Teacher Self-Efficacy Research and Teacher Education

David W. Chan
The Chinese University of Hong Kong

An overview on the different conceptualizations and assessment of teacher efficacy was provided, leading to the discussion on the need to develop assessment instruments of greater comprehensiveness and increasing specificity to accommodate the complexity of teacher functioning in times of education reforms. While it is somewhat controversial whether positive self-efficacy beliefs or doubts lead to desirable student outcomes and teacher performance, and whether teacher effectiveness rather than teacher self-efficacy should be considered causally prior to valued outcomes and should be more directly studied, the support for the importance of implications of teacher self-efficacy for teacher education was compelling. The need for further research on teacher self-efficacy in Hong Kong is discussed.

Key words: Teacher education; teacher self-efficacy; education reform

Correspondence concerning this article should be addressed to David W. Chan, Department of Educational Psychology, Faculty of Education, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong. E-mail: davidchan@cuhk.edu.hk

In the past three decades, there has been increased attention directed to the study of teacher efficacy. There are obvious reasons for such burgeoning interests, as many researchers have considered teacher efficacy as a crucial factor in improving teacher education and promoting education reform (e.g., Ashton, 1984; Goddard, Hoy, & Woolflock Hoy, 2000; Ross, 1998; Scharmann & Hampton, 1995). Broadly conceptualized, teacher efficacy refers to the teacher's belief or judgment of his or her abilities to bring about valued outcomes of student engagement and learning, even among students who might be difficult or unmotivated (Armor et al., 1976; Bandura, 1977). Specifically, teacher efficacy has been related to student outcomes such as achievement (Ashton & Webb, 1986; Ross, 1992), motivation (Midgley, Feldlaufer, & Eccles, 1989), and students' own sense of efficacy (Anderson, Greene, & Loewen, 1988).

Apart from the impact on student outcomes, teacher efficacy has also been related to teachers' behaviors in the classroom, affecting the effort they invest in teaching, the goals they set, and their level of aspiration. Accordingly, teachers with a higher sense of efficacy tend to be less critical of students who make errors (Ashton & Webb, 1986), work longer with a student who is struggling to learn (Gibson & Dembo, 1984), and be less inclined to refer a difficult student to special education (Meijer & Foster, 1988; Podell & Soodak, 1993; Soodak & Podell, 1993). Moreover, these teachers also tend to exhibit greater levels of planning and organization, greater persistence when things do not go smoothly, and greater resilience in the face of setbacks. Thus, these teachers could be more enthusiastic in teaching (Allinder, 1994; Guskey, 1984), more committed to teaching (Coladarci, 1992; Evans & Tribble, 1986; Trentham, Silvern, & Brogdon, 1985) and are more likely to stay in teaching (Glickman & Tamashiro, 1982).

The association of high teacher efficacy with positive teacher behaviors also applies to the association with factors related to reform-oriented education. These factors include, among others, the greater use of hands-on teaching methods (Riggs & Enochs, 1990), the less use of teacher-directed whole-class instruction (Ashton & Webb, 1986), and a more humanistic

classroom control orientation (Woolfolk, Rosoff, & Hoy, 1990). In addition, teachers with a stronger sense of efficacy tend to be more open to new ideas and more willing to experiment and adopt teaching innovations to better meet the needs of their students (Allinder, 1994; Ghaith & Yaghi, 1997; Guskey, 1984, 1988; Smylie, 1988; Stein & Wang, 1988).

In summary, high or positive teacher efficacy, that is, high confidence in one's teaching abilities, has been viewed as exerting a positive influence on educational improvement (e.g., Ross, 1995; Soodak & Podell, 1996). It is therefore no surprise that some educators have even suggested that education reforms that fail to address teacher efficacy could be less effective and less successful (e.g., DeMesquita & Drake, 1994; Sarason, 1990). Nonetheless, it can be concluded that the study of teacher efficacy has great implications in teacher education and education reform.

The Different Conceptualizations and Assessment of Teacher Efficacy

While the importance of studying teacher efficacy has been generally acknowledged, there is no consensus view as to the meanings and measures of the construct of teacher efficacy (see Tschannen-Moran & Woolfolk Hoy, 2001; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). In reviewing the vast body of literature on teacher efficacy, Tschannen-Moran et al. (1998) identified two main sources in the formulation of the concept of teacher efficacy. One conceptualization of teacher efficacy was largely grounded within Rotter's (1966) concept of locus of control, which led to the work of researchers of the American Rand Corporation in teacher efficacy. The second conceptualization could be attributed to Bandura's (1986) social cognitive theory, on the basis of which Bandura's (1977, 1997) theory of self-efficacy was developed.

