Teacher Efficacy as an Antecedent to Teacher Change during Professional Development

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1. Introduction

Our existing research interest in the area of professional development and our direct involvement in many staff development training workshops for in-service teachers and university lecturers has lead us to this line of inquiry and prompted us to this analysis of the psychological antecedents to individual teacher change in the professional or staff development process. Thus, this paper will elaborate the basic description of professional development, a professional teacher, the concept of teacher's change, the antecedents to teacher's change: Personal teaching efficacy, and finally teacher efficacy and professional development.

2. Professional Development

Professional development for teachers has been defined as the provision of activities designed to advance the knowledge, skills, and understanding of teachers in ways that lead to changes in their thinking and classroom behavior. It is a systematic attempt to bring about change toward an articulated end (Carr & Skinner, 2009; Fullan, 1995). Guskey (1995) and Guskey and Sparks (1996) further allude to the expanded functions of professional development as being: expanding the knowledge base, learning from practice, developing new attitudes and beliefs, getting opportunities for self-renewal and collaborating with and contributing to the growth of others.

Teacher professional development was found to have impacted the role of the teacher and the use of her/his pedagogy which in turn would affect the students' ability to learn effectively (Ross & Bruce, 2007). The program can enhance the ability of the teacher to reach students in meaningful ways through the teacher's development of innovative approaches to mandated content whilst motivating, engaging, and inspiring learners' minds. In general, the dimensions of professional development programs include: content, context, process and personal psychological factors (Smylie, 1998);

   (i)   Content – normally refers to the fine-tuning of existing skills and competencies and the learning of new skills and knowledge.

  (ii) Context – the need for administrative support (i.e., principal), the collegiality and cooperation of colleagues and peers in the workplace.

(iii) Process – includes the scheduling of the staff development activities and the types of training activities such as diagnosing and prescribing, giving information and demonstration, discussing application, coaching and practicing and giving feedback.

(iv) Teachers' Psychological Attributes – the personal or psychological aspects that could play a role in influencing teachers' behavior change as a result of professional development activities. Examples of the attributes are self-identity, self-regulation, self-concept, motivation, social and academic competency, self-efficacy, self-regulation, self-esteem, certainty of outcomes, attitudes, etc

A meta-analysis of the professional development literature by Showers, Joyce and Bennett (1987) from the finding of 30 years of research and practical experience and over 200 studies point to the importance of staff development program design in helping teachers to take what they learn back to their classrooms. The highlights of the findings are as follows:

No.	Findings
1.	What a teacher thinks about teaching determines what the teacher does when teaching
2.	Teachers will take useful info back to their classrooms when training includes four parts; i) presentation of theory, ii) demonstration of the new strategy, iii) initial practice in the workshop, iv) prompt feedback about their efforts
3.	Teachers are likely to keep and use new strategies and concepts if they receive coaching (either expert or peer) while they are trying the new ideas in their classroom
4.	Competent teachers usually benefits more from training than their less competent, less confident colleagues
5.	Individual teaching styles and value orientations do not often affect teachers' abilities to learn from staff development
6.	A basic level of knowledge or skill in a new approach is necessary before teachers can 'buy-in' to it.
7.	Initial enthusiasm for training is reassuring to the organizers but has relatively little influence upon learning
8.	Training location and the role of the trainer (admin, teacher, and professor) does not seem to matter. What does matter is the training design.
9.	Social cohesion and shared understandings do facilitate teachers' willingness to try out new ideas.

Schlechty and Whitford (1983) observe that professional development can serve at least three different functions. First, it can serve as an "establishing" function to promote organizational change through the introduction of new programs, new technologies, and new procedures in schools. Second, professional development can serve as a "maintenance" function to change practice to ensure compliance with preferred administrative routines and to support organizationally preferred modes of operation. Third, it can serve an "enhancement" function to improve individual teachers' performance in the classroom.

Many studies of the enhancement function of professional development fail to measure program effectiveness and teacher change in systematic ways. Most evaluations do not go beyond simple and more or less immediate statements of teachers' personal satisfaction with

the program and their activities (Baggini, 2005; Townsend & Bates, 2007). Some research has relied on teacher self-reports or secondhand reports from principals to assess the impact of professional development on classroom practice (Deemer, 2004; Guskey, 1998). Few attempts have been made, however, to evaluate the effectiveness of professional development using measures of change in actual teacher performance or student learning both in the short term or over time (Bartley, 2008; Pajares, 1996; Youens & McCarthy, 2007).

