond positively to a statement such as “I know how to get through to the most difficult (i.e., at-risk) students” because responding otherwise might make a “bad” impression on the researcher. As a result, the panel felt that organizing the items in a random fashion would be more likely to elicit truthful responses. Thus, each of the remaining 63 items was written on a separate index card and shuffled to determine its order for the pilot.

Response Choices

Having decided on the number of items, the panel was then asked to consider the format for response choices. While they all agreed that a Likert-type scale would be most appropriate, the panel members were uncertain as to how many response choices should be provided. Seven was rejected as “too lengthy” and three as “not enough.” Ultimately, the group decided to offer the following possible responses: Strongly Disagree, Disagree, Agree, and Strongly Agree. No “middle ground” response (i.e., “Don’t Know/Uncertain”) was provided because, in the words of one member of the panel of experts, “These questions are hard, so we want to *force* them to make a choice.” The resulting pilot version of the TCAS can be seen in Appendix D.

Pilot Administration

Data Analysis

In order to address the three research questions, items were evaluated using a number of statistical techniques immediately following the administration of the pilot TCAS. Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) and included the following: item-scale correlations in order to identify which items best captured the construct of teacher change agency, a post-pilot exploratory factor analysis in order to determine how many factors were in the instrument, and the computation of Cronbach’s coefficient of internal reliability consistency (alpha or α) in order to determine the items’ reliability.

Item-scale correlations. Once the data were entered into SPSS, an item-scale correlation was run in order to determine which items were irrelevant to the overall score.

Items with a correlation coefficient of .299 or lower were excluded from further consideration. For example, Item 19 (“It’s not enough for me to complain about what I’m not satisfied with at my school”) had an item-scale correlation coefficient of .078, indicating that there was not a meaningful relationship between it and the overall score. Other irrelevant items included the following: 16, 18, 22, 33, 37, 46, 53, 54, 57, 58, and 64. The highest correlation among the remaining items was .585.

Exploratory factor analysis. The remaining 53 items were then examined using an exploratory factor analysis. A scree test (Cattell, 1966) was run to determine the strength of the eigenvalues of the items. As DeVellis (2007) notes, an eigenvalue represents the amount of information captured by a factor. Thus, a scree plot illustrates how many “strong” factors (i.e., those with eigenvalues over 1.0) are present by graphically indicating at which point (factor) the eigenvalue magnitudes “drop off,” indicating that the remaining factors are “expendable” in terms of further data analysis. The scree pilot for the remaining 53 items of the TCAS indicated the presence of three factors.

As it was believed that the three factors correlated somewhat with one another, a direct oblique minimum (oblimin) rotation of the three factors was specified in the subsequent factor analysis, and the resulting structure matrix was then examined. Given that two or more values of .4 or higher in a structure matrix indicate that an item is a weak one (i.e., it measures more than one factor), items meeting this criterion were eliminated from further consideration. For example, Item 54 (“I don’t know how to compromise effectively”) had five loadings of .4 or higher. This process of elimination

was repeated until 15 items, each with a structure matrix loading of .5 or higher, remained. Together, these items indicated the presence of three factors and accounted for 50.75% of the scale's total variance.

Reliability. The last step in the post-pilot phase of data analysis was to determine the reliability of each subscale using Cronbach's coefficient of internal consistency reliability (alpha or α). The results were as follows: Factor 1, $\alpha = .74$; Factor 2, $\alpha = .74$; and Factor 3, $\alpha = .73$. According to the guidelines provided by DeVellis (2003), these alpha values indicated that the subscales each had a "respectable" level of reliability.

There were 15 additional items that boosted the reliability of the subscales into the "very good" range (.82, .81, and .80, respectively). However, these items weakened the strength of the remaining items and/or did not support the three factor model. For example, the inclusion of Item 12 raised the reliability of Factor 1 to .77, but caused Items 9 and 25 to have two or more structure matrix loadings of .5 or higher. Further, a factor analysis conducted after the inclusion of Item 12 indicated that four factors were present. Items that met this criterion were included in the final version for experimental purposes. The resulting final version of the TCAS can be seen in Appendix E.¹¹

Final Administration

Data Analysis

In order to address the three research questions, items were evaluated using a number of statistical techniques immediately following each administration of the TCAS. Statistical analyses were conducted using the Statistical Package for the Social Sciences

¹¹ Items from the pilot had to be renumbered for the final version; Appendix F details these changes.

(SPSS) and included the following: inter-item correlations in order to identify which items correlated highly with one another, a post-final exploratory factor analysis in order to confirm how many factors were in the instrument, and the computation of Cronbach's alpha in order to determine the reliabilities for the subscales.

Inter-item correlations. Once the data were entered into SPSS, an inter-item correlation matrix was run to determine which items correlated highly with one another. It was expected that each of the items representing a single factor would have a strong relationship with the remaining items in the subscale. For example, it was predicted that Items 3 and 5 would have a correlation of .3 or higher. At the same time, it was also expected that all of the items from one factor would have weak relationships (correlation coefficients of .2 and lower) with items from other subscales. For example, it was anticipated that Items 3 and 5 (Factor 1) would correlate highly with one another, but would correlate weakly with Item 13 (Factor 3). In most cases, these expectations were met, indicating that the items representing each factor had a good "fit" with one another. Table 3 shows the means, standard deviations, and communalities for each of the 15 items.

Table 3

Means, Standard Deviations, and Communalities for 15 Items

<i>Item</i>	<i>M</i>	<i>SD</i>	<i>Communality</i>
I value working collaboratively with other teachers.	1.32	.48	.53
When faced with an unanticipated obstacle, I often give up rather than continue.	1.51	.52	.55
I can adapt to the needs of my students when necessary.	1.56	.52	.37
It is okay to follow a path that deviates from the mainstream.	1.51	.51	.31
I am able to assess/evaluate student understanding using a variety of techniques.	1.60	.55	.46
I know how to influence my colleagues.	2.11	.58	.47
I prefer to work alone.	2.27	.87	.62
I am reluctant to rely on others.	2.40	.81	.48
I can't get through to the most difficult (i.e., at-risk) students.	1.89	.64	.53
I believe that schools must look from within to make change.	1.64	.63	.46
I believe that in order for change to be successful, teachers must work together.	1.48	.56	.50
I know how to motivate my colleagues.	2.20	.58	.40
I value being an active member of the teaching community.	1.49	.56	.44
I am a decision-maker.	1.75	.61	.69
When I see a problem, I feel confident that I can find a way to solve it.	1.75	.64	.58

Post-final factor analysis. In this stage of data analysis, it was expected that factor analysis would replicate the presence of three factors. Again using a direct oblimin rotation and specifying that three factors should be extracted, a structure matrix was examined for item loadings. The presence of three factors accounting for 49.23% of the scale's total variance was replicated (as can be seen in Table 4), while Table 5 shows the means, standard deviations, and correlations for the three resultant subscales.