Based on these conceptualizations, a distinction could be made between general teacher efficacy, which refers to teachers' beliefs in the ability of teachers as a profession to affect student outcomes, and personal teacher

efficacy or teachers' personal sense of efficacy, which refers to teachers' beliefs about their own ability to affect student outcomes. This distinction served as a basis for Gibson and Dembo's (1984) scale for measuring teachers' sense of self-efficacy.

Consistent with Bandura's (1977, 1997) theory of self-efficacy, teacher efficacy could also be distinguished into outcome expectancies and efficacy expectancies. Outcome expectancies refers to teachers' beliefs about the effects that specific teaching actions have on students, and efficacy expectancies refers to teachers' beliefs about their own ability to execute specific teaching actions.

In examining the assessment of the construct of teacher efficacy, Tschannen-Moran and Woolfolk Hoy (2001) reviewed the construction of various instruments developed on the basis of the two conceptualizations. For example, based on the Rotter conceptualization, there are the RAND Scale (Armor et al., 1976), the Teacher's Locus of Control (Rose & Medway, 1981), and Responsibility for Student Achievement (Guskey, 1981). On the other hand, based on the Bandura conceptualization, there are the Teacher Efficacy Scale (Gibson & Dembo, 1984), the Efficacy Beliefs in Science Teaching Scale (Riggs & Enchos, 1990), Ashton's Events Scale (Ashton, Olejnik, Crocker, & McAuliffe, 1982), and Bandura's Teacher Efficacy Scale (Bandura, 1997). In general, teacher efficacy has almost always been assessed through teacher self-reports on a variety of Likert-scale items that address a range of teaching tasks and situations, across all aspects of teaching, or all aspects of teaching for specific subjects.

Regardless of the distinction between the two conceptualizations, researchers in developing different measures have sought to broaden the conceptual scope of teacher efficacy measurement instruments by introducing additional areas of teacher functioning and responsibility at work, or by expanding the scope of teacher efficacy beliefs conceptualization. However, it is also understood that teachers do not feel equally efficacious in all teaching situations, and their efficacy beliefs could be task-specific and context-specific, thus making it necessary to construct specific teacher efficacy scales.

Despite such theoretical and empirical reasons for using highly specific teacher efficacy assessments, global assessment of teacher efficacy still dominates teacher efficacy research, and the emphasis has inevitably been on teacher self-efficacy.

The construction of new global and specific scales generally proceeds by adapting and modifying existing scales. For example, based on the Gibson-Dembo scale, Emmer and Hickman (1991) adapted the instrument to classroom management situations. Soodak and Podell (1996) expanded the instrument to include students' behavioral and emotional problems in addition to the learning related problems. Rich, Lev, and Fischer (1996) added a scale for measuring teacher efficacy in promoting social relations among students. They also added items drawn from other scales concerning teachers' responsibility for student academic achievements, items on professional self-image and on teachers' self-report on their teaching behaviors.

The need to develop more comprehensive or more specific teacher efficacy scales generally rest on the assumption that the teacher's role is much more complex than represented in existing conceptualizations. In this connection, Bandura (1997) stated that teacher efficacy depended not only on teachers' efficacy beliefs in their ability to teach subject matter, but also on their efficacy beliefs in maintaining classroom discipline that establishes an environment of learning, in using resources, and in supporting parental efforts to help their children learn. Thus, Bandura (undated) developed his teacher self-efficacy scale to include seven categories: efficacy in influencing decision-making, efficacy in influencing the acquisition and use of school resources, teaching efficacy, efficacy in disciplinary matters, efficacy in enlisting parental involvement, efficacy in involving the community, and efficacy in creating a positive school climate. In a similar vein, Tschannen-Moran and Woolfolk Hoy (2001) suggested that useful measures of teacher efficacy should tap teachers' assessment of their competence across the wide range of activities and tasks they are asked to perform. Thus, a valid measure of teacher efficacy should assess both personal competence and an analysis of the tasks in terms of resources and constraints in particular

contexts. They developed the Teachers' Sense of Efficacy Scale that includes three subscales to assess the efficacy for instructional strategies, the efficacy for classroom management, and the efficacy for student engagement.

In summary, given the centrality of self-efficacy beliefs in teachers' lives, sound assessment of teacher self-efficacy is crucial to the understanding and prediction of teacher behaviors that have great implications in student outcomes and teacher education. It is anticipated that ongoing development of teacher self-efficacy scales will continue along the lines of increased comprehensiveness and greater domain and context specificity.