Furthermore, the most rigorous research examining the enhancement function of professional development has addressed only a limited set of issues. This research consists primarily of experimental studies that have sought to determine (a) whether teachers could be trained to implement specific classroom strategies or (b) whether different approaches to training are more effective than others in changing teacher practice. Taken together, the findings from research examining the enhancement function of professional development present an array of effective training strategies that could be implemented to increase the efficacy of professional development to improve teacher practice (Feist, 2003; Wheatley, 2005; Wilkinson, 2005). Training procedures, however, are but one of many factors that are likely to influence professional development outcomes.

3. The Concept of Teacher's Behavior and Change

March and Simon's (1958) influence model suggests that an individual's goals, knowledge, and beliefs from experience of alternative behaviors and their likely consequences is one of the related sources of information and influence that direct an individual's behavior and change within the organization. The model also suggests that there are varieties of other sources of individual motivation. Two of these sources are *outcome expectancy* – the belief that behaving in a certain way will produce anticipated benefits, and *efficacy expectancy* – the conviction that one can successfully execute the behavior required to produce anticipated benefits (Bandura, 1977). Bandura makes an important distinction between outcome and efficacy expectancies. Individuals can believe that particular activities will produce certain outcomes, but if they entertain serious doubts about whether they can perform those activities successfully, certainty about the relationships between activities and outcomes will not influence their behavior. Self-efficacy, therefore, becomes an important predictor of behavioral change. Bandura (2001; 1995) contends that an individual's sense of self-efficacy is derived from both perceptions of performance accomplishment and social persuasion, especially as it is reinforced by organizational activities and conditions that promote individual success.

These organizing concepts suggest three groups of antecedents that are likely to influence change in individual teacher practice through professional development: (a) teachers' pre-training psychological states, (b) characteristics of the teachers' immediate task environment – the classroom, and (c) various dimensions of the interactive contexts of schools. Each group is likely to have a direct relationship to teacher change. In addition, the characteristics of the

teachers' classrooms and the dimensions of the interactive contexts of schools are likely to have indirect relationships through their associations with teachers' psychological states (Darling-Hammond, 1996).

Likewise, theory and research on change suggest that the outcomes of interventions to influence behavior may be mediated significantly by the various psychological states of the individuals who are the subjects of those interventions (Fullan, 2001; Locke, VuUiamy, Webb, & Hill, 2005). Nowhere is the importance of these variables more evident than in research examining the establishing function of professional development in schools for curricular and other organizational innovations (Davidson, 2009; McLauglin & Marsh, 1978; Smylie, 1990). Because psychological factors have not been examined systematically, there exists little direct evidence about how these factors might relate to professional development outcomes. Knowledge of these relationships is very important to explain more completely the outcomes of the enhancement function of professional development and to identify those constraints of schools and classrooms that might support or constrain efforts to improve teacher's practice.

In his study, Sparks (1983) examined interviews, questionnaires, observation and field notes of five teachers who made exceptional improvements in class-room management and active instruction and five teachers who made no improvements after a professional development training in order to determine how changes in teachers occur. He found differences in the level of self-expectation: The improvers said things like "*I now realize I have control over many things I thought I had no control over*" and "*I no longer feel powerless*". The training helped these teachers develop a new confidence in their competency. The non-improvers, in contrast seemed to have lost hope that any changes could be made. They felt that trying anything new would make no difference. It was a sad case of low expectations of both teachers and students.

4. Antecedent to Change in Teachers: Personal Teaching Efficacy

Personal teaching efficacy appears to be one of the major psychological antecedents to teacher behavior and change. Personal teaching efficacy has been defined as teachers' perceptions of their own ability to influence student learning and is considered a primary predictor of teacher behavior (Ashton & Webb, 1986; Tschannen-Moran & Woolfolk Hoy, 2002). Teachers' perceptions of their own ability to affect student learning have been associated with their choice of classroom management and instructional strategies and with change in practice related to the implementation of school's innovations (Ashton & Webb, 1986; Dembo & Gibson, 1985; McLaughlin & Marsh, 1978). In all, research on teaching efficacy suggests that teachers are more likely to adopt and implement new classroom strategies if they have confidence in their own ability to control their classroom and affect student learning (Blanton, 2006; Fritz, Miller-Heyl, Kreutzer, & MacPhee, 2001).