Table 4

Structure Matrix Item Loadings by Factor

<i>Item</i>	<i>F1</i>	<i>F2</i>	<i>F3</i>
Factor 1: Contextual Expertise			
3. I can adapt to the needs of my students when necessary.	.595	.279	.206
5. I am able to assess/evaluate student understanding using a variety of techniques.	.634	.172	.428
6. I know how to influence my colleagues.	.640	.187	.420
9. I can't get through to the most difficult (i.e., at-risk) students.	.719	.115	.121
10. I believe that schools must look from within to make change.	.676	.140	.175
12. I know how to motivate my colleagues.	.618	.295	.245
Factor 2: Collaborative Expertise			
1. I value working collaboratively with other teachers.	.025	.689	.308
7. I prefer to work alone.	.209	.787	.196
8. I am reluctant to rely on others.	.183	.688	.096
11. I believe that in order for change to be successful, teachers must work together.	.365	.668	.143
13. I value being an active member of the teaching community.	.294	.616	.293
Factor 3: Problem-Solving Expertise			
2. When faced with an unanticipated obstacle, I often give up rather than continue.	.291	.265	.733
4. It is okay to follow a path that deviates from the mainstream.	.129	.223	.549
14. I am a decision-maker.	.262	.188	.828
15. When I see a problem, I feel confident that I can find a way to solve it.	.345	.142	.747

Note. **Bold** indicates the item's strongest structure matrix loading.

Table 5

Means, Standard Deviations, and Correlations of Subscales

<i>Item</i>	<i>M</i>	<i>SD</i>	<u><i>Correlations</i></u>		
			<i>F1</i>	<i>F2</i>	<i>F3</i>
Factor 1: Contextual Expertise	1.83	.58	---	.252	.308
Factor 2: Collaborative Expertise	1.79	.66	.252	---	.264
Factor 3: Problem-Solving Expertise	1.63	.57	.308	.264	---

Reliability. The last step in this stage of data analysis was to compute the Cronbach’s alpha for each of the three subscales. The results were as follows: Factor 1, $\alpha = .74$; Factor 2, $\alpha = .72$; and Factor 3, $\alpha = .71$. According to the guidelines provided by DeVellis (2003), these alpha values indicate that the subscales each have a “respectable” level of reliability. The subscales were labeled as follows: Factor 1, Contextual Expertise; Factor 2, Collaborative Expertise; and Factor 3, Problem-Solving Expertise.

In sum, several conclusions can be drawn based on the results of this study. The first is that 15 items best reflect teachers’ willingness to initiate change in their schools. Second, the overall Cronbach’s alpha indicates that the TCAS is a reliable instrument for assessing teachers’ willingness to initiate change in their schools. Third, the following

three factors are present in the TCAS: contextual expertise, collaborative expertise, and problem-solving expertise. In addition, the Cronbach's alphas for the subscales indicate that the TCAS is a reliable instrument for assessing these factors. Lastly, the three areas of expertise account for 49.23% of the total variance. Each of these conclusions is discussed more fully in Chapter 5.

5. Conclusion, Discussion, and Implications

The purpose of this study was to develop and validate a reliable instrument for measuring teachers' willingness to initiate change efforts in their schools. A panel of experts (n=4) was convened to write items which reflected the conceptual framework used to guide this research. Of the 122 items created by the panel, 64 were chosen for inclusion in the pilot version of the Teacher Change Agent Scale (TCAS). The pilot version of the TCAS was then administered to classroom teachers (n=76) enrolled in a Masters degree program at George Mason University (GMU). Data analysis of the responses indicated that 15 items accounted for 50.3% of the total variance and that 3 factors were present. These 15 items were reformatted to create the final version of the TCAS, which was then administered to a similar group of classroom teachers (n=76). While I originally hypothesized an eight factor model, an analysis of the responses (n=152) confirmed the presence of 3 factors, which accounted for 49.2% of the total variance. The research questions guiding this study and the implications for future research are discussed more fully in subsequent sections of this chapter.

Research Question 1: What Items Written for a Self-Report Instrument Best Reflect Teachers' Willingness to Initiate Change?

One of the most important decisions made by the developer of a new scale concerns which items to include in the final instrument (DeVellis, 2003). In essence, it

can be said that a primary concern of the scale developer is to find an acceptable balance between reliability and brevity. For example, while the inclusion of a large number of items generally increases the scale's overall reliability, a lengthy scale also takes longer for respondents to complete thereby leading to other factors that may affect the scale's overall performance. On the other hand, while a shorter scale reduces the likelihood that participants will become bored and/or fatigued by the items, fewer items generally decrease the scale's overall reliability. The "reliability vs. brevity" issue was evident as I attempted to select the items that best reflected teachers' willingness to initiate change efforts beyond their own classrooms.

While the overall reliability for the original 64 items was a "very good" ($\alpha=.91$), the time it took for the respondents to complete the pilot TCAS ranged from 12 to 39 minutes. Since the instrument was designed for use by classroom teachers (who often have severe demands on their time), my goal was to make the TCAS as "user friendly" (i.e., as brief) as possible by reducing the items to a manageable number. Eleven items were excluded from further consideration because they did not contribute meaningfully to the scale's overall reliability. Multiple iterations of factor analysis reduced the remaining 53 items to 15. Consequently, the following items best reflect teachers' willingness to initiate change efforts beyond their own classrooms¹²:

1. I value working collaboratively with other teachers.
2. When faced with an unanticipated obstacle, I *don't* often give up rather than continue.

¹² Items with italicized words were originally reverse-scored. For example, on the final version of the TCAQ, the item "I *don't* prefer to work to alone" was "I prefer to work alone."