Issues in Teacher Self-Efficacy Research and Teacher Education

Despite the voluminous body of research studies on teacher self-efficacy, not all educators agree that teacher efficacy beliefs should be the target for study, and some even consider that the study of teacher self-efficacy could be misguided. Their reason is that what educators should be concerned with is teacher effectiveness rather than teacher self-efficacy, as teacher self-efficacy only refers to teachers' beliefs about their effectiveness (see Ross, 1995; Soodak & Podell, 1998). In this view, educators who endorse teacher self-efficacy research might simply conflate or even confuse teachers' beliefs with actual teacher effectiveness. It is not known to what extent that teacher efficacy beliefs might underestimate, overestimate, or accurately reflect teacher effectiveness, and teacher effectiveness should be directly studied. In addition, the assumption that increasing teacher self-efficacy would promote positive changes in teacher effectiveness has not received strong empirical support (Soodak & Podell, 1998). Indeed, the efforts to change teacher self-efficacy to improve student achievement have yielded mixed results both in enhancing teacher self-efficacy, and in the influence of enhanced teacher self-efficacy on student achievement (Ross, 1995).

Based on these and other methodological considerations, one might suggest that the association between teacher self-efficacy and valued

outcomes, including student achievement and teacher performance, might be spurious, if teacher effectiveness is considered as the third variable mediating their relationships. Accordingly, one might conclude that teacher self-efficacy beliefs have no independent influence on valued outcomes, and that differences in both the dependent variables of interest and in teacher efficacy beliefs found in past studies could be entirely due to teachers' actual effectiveness (or factors other than teacher self-efficacy). This conclusion is consistent with the findings of research studies on motivation that when students view ability as changeable with effort, and focus on learning goals rather than on performance goals, their confidence often does not make much difference (Dweck, 2000). Perhaps, self-efficacy or confidence often does not make much difference for teachers, too.

Despite the correlational nature of most teacher efficacy research, researchers frequently assume that positive teacher self-efficacy causes the outcomes with which it correlates, considering teacher self-efficacy as a pivotal variable influencing teacher practice and student outcomes (Ross, 1994). The assumed benefits of positive teacher self-efficacy are believed to derive from the effects of teacher self-efficacy on teacher cognition and motivation. Thus, educators often come to interpret the positive association between teacher self-efficacy and teacher performance or student achievement to mean that a higher sense of teacher self-efficacy would lead to better teacher performance and higher student achievement. However, correlation should not be confused with causality, and it is equally if not more likely that better teaching performance and valued student outcomes could lead to higher teacher self-efficacy rather than the reverse. Indeed, in the few studies where both teachers' efficacy beliefs and teaching practices changed, enhanced teacher self-efficacy followed rather than preceded successful implementation of new teaching methods (Guskey, 1986; Stein & Wang, 1998). Arguably, it could be expected that teacher self-efficacy might sometimes help teachers set higher standards for students, use more effective teaching strategies, spend greater efforts, and persist despite difficulties (Tschannen-Moran et al., 1998). In this manner, improved teaching would

foster even greater self-efficacy, and set the stage for the positive cycle to continue.

Regardless of the directionality of causation, it seems appropriate for educators to favor positive teacher self-efficacy, and expect that a positive sense of teacher self-efficacy would often support teacher education and educational reform efforts (Tschannen-Moran et al, 1998). However, not all educators and researchers agree that higher levels of teacher self-efficacy are always associated with more positive influences on teacher performance and teacher education. Wheatley (2002), for example, identified a number of benefits for teacher education and education reform that could have little to do with a high sense of self-efficacy, but might follow from having doubts about self-efficacy, as these doubts could engender reflection, enhance motivation to learn, increase responsiveness to diversity, foster productive collaboration, and engineer changes that evoke disequilibrium. Indeed, attempts to promote teachers' positive sense of efficacy beliefs within teacher education programs might have the unintended effects of suppressing potentially beneficial teacher doubts. Thus, one might admit that persistent high self-efficacy beliefs in the face of poor teacher performance might produce avoidance rather than positive action. Alternatively, one might also suggest that a somewhat positive sense of efficacy for learning to teach would be necessary to respond to doubts in positive ways.

Reconceptualization of Teacher Self-Efficacy and Education Reform

While many issues related to teacher self-efficacy research remain unresolved, there is also a call for a general reconceptualization of teacher self-efficacy research in order to make it more useful to today's teacher educators (e.g., Wheatley, 2005). On the one hand, the notion of teacher self-efficacy needs to be reconceptualized to take into consideration the additional complexity of teachers' functioning introduced by more recent education reform efforts. On the other hand, the overemphasis of studies on

teaching self-efficacy needs to be balanced by more studies on other aspects of teacher efficacy beliefs related to teachers' professional world such as collegiality and the school context (e.g., Friedman, 2000).