3. I can adapt to the needs of my students when necessary.
4. It is okay to follow a path that deviates from the mainstream.
5. I am able to assess/evaluate student understanding using a variety of techniques.
6. I know how to influence my colleagues.
7. I don't prefer to work alone.
8. I am *not* reluctant to rely on others.
9. I *can* get through to the most difficult (i.e., at-risk) students.
10. I believe that schools must look from within to make change.
11. I believe that in order for change to be successful, teachers must work together.
12. I know how to motivate my colleagues.
13. I value being an active member of the teaching community.
14. I am a decision-maker.
15. When I see a problem, I feel confident that I can find a way to solve it.

These 15 items capture the concept of what it means to be a teacher change agent in general; however, they do not indicate what *specific* attributes teacher change agents possess. In other words, taken as a whole, the responses to these items indicate whether or not a teacher is capable of initiating change, but they do not explicitly “tell” us what teacher change agents need to be or to do. Given that the data analysis indicated the presence of three factors underlying the 15 items, further discussion of these three characteristics of teacher change agency is necessary in order to more fully understand

what allows teachers to initiate change efforts beyond their own classrooms. I argue that teacher change agents possess three interconnected areas of expertise, which are hybridizations of the seven following original factors: content/pedagogical knowledge, micropolitical expertise, community membership, empowerment, risk-taking, motivation, and self-efficacy. The three new factors are now labeled: 1) contextual expertise; 2) collaborative expertise; and 3) problem-solving expertise.

Factor 1: Contextual Expertise

Contextual expertise includes teachers' confidence and self-assuredness both inside and outside the classroom. At first glance, it might seem difficult to ascertain what single factor or concept might underlie the following six items:

3. I can adapt to the needs of my students when necessary.
5. I am able to assess/evaluate student understanding using a variety of techniques.
6. I *can* get through to the most difficult (i.e., at-risk) students.
9. I know how to influence my colleagues.
10. I believe that schools must look from within to make change.
12. I know how to motivate my colleagues.

For example, if one groups these six items into two smaller sets, Items 3, 5, and 6 indicate that teacher change agents are skilled classroom teachers who are able to adapt to the needs of all of their students and can assess student learning in a number of ways. In contrast, Items 9, 10, and 12 suggest that teacher change agents are aware of their role in school reform and know how to influence and motivate their colleagues in order to

accomplish their goals. Considered separately, these subgroups suggest two of the original factors I hypothesized were distinct attributes of teacher change agency: content/pedagogical knowledge and micropolitical expertise.

However, given that teacher change agents accept both their role as classroom teacher and their role as colleague in the wider school setting, I now posit that teacher change agents possess contextual expertise, or confidence and self-assuredness both inside and outside the classroom. Teacher change agents feel confident in their skills as teachers of students within their classrooms, and they also have an inner sense of direction for identifying what might improve student learning and/or teaching practices in their schools. With these two attributes, they are comfortable initiating conversations and activities in their schools that could lead to changes. In short, contextual expertise allows teachers to more easily initiate change efforts in their schools.

To better illustrate this point, consider what Rogers (2003) calls communication channels, or “the means by which messages get from one individual to another” (p.18). While it often concerns new technology and the mass media’s role in facilitating the adoption of this technology, innovation diffusion is also a highly interpersonal process which often requires face-to-face exchanges between two or more individuals. Thus, it could be said that, as a result of their contextual expertise, teacher change agents actually serve as interpersonal “channels” when initiating change efforts. That is, their ability to be comfortable with both students and colleagues allows teacher change agents to serve as conduits for change efforts between individual classrooms and the school as a whole.

This idea of contextual expertise plays a particular role in the second attribute of teacher change agents.

Factor 2: Collaborative Expertise

Collaborative expertise is the ability to work effectively with colleagues. All of the following items make some mention of the importance teacher change agents place on collegial relationships:

1. I value working collaboratively with other teachers.
7. I don't prefer to work alone.
8. I am *not* reluctant to rely on others.
11. I believe that in order for change to be successful, teachers must work together.
13. I value being an active member of the teaching community.

As such, it would seem that these items correspond closely with two of the factors I originally hypothesized was necessary for teacher change agency---community membership and empowerment. However, since many of the items also mention *working with others*, I now argue that teacher change agents are more than community members. Instead, I have chosen to label them as having collaborative expertise, which is the ability to work effectively with colleagues. Put another way, teacher change agents have an increased sense of being able to effect interactions with their colleagues (as well as the products of those interactions), which allows them to initiate changes outside of their own classrooms.

On the surface it might seem as though community membership and collaboration are essentially the same concept since both concern groups of teachers rather than just individuals. However, there is one primary difference between them. Whereas the community member is one of the individuals composing a particular group, the collaborator is someone who works jointly with others in that group. Thus I posit that, while all teachers are members of a school's community (even if only by virtue of the title "faculty member"), teacher change agents actively make an effort to work with their colleagues because they feel self-assured in their capabilities to achieve their goal(s).

To better illustrate the difference between the teacher as community member and the teacher as collaborator, consider the following scenario: Teacher A is dismayed by the bullying she has witnessed on the playground, which prompts her to complain about "kids today" during faculty meetings. Having witnessed the same aggressive behaviors, Teacher B decides to establish an anti-bullying task force and actively recruits the participation of the entire faculty. Because she does not work actively with her colleagues, it is difficult to imagine Teacher A being a teacher change agent. In contrast, Teacher B knows how to influence and motivate her colleagues (contextual expertise) and values working jointly with them towards a solution. Hence it is reasonable to contend that teacher change agents are collaborators who work jointly with their colleagues in order to solve school-related problems.

Factor 3: Problem Solving Expertise

The third factor is labeled "problem solving expertise." It is the ability to overcome obstacles in innovative ways. The following items suggest that teacher change

agents feel comfortable making decisions, don't give up easily, and "think outside of the box":

2. When faced with an unanticipated obstacle, I *don't* often give up rather than continue.
4. It is okay to follow a path that deviates from the mainstream.
14. When I see a problem, I feel confident that I can find a way to solve it.
15. I am a decision-maker.

Since they suggest that teacher change agents possess qualities that will sustain them through any difficulties they encounter, these items reflect my original factors of risk-taking, motivation, and self-efficacy. Being able to remain motivated and capable of taking risks in order to maintain their commitment to see their goals through to fruition on a school-wide level is important for teacher change agents, especially since collaborating with colleagues can sometimes lead to unexpected complications. In short, teachers who are willing to initiate change efforts outside their own classrooms must not only be committed to working collaboratively, but must also be confident in their ability to solve any unanticipated problems or obstacles that might arise.

For example, returning to the scenario described in the previous section: Teacher B might find that half of her anti-bullying task force is in favor of an after-school intervention program, the other half supports the use of more stringent disciplinary measures as a solution, and that neither group is willing to negotiate. Because she possesses features of a confident and creative problem solver who isn't afraid to take risks, Teacher B is likely to be able to offer a compromise acceptable to both parties. Her

ability to overcome difficulties together with her expertise in different contexts and in collaborative settings will allow Teacher B to accomplish her goals more effectively.

The Missing Factor: Ownership

Interestingly, one original factor---ownership---does not seem to be present in the previous discussions of contextual, collaborative, and problem-solving expertise. In fact, none of the eight items written to address ownership was included in the final version of the TCAS. This is perhaps surprising, especially since previous literature suggests that “change requires ownership” (David, 1989, p.46). Working from this belief, I initially hypothesized that ownership was a “primary factor” of teacher change agency and consequently allotted it more space in my conceptual framework graphic (Figure 1). However, although ownership is not explicit in the items, I argue that it is embedded in contextual, collaborative, and problem-solving expertise.

I posit that ownership is not actually absent from contextual, collaborative, and problem-solving expertise, but is instead an underlying “hidden” element. For example, Teacher A blames “kids today” for the bullying problem in her school and therefore does not see any reason why she should address it. In contrast, Teacher B sees bullying as a problem that she both can and should do something about and works towards a solution. Teacher B might not explicitly state that she “owns” the bullying in her school, but it is apparent that she feels a responsibility to address it.

Examples of implicit ownership can be seen by more closely examining many of the items. For example, consider the following problem-solving expertise item: When faced with an obstacle, I *don't* often give up rather than continue. Clearly, teacher

change agents need to feel motivated and self-efficacious about taking risks in order to overcome a difficulty. However, it could be argued that teacher change agents also own their school's problems since it is unlikely that they would persist in pursuing a goal unless they felt a personal need and/or responsibility to do so.

In sum, the exploratory factor analysis demonstrates that 15 items best capture the concept of teacher as change agent. These items suggest that teacher change agents possess the following three kinds of expertise: contextual, collaborative, and problem-solving. Put plainly, teacher change agents are able to work collaboratively in both classroom and school contexts and are able to solve problems creatively. Further, each area of expertise is essential if teachers are to initiate change efforts outside of their own classrooms. For example, a teacher who works effectively with students but not with colleagues is unlikely to be a change agent. Similarly, teachers who lack the ability to overcome stumbling blocks will have difficulty pursuing their goals to completion. However, as Embretson (2007) notes, assertions made about an instrument's meaning are best supported by internal sources of evidence. One such internal source of evidence is that of reliability, the focus of the following section.

Research Question 2: What Level of Reliability Can Be Attained With This Measure?

As mentioned previously, one drawback of shortening a scale's length is that the scale's reliability can be adversely affected. Since the Cronbach's alpha for the original 64 items ($\alpha=.91$) suggested that I had "reliability to spare" (DeVellis, 2003, p.97), I felt justified in reducing the number of items to 15. The resulting "very good" alpha coefficient was $\alpha=.81$. However, when an instrument consists of subscales (as it does in

the case of the TCAS), the overall reliability, while meaningful, is not of primary concern. Rather, the reliability coefficients of the individual subscales are of greater importance.

The Cronbach's alphas for the three factors were as follows: Contextual Expertise (Factor 1), $\alpha=.74$; Collaborative Expertise (Factor 2), $\alpha=.72$; and Problem-Solving Expertise (Factor 3), $\alpha=.71$. While these are generally considered to be "acceptable" levels of reliability, further discussion is warranted.

Consider Figure 1 (in Chapter 2), the conceptual framework used to demonstrate my theory of which attributes teachers willing to initiate change efforts outside their classrooms must possess. According to the hypothesized model, the proposed eight factors should have accounted for all of the variance in responses. In actuality, however, the resultant model looks like the one in Figure 2 (below). In this figure, we find that, for the 15 final items, one-half of the variance in responses can be accounted for by a teacher change agent's contextual, collaborative, or problem-solving expertise. In other words, 50.8% of the variance in responses was due to something other than the three factors extracted in data analysis.

In an effort to improve the reliabilities of the subscales, I also included 15 experimental items in the final version of the TCAS. These were items that raised the alphas of each factor to within the .80 to .90 range. However, inclusion of these items did not fit the three factor model, and in fact lowered the variance of the entire instrument to 40.8%. Thus, for this sample of classroom teachers, the level of reliability that can be attained by a self-report instrument designed to assess teachers' capacity to initiate

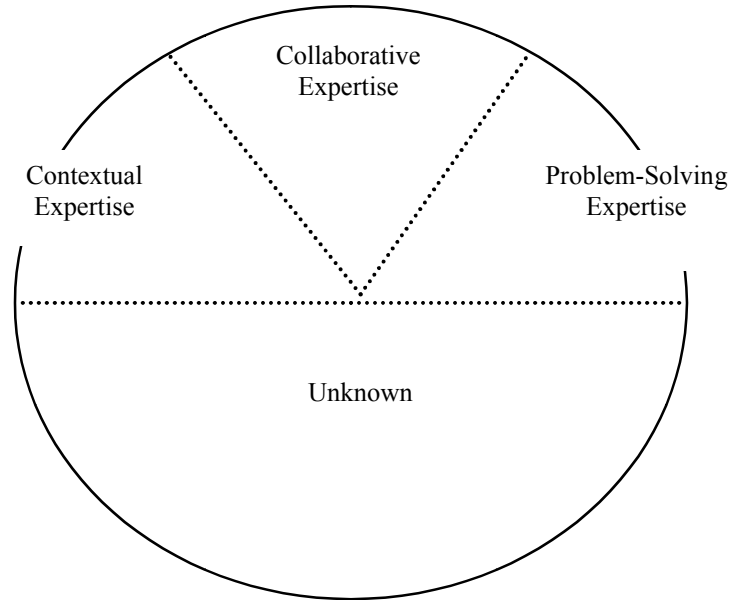


Figure 2. Revised conceptualization of teacher change agent.

change lies within the .70 to .80 range; however, more research is necessary.