For example, Friedman and Kass (2002) suggested that teacher self-efficacy should embrace the efficacy beliefs related to classroom and school as the teacher's two major domains of functioning, including teaching activities, and relationships with students, parents, colleagues, and the principal, as well as organizational functioning. Thus, teacher self-efficacy should encompass working with students within the classroom context, and being a member of the school as an organization. In the same connection, Cherniss (1993) has also suggested that teacher self-efficacy should cover the three domains of task (the level of the teacher's skill in teaching, disciplining and motivating students), relations (the teacher's ability to work harmoniously with others, particularly service recipients, colleagues and direct supervisors), and organization (the teacher's ability to influence the social and political powers of the organization), and these three domains of teacher self-efficacy could contribute to understanding and preventing teacher burnout.

The need for reconceptualization of teacher self-efficacy has also received renewed impetus from the introduction of education reforms. Traditionally, teacher self-efficacy research has focused on teachers' beliefs regarding their skills and performances in the immediate future, rather than teachers' efficacy beliefs regarding learning to teach better. Teachers' efficacy beliefs about their ability to learn to teach in new ways to achieve reform-oriented goals such as comprehension, critical thinking, and creativity is often more important for teachers in education reform than is traditional teacher efficacy that is grounded in traditional goals (e.g., rote memorization, test scores), or traditional teaching methods, or both. More specifically, this reconceptualization is needed in order to provide useful understanding about reformed educational approaches in which teacher-student relationships are transformed, with students taking a more responsible and active role in their own learning, and teachers becoming model learners

for their students. These approaches include democratic education, constructivist teaching, progressive education, developmentally appropriate practice, and other student-centered practices that include cooperative learning, autonomy support, and a more humanistic approach to classroom management (see Ross, 1995; Tschannen-Moran et al., 1998).

In line with the attempts to reconceptualize teacher self-efficacy research to accommodate changes arising from education reforms, various assessment instruments have been developed in the direction of comprehensiveness and domain or context specificity (see Tschannen-Moran et al., 1998). However, it is also believed that developing usable understanding of the complexity of teacher self-efficacy might require something more than paper-and-pencil self-report. Indeed, a central challenge for researchers and educators interested in using teacher self-efficacy in teacher education is to identify teacher education practices that lead to changes in teachers' efficacy beliefs, which in turn support meaningful changes in actual teaching. In this connection, researchers frequently suggest the need for more interpretive research (e.g., Tschannen-Mora et al., 1998), and teacher observations and interviews, contextual data, and teacher narratives should be involved (see Henson, 2001, 2002; Labone, 2004).

Teacher Self-Efficacy Research in Hong Kong

It is generally acknowledged that teacher self-efficacy research has practical implications for teacher education in Hong Kong. Educators have also suggested using teacher self-efficacy for summative and formative evaluations, and focusing teacher education on developing teachers' sense of efficacy (see also Ashton, 1984; Fritz, Miller-Heyl, Kreutzer, & MacPhee, 1995; Housego, 1992; Ramey-Gassert, Shroyer, & Staver, 1996; Ross, 1998; Scharmann & Hampton, 1995). Equally relevant in Hong Kong are the development of assessment instruments of increasing comprehensiveness and domain-specificity, and the reconceptualization of teacher self-efficacy to take into consideration education reform efforts.

Specifically, efforts have been made in developing teacher self-efficacy scales that assess teacher functioning in the Hong Kong school contexts, including, for example, specific teacher work in guidance and counseling (e.g., Ho & Hau, 2004). Other research efforts have also been directed to examining teacher self-efficacy correlates such as teacher stress and burnout, emotional intelligence, and multiple intelligences (e.g., Chan, 2002, 2003b, 2004), and the use of teacher narratives (see Chan, 2003a).

In summary, teachers' beliefs about their individual agency are the central focus of teacher efficacy research. Examining individual teacher self-efficacy can be a powerful tool to understanding and improving teacher education. While it is understood that efficacy is a future-oriented judgment that has to do with the teacher's perception of competence rather than actual level of competence, it could be surmised that slightly overestimating one's actual capabilities might have a positive effect on performance. On the other hand, Bandura's (1977) self-efficacy theory does suggest means for influencing efficacy beliefs (e.g., mastery experience, vicarious experiences, persuasion, and emotional and physiological states), and teacher educators might attempt to use these (see Labone, 2004). In view of the potential fruitfulness of teacher self-efficacy research for teacher education, it is time for Hong Kong educators to rise to the challenge of conducting teacher self-efficacy research to accommodate and evaluate the changes introduced by waves of education reforms.

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