In sum, two conclusions can be drawn from the reliabilities for both the overall TCAS and for its subscales. The first is that the TCAS is a reliable instrument for assessing teacher's willingness to initiate change in their schools. Given that there is no other teacher change agent instrument currently available, this finding is meaningful for a number of stakeholders in the education community. For example, educators, policymakers, and teacher advocates interested in promoting "bottom up" school reform efforts might use the TCAS to identify teachers with the potential to initiate such change. The second conclusion that can be drawn is that the TCAS can reliably estimate whether

teachers possess the three kinds of expertise---contextual, collaborative, and problem-solving---that contribute to the construct “teacher change agent.” Given that previous literature makes little mention of the characteristics teachers must possess in order to initiate changes in their schools, this finding is a noteworthy contribution to the current body of education research. Further, as the education community continues to advocate for teachers to “take the lead” in school improvement/reform (i.e., Hatch, Eiler-White, & Faigenbaum, 2005), teacher education programs could specifically address the three attributes to ensure that its graduates would have the capacity to initiate change in their own schools.

Research Question 3: What Evidence of Construct Validity Can Be Demonstrated?

Construct validity is “the extent to which a measure ‘behaves’ the way that the construct it purports to measure should behave with regard to established measures of other constructs” (DeVellis, 2003, p.53). Given that there are no “established measures” of teacher change agency *per se*, it is difficult to provide construct validity evidence for the TCAS in this manner. However, other forms of evidence can be used to establish a scale’s construct validity (Embretson, 2007).

Another way to establish a scale’s construct validity is to estimate the relationships between and among the scale’s items. The scale should be reliable in order to make the determination that it has construct validity. In the case of the TCAS, content validity was ensured by the participation of the panel of experts. Further, nearly all of the correlations between items of the same factor were statistically significant at either the $p < .05$ or $p < .01$ level. Lastly, the statistical analyses conducted for this study demonstrate

that the TCAS is a reliable instrument for assessing teachers' willingness to initiate change in their schools. Therefore, I argue that the TCAS does have construct validity because its inter-item correlations are strong and its overall reliability is acceptably high. However, since this study was a first attempt to "capture" the concept of teachers as change agents, I suggest that efforts to provide further evidence of its validity be pursued in future research, as will be discussed in the following section.

Implications for Future Research

The data analyses conducted during the development and validation of the TCAS indicate that it is a reliable and valid instrument for use with classroom teachers. However, given that previous research does not provide a "definitive profile" (Cobb, 2001, p.91) of teacher change agency, it is important to note that this study is a first attempt to "capture" the attributes of teachers who are willing to initiate change outside of their classrooms. Therefore, further evidence in support of the TCAS's reliability and validity is needed before it can be used on a more wide-scale basis. Specifically, future research involving the TCAS should use larger samples and attempt to determine whether or not criterion-related validity can be established.

Larger Samples

The TCAS should be administered to larger samples in future research for several reasons. First, when a scale is administered to too small a sample, the patterns of covariation among the items may not be stable. In other words, an item that appears to contribute to the internal consistency of the scale when administered to a smaller sample might not have the same effect when administered to another sample. In addition, the

likelihood of a factor structure reappearing in another sample depends in part upon the sample size used in the original analysis, and it is generally accepted that more stable factor patterns will emerge from larger samples (DeVellis, 2003). Thus, while scale development studies involving a modest sample size (e.g., 150) are not unusual, future research involving the TCAS should seek to administer the instrument to larger samples in order to provide further evidence of item stability and scale reliability and to confirm the three factor model of teacher change agency as well.

Criterion-Related Validity

Since evidence indicating that the TCAS is highly correlated with measures shown to be psychometrically sound would further bolster both the TCAS's reliability and validity, future research should attempt to determine whether the TCAS has criterion-related validity. Although no instruments that measure teacher change agency *per se* are currently available, criterion-related validity might be established through the use of measures that relate to contextual, collaborative, and/or problem-solving expertise. For example, both the TCAS and the Teacher Self-Efficacy Scale (Bandura, 1986) could be administered to a large sample of respondents. If the sample's scores on the Teacher Self-Efficacy Scale correlated strongly with the TCAS's problem-solving expertise items (Items 2, 4, 14, and 15), criterion validity of the TCAS would be established. Two types of criterion-related validity---known-groups and predictive---would be of particular importance if the TCAS is to be used on a more wide-scale basis.

Known-groups validity. The purpose of known-groups validation is to demonstrate that a scale score can differentiate one group of respondents from another.

For example, in the case of the TCAS, known-groups validation would involve administering the TCAS to two samples of teachers: Sample X, consisting of teachers who had been identified as teacher change agents; and Sample Y, consisting of teachers who had not been identified as teacher change agents. The hypothesis guiding known-groups validity research would be that teachers from Sample X would have higher scores on the TCAS than would the teachers from Sample Y. If this were proven to be true, it could be said that the TCAS could differentiate teacher change agents from the general teacher population. Thus, establishing the known-groups of validity of the TCAS would be of great practical significance for educators, policymakers, and teacher advocates interested in promoting “bottom up” school reform efforts, since it could be used identify teachers with the potential to initiate such change.

Predictive validity. Predictive validity is the extent to which a scale predicts scores on another measure. Put another way, a study involving predictive validity for the TCAS would seek to answer the following question: Does the TCAS *predict* whether a teacher has the capacity to initiate change outside of his/her own classroom? For example, suppose that a researcher decides that one criterion of teacher change agency is the number of grants a teacher writes in an effort to support an improvement in teaching and/or student learning in their school. A study of predictive validity for the TCAS would collect teachers’ scores on the instrument and also their “scores” on this criterion measure (i.e., number of grants actually written). If TCAS scores correlated positively with the number of grants written, then two conclusions could be drawn: 1) the TCAS can predict whether teachers will be change agents, and 2) grant-writing is a reliable indicator of

teacher change agency. Thus, establishing the predictive validity of the TCAS would be of particular importance for teacher education faculty, who could focus on grant writing in their program(s) in order to ensure that their graduates have the capacity to initiate changes in their schools.

In conclusion, if further evidence of its reliability and validity can be demonstrated in future studies, the TCAS would be a powerful tool for the education community. Teachers would be able to assess their readiness to initiate improvements in teaching and/or student learning outside of their classrooms, and administrators could identify teachers who have the potential to actively pursue “bottom-up” reform efforts. In addition, teacher education faculty could ensure that their graduates had the skills necessary to change their schools. Thus, given that no other teacher change agent instrument currently exists and that the education community continues to advocate for teachers to take a more active role in school reform, this study marks an important first step in the identification of classroom teachers who can actively serve on “the front lines” of school reform.

APPENDICES

Appendix A

Recruitment Letter for Panel of Experts

Dear Colleagues:

I am seeking 3-7 current classroom teachers to serve as members of a panel of experts for research regarding teacher change agents. Your responsibilities would include the creation and the revision of items for a survey instrument designed to assess teachers' self-reported capacity to initiate change efforts in their schools.

Participants will be compensated at a rate of \$20 per hour, and it is expected that the total time required for your assistance will be 4 hours. Your name and identifying information will be kept confidential.

If you have any further questions or concerns, you may contact me via email: <klukacs@gmu.edu> or by phone: 703.967.1555.

Thank you in advance for your consideration.

Sincerely,

Karrin S. Lukacs

Appendix B

Items Considered for Pilot TCAS

Content/Pedagogical Knowledge

To meet students' needs, I select from among various teaching strategies.

I adapt to the needs of my students when necessary.

I believe that all students learn the same way.

I understand how what I'm currently teaching my students relates to their overall academic development.

My curriculum is independent from that of other grades.

I teach mainly from my school's assigned textbooks.

I believe that all good teachers monitor and manage student learning within their own classrooms.

I believe that good teachers know what their students understand and what they lack.

I believe that good teachers know their students' academic strengths and weaknesses.

Teachers should reflect on their teaching on a regular basis.

I am willing to meet the individual needs of my students.

I invest time in understanding my students' learning styles and interests.

I invest time in understanding my students' background knowledge.

I don't believe in only "teaching to the test."

Not every student can succeed in school.

I believe that I can help all students learn.

If I teach my students and give them work to do, that is proof enough that I have done my job.

I am able to assess/evaluate student understanding using a variety of techniques.

Ownership

If a change is going to occur in my school, it's up to me to work towards it.

I feel that some problems in my school just can't be solved.

I have a responsibility to help all of the students to be successful.

For the most part, I accept things as they are in my school.

I believe that schools must look from within to make change.

I believe that a teacher should rely on his/her principal when it comes to making changes in a school.

I agree with the saying: "If it isn't broken, why fix it?"

I believe that teachers should be the ones to initiate change in schools.

If there is a problem in my school, I am willing to investigate a solution rather than deal with things "as is."

There is often a difference between what I think is best for students and what the administration expects of me.

My only job is to be responsible for teaching my students.

If a school reform is going to last, teachers need to be the ones to initiate it.

Ownership (continued)

It's not enough for me to complain about what I'm not satisfied with in my school.

I have a responsibility to change things in my school.

Without the support of my administrators, I can not affect change in my school.

What happens outside of my classroom is not my concern.

Self-efficacy

When I see a problem in my school, I feel confident I can find a way to solve it.

I am unable to envision myself making a difference in my school.

I can influence the decisions that are made in my school.

I feel confident that I can bring about change in my school.

I can help other teachers with their teaching skills.

I can get through to the most difficult (i.e., at-risk) students.

I can positively motivate all students to succeed.

I can make a difference in the lives of students.

There's not much I can do if a student doesn't want to succeed in school.

I know I can make a difference in my school.

Sometimes I don't feel successful as a teacher.

If something doesn't work the first time, I feel that it's not worth the time to continue trying.

I can change things in my school if I set my mind to it.

Empowerment

I have the power to change the way things are in my school.

There is little I can do to change the way things are in my school.

I believe that a teacher can change his/her school's culture.

I have the ability to impact the learning environment in my school.

Teachers have little power to change things.

I am a decision-maker in my school.

I can influence the decisions that are made in my school.

I cannot influence the decisions that are made in my school.

I have the power to make a difference in my school if I want to.

I have the ability to create new opportunities in my school.

I am unable to create new opportunities in my school.

I feel disillusioned about my ability to change things in my school.

I am assertive when it comes to helping students succeed.

I can have a positive effect in my school.

If I feel it is necessary, I will speak out and express my views to my colleagues.

I feel that I don't need permission to make changes in my school.

If my ideas for change are met with resistance from my administrator(s), I am unable to pursue those ideas.

Motivation

It is easy for me to stick to my aims and accomplish my goals.

I see change as an opportunity to grow professionally.

I actively seek opportunities to grow professionally.

When faced with an unanticipated obstacle, I often give up rather than continue.

I believe that if a teacher fails at something new, he/she should keep trying.

I feel motivated to solve problems in my school.

Once I put my mind to something, I rarely give up on reaching that goal.

I get excited about new ideas.

When I'm pursuing a goal, it is important that I am recognized for my efforts.

Rather than to fix the problems where I am, I will seek a better fit in a different school.

I like to set goals for myself.

Achieving a goal takes persistence and drive.

I am enthusiastic about pursuing a goal, even when I experience a setback.

I feel disillusioned about trying to make changes in my school.

I believe that teacher should be recognized for their efforts to create change.

I am easily frustrated when my ideas for change are met with resistance.

I welcome critical feedback on my ideas.

Risk-taking

I am not afraid to try new ways of teaching and/or learning.

I am resistant to suggesting changes at my school.

I am afraid to try new ways of teaching and/or learning.

I feel overwhelmed or anxious about suggesting new ways to do things.

I feel intimidated about making an effort to change the status quo in my school.

As a teacher, I prefer consistency and routine to uncertainty.

I am comfortable with trying new things as an educator.

I am content to allow others to make the decisions that will affect my classroom.

In my school, I am known as a person who is not afraid to take risks.

Leaving my comfort zone doesn't bother me.

I can find innovative ways to solve problems.

I am willing to try new ways of teaching.

It is okay to follow a path that deviates from the mainstream.

I am willing to take risks to change something about which I feel passionate.

I tend to be quiet at faculty meetings.

Micropolitical Expertise

I am effective in working with almost all of my colleagues.

If someone disagrees with my point of view, I usually try to persuade them to see things my way.

I have agreed to do something for a colleague if he/she agreed to do something for me in return.

If I want something to change in my school, I know who to go to for help.

Micropolitical Expertise (continued)

I know how to “pick my battles.”

I know how to influence my colleagues.

My colleagues often come to me for advice.

I can make tough decisions.

I am unwilling to moderate disagreements between my colleagues.

I know how to motivate my colleagues.

When I speak up, my colleagues listen.

My colleagues turn to me for information.

I don't know how to open lines of communication between me, my colleagues, and the administration.

Community Membership

I believe that when teachers work together, they are able to influence practice in their schools.

I prefer to work alone.

I value working collaboratively with other teachers.

I feel that teachers learn best with their peers.

I think that a teacher working in isolation from his/her peers is unlikely to change his/her school.

I believe that in order for change to be successful, teachers must work together.

Other teachers have provided me with support when I was confused and/or frustrated.

I enjoy working on group projects.

I do not like to rely on others.

I often turn to colleagues for advice.

Teachers can rally together to make a difference.

Appendix C

Items Selected for Pilot TCAS¹³

Content/Pedagogical Knowledge

I can adapt to the needs of my students when necessary.

I am able to assess/evaluate student understanding using a variety of techniques.

*I have a difficult time monitoring and managing all of the students in my classroom.

I invest time in understanding my students' learning styles and interests.

I invest time in trying to understand my students' background knowledge.

Teachers should reflect on their teaching on a regular basis.

*I don't understand how what I'm currently teaching my students relates to their overall academic development.

I believe that good teachers know their students' academic strengths and weaknesses.

Ownership

*What happens outside of my classroom is not my concern.

When there is a problem, I am willing to investigate a solution rather than deal with things "as is."

It's not enough for me to complain about what I'm not satisfied with at my school.

I believe that schools must look from within to make change.

I believe that teachers should be the ones to initiate change in schools.

*My only job is to be responsible for teaching my students.

*Without the support of my administrator(s), I cannot affect change.

There is often a difference between what I think is best for students and what the administration expects of me.

Self-efficacy

I can make a difference in the lives of students.

*There's not much I can do if a student doesn't want to succeed in school.

I can help other teachers with their teaching skills.

*I can't get through to the most difficult (i.e., at-risk) students.

Teachers can influence the decisions that are made in their schools.

*I am unable to envision myself making a difference.

When I see a problem, I feel confident that I can find a way to solve it.

*Sometimes I don't feel successful as a teacher.

Empowerment

If I feel it is necessary, I will speak out and express my views to my colleagues.

*I feel disillusioned about my ability to change things.

¹³ Items with an asterisk (*) were reverse scored.

Empowerment (continued)

I have the ability to impact my learning environment.

I am assertive when it comes to helping students succeed.

*Teachers have little power to change things.

*If my ideas for change are met with resistance from my administrator(s), I am unable to continue to pursue those ideas.

I believe that teachers can change their schools' culture.

When I see a problem, I feel confident that I can find a way to solve it.

Motivation

*When faced with an unanticipated obstacle, I often give up rather than continue.

I believe that if a teacher fails at something new, he/she should keep trying.

Achieving a goal takes persistence and drive.

*I am wary of critical feedback on my ideas.

Once I put my mind to something, I rarely give up on reaching that goal.

I actively seek opportunities to grow professionally.

I see change as an opportunity to grow.

I am enthusiastic about pursuing a goal, even when I experience a setback.

Risk-taking

I am known as a person who is not afraid to take risks.

It is okay to follow a path that deviates from the mainstream.

I am a creative problem solver.

Leaving my comfort zone doesn't bother me.

I am willing to take risks to change something about which I feel passionate.

*I feel intimidated about making an effort to change the status quo.

I am comfortable with trying new things as an educator.

*I am resistant to suggesting changes.

Micropolitical Expertise

When faced with two conflicting opinions, I'm open to negotiation.

I know how to influence my colleagues.

If one of my colleagues expresses an opinion different from my own, I try to understand his/her point of view.

*I always avoid confrontational situations.

I know how to motivate my colleagues.

My colleagues frequently seek me out for advice.

I am able to prioritize among competing concerns.

*I don't know how to compromise effectively.

Community Membership

I value working collaboratively with other teachers.

I frequently engage in scholarly discussion(s) with my teaching colleagues.

Community Membership (continued)

*I prefer to work alone.

*I am reluctant to rely on others.

I believe that when teachers work together, they are able to influence practice in their schools.

I think that teachers working in isolation from their peers are unlikely to change their schools.

I believe that in order for change to be successful, teachers must work together.

I value being an active member of the teaching community.

Appendix D

Pilot Version of TCAS

Please indicate your level of agreement by circling ONE of the following choices for each statement:

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

- | | | | | |
|--|----|---|---|----|
| 1. I value working collaboratively with other teachers. | SA | A | D | SD |
| 2. If I feel it is necessary, I will speak out and express my views to my colleagues. | SA | A | D | SD |
| 3. What happens outside of my classroom is not my concern. | SA | A | D | SD |
| 4. When there is a problem, I am willing to investigate a solution rather than deal with things "as is." | SA | A | D | SD |
| 5. When faced with an unanticipated obstacle, I often give up rather than continue. | SA | A | D | SD |
| 6. I feel disillusioned about my ability to change things. | SA | A | D | SD |
| 7. I am known as a person who is not afraid to take risks. | SA | A | D | SD |
| 8. I can adapt to the needs of my students when necessary. | SA | A | D | SD |
| 9. It is okay to follow a path that deviates from the mainstream. | SA | A | D | SD |
| 10. I believe that if a teacher fails at something new, he/she should keep trying. | SA | A | D | SD |
| 11. I can make a difference in the lives of students. | SA | A | D | SD |

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

12. I am a creative problem solver.	SA	A	D	SD
13. When faced with two conflicting opinions, I'm open to negotiation.	SA	A	D	SD
14. I am able to assess/evaluate student understanding using a variety of techniques.	SA	A	D	SD
15. I frequently engage in scholarly discussion(s) with my teaching colleagues.	SA	A	D	SD
16. Leaving my comfort zone doesn't bother me.	SA	A	D	SD
17. I know how to influence my colleagues.	SA	A	D	SD
18. I have a difficult time monitoring and managing all of the students in my classroom.	SA	A	D	SD
19. It's not enough for me to complain about what I'm not satisfied with at my school.	SA	A	D	SD
20. I invest time in understanding my students' learning styles and interests.	SA	A	D	SD
21. There's not much I can do if a student doesn't want to succeed in school.	SA	A	D	SD
22. Achieving a goal takes persistence and drive.	SA	A	D	SD
23. I can help other teachers with their teaching skills.	SA	A	D	SD
24. I prefer to work alone.	SA	A	D	SD
25. I am reluctant to rely on others.	SA	A	D	SD
26. I can't get through to the most difficult (i.e., at-risk) students.	SA	A	D	SD

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

27. I invest time in trying to understand my students' background knowledge.	SA	A	D	SD
28. I believe that when teachers work together, they are able to influence practice in their schools.	SA	A	D	SD
29. I think that teachers working in isolation from their peers are unlikely to change their schools.	SA	A	D	SD
30. I am willing to take risks to change something about which I feel passionate.	SA	A	D	SD
31. If one of my colleagues expresses an opinion different from my own, I try to understand his/her point of view.	SA	A	D	SD
32. I believe that schools must look from within to make change.	SA	A	D	SD
33. I believe that teachers should be the ones to initiate change in schools.	SA	A	D	SD
34. Teachers can influence the decisions that are made in their schools.	SA	A	D	SD
35. I have the ability to impact my learning environment.	SA	A	D	SD
36. I always avoid confrontational situations.	SA	A	D	SD
37. Teachers should reflect on their teaching on a regular basis.	SA	A	D	SD
38. I am assertive when it comes to helping students succeed.	SA	A	D	SD

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

39. I believe that in order for change to be successful, teachers must work together.	SA	A	D	SD
40. I am wary of critical feedback on my ideas.	SA	A	D	SD
41. I know how to motivate my colleagues.	SA	A	D	SD
42. Teachers have little power to change things.	SA	A	D	SD
43. I value being an active member of the teaching community.	SA	A	D	SD
44. Once I put my mind to something, I rarely give up on reaching that goal.	SA	A	D	SD
45. My colleagues frequently seek me out for advice.	SA	A	D	SD
46. I actively seek opportunities to grow professionally.	SA	A	D	SD
47. I feel intimidated about making an effort to change the status quo.	SA	A	D	SD
48. My only job is to be responsible for teaching my students.	SA	A	D	SD
49. I am comfortable with trying new things as an educator.	SA	A	D	SD
50. I am able to prioritize among competing concerns.	SA	A	D	SD
51. If my ideas for change are met with resistance from my administrator(s), I am unable to continue to pursue those ideas.	SA	A	D	SD
52. I am unable to envision myself making a difference.	SA	A	D	SD
53. Without the support of my administrator(s), I cannot affect change.	SA	A	D	SD

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

54. I don't know how to compromise effectively.	SA	A	D	SD
55. I see change as an opportunity to grow.	SA	A	D	SD
56. I am resistant to suggesting changes.	SA	A	D	SD
57. Sometimes I don't feel successful as a teacher.	SA	A	D	SD
58. I don't understand how what I'm currently teaching my students relates to their overall academic development.	SA	A	D	SD
59. I believe that teachers can change their schools' culture.	SA	A	D	SD
60. I am a decision-maker.	SA	A	D	SD
61. When I see a problem, I feel confident that I can find a way to solve it.	SA	A	D	SD
62. I am enthusiastic about pursuing a goal, even when I experience a setback.	SA	A	D	SD
63. I believe that good teachers know their students' academic strengths and weaknesses.	SA	A	D	SD
64. There is often a difference between what I think is best for students and what the administration expects of me.	SA	A	D	SD

Appendix E

Final Version of TCAS

Please indicate your level of agreement by circling **ONE** of the following choices for each statement:

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

- | | | | | |
|---|----|---|---|----|
| 1. I value working collaboratively with other teachers. | SA | A | D | SD |
| 2. When faced with an unanticipated obstacle, I often give up rather than continue. | SA | A | D | SD |
| 3. I can adapt to the needs of my students when necessary. | SA | A | D | SD |
| 4. It is okay to follow a path that deviates from the mainstream. | SA | A | D | SD |
| 5. I am able to assess/evaluate student understanding using a variety of techniques. | SA | A | D | SD |
| 6. I know how to influence my colleagues. | SA | A | D | SD |
| 7. I prefer to work alone. | SA | A | D | SD |
| 8. I am reluctant to rely on others. | SA | A | D | SD |
| 9. I can't get through to the most difficult (i.e., at-risk) students. | SA | A | D | SD |
| 10. I believe that schools must look from within to make change. | SA | A | D | SD |
| 11. I believe that in order for change to be successful, teachers must work together. | SA | A | D | SD |
| 12. I know how to motivate my colleagues. | SA | A | D | SD |

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

13. I value being an active member of the teaching community.	SA	A	D	SD
14. I am a decision-maker.	SA	A	D	SD
15. When I see a problem, I feel confident that I can find a way to solve it.	SA	A	D	SD
16. If I feel it is necessary, I will speak out and express my views to my colleagues.	SA	A	D	SD
17. I invest time in understanding my students' learning styles and interests.	SA	A	D	SD
18. I believe that when teachers work together, they are able to influence practice in their schools.	SA	A	D	SD
19. I am a creative problem solver.	SA	A	D	SD
20. I always avoid confrontational situations.	SA	A	D	SD
21. There's not much I can do if a student doesn't want to succeed in school.	SA	A	D	SD
22. I think that teachers working in isolation from their peers are unlikely to change their schools.	SA	A	D	SD
23. I invest time in trying to understand my students' background knowledge.	SA	A	D	SD
24. My only job is to be responsible for teaching my students.	SA	A	D	SD
25. I am willing to take risks to change something about which I feel passionate.	SA	A	D	SD

Appendix F
Item Renumbering Chart¹⁴

Pilot Item #	Final Item #
1	1
5	2
8	3
9	4
14	5
17	6
24	7*
25	8*
26	9*
32	10
39	11
41	12
43	13
60	14
61	15
2	16
20	17
28	18
12	19
36	20*
21	21*
29	22
27	23
48	24*
30	25
40	26*
52	27*
38	28
47	29*
55	30

¹⁴ Items with an asterisk (*) were reverse scored.

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