In 1977, Albert Bandura introduced the concept of self efficacy in his seminal article, "Self-Efficacy: Toward a Unifying Theory of Behavioral Change.". He introduces the concept of self efficacy as the primary motivational force behind an individual's actions. Self-efficacy

is how capable and prepared *we think we are* to perform a given task. Bandura differentiates between efficacy expectancies and outcome expectancies. He defines *outcome expectancies* as "a person's estimate that a given behavior will lead to certain outcomes" (1977, p.193) and *efficacy expectations or self-efficacy* as "the conviction [belief] that one can successfully execute the behavior required to produce the outcomes" (1977, p.193). It is therefore, our belief that we are prepared and that we are able that motivates us to action. Over the last thirty years, since that initial article, Bandura has continued to develop and defend the idea that our beliefs in our abilities (that is, our self-efficacy beliefs) powerfully affect our behavior, motivation, and ultimately our success or failure.

Incorporating Bandura's (1997; 2001) proposal that self-efficacy beliefs are context specific, the individual must also believe that he or she has the ability to use that knowledge effectively in the context of his or her assigned task. In extending self-efficacy theory to the related construct of teacher efficacy, the teacher must believe that he or she has the ability to translate the theory and methods learned in the course of the teacher preparation program into positive student learning and achievement. This must take place in the context of the school and classroom in which he or she works.

One of the most profound understandings of teacher efficacy comes from the work of Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998). According to them, teaching efficacy appears to have two independent components. The first component, conceptualized as *personal teaching efficacy [PTE]* is one's individual belief in one's own ability to advance the learning and achievement of one's students. It is a teacher's "belief that one has the skills and abilities to bring about student learning" (Gibson & Dembo, 1984, p.573). Soodak and Podall (1993) define PTE as "a teacher's belief about his or her ability to perform actions needed to promote learning or manage student behavior successfully" (p.406). As Tschannen-Moran et al. (1998, p.206) state it is the belief that "I can." Personal teaching efficacy using the *Teacher Efficacy Scale (TES)* taps into positive assessments of competencies but not into perceived inadequacies. Tschannen-Moran, Woolfolk-Hoy, and Hoy, (1998) have re-conceptualized PTE as an *analysis of personal teaching competence* through the judgment of one's ability to plan and execute actions necessary to achieve the desired outcome. In making judgments about self-efficacy, teachers weigh their self-perceived personal teaching competence in light of the assumed requirements of the anticipated teaching task. This judgment is influenced by *knowledge* gained through the four sources of efficacy beliefs like mastery experiences, vicarious experiences, verbal persuasion and emotional arousal (Bandura, 1986; 1997; Smylie, 1990; Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998; Watson, 2006).

The second, conceptualized as *General Teaching Efficacy [GTE or TE]* is the belief that teaching and the educational system are capable of fostering student academic achievement despite negative influences external to the teacher. It is through "teachers' expectations that teachers can influence student learning" (Ashton & Webb, 1986, p.4) or a teacher's "belief that any teacher's ability to bring about change is significantly limited by factors external to the teacher" (Gibson & Dembo, 1984, p. 574). This is now viewed to be more of an assessment

of locus of control. According to Tschannen-Moran et al. (1998) general teaching efficacy using the teacher efficacy scale *(TES)* does not tap into positive environmental influences such as availability of resources, principal leadership, and support from colleagues. So GTE as measured by the *TES* is only a partial analysis of the teaching task. *Analysis of the teaching task* produces inferences about the difficulty of the task and what it would take to be successful in this context. Included in this assessment are factors such as students' motivation, the use of appropriate instructional strategies, classroom management issues, the availability of resources and instructional materials, access to technology, and the physical conditions of the teaching space. Contextual factors like the leadership and support of the school principal, the school climate, and the supportiveness of other teachers are all a part of the analysis of the teaching task (Smylie, 1990). The following section will examine how various components of the teacher preparation program and the student teaching experience might contribute to the development of teacher efficacy beliefs.

5. Personal Teaching Efficacy and Professional Development

Teacher efficacy is strongly connected to teacher professional learning opportunities: When teachers participate in professional learning opportunities that provide them with mastery experiences (direct experiences embedded in the professional learning that lead to a sense of mastery), their personal competence level will rise (Pintrich & Schunk, 2002; Zambo & Zambo, 2008). Further, if a teacher is dissatisfied with the current level of student learning, student achievement and/or his or her own teaching "performance", there may be a self-directed desire for instructional change. In this situation, if the teacher also gains access to powerful strategies, through effective and context-embedded professional learning opportunities (Puchner & Taylor, 2006), the teacher then has the means to make the changes. Further, if the teacher is sufficiently motivated to sustain efforts and overcome obstacles (i.e., has high efficacy), the ability to implement these effective instructional strategies increases (Bruce & Ross, 2008).

Shaughnessy (2004) believes that there is really a need to define the importance of teacher efficacy and the necessity of developing a sense of self-efficacy in teachers not only early on in their pre-service training, but also through on-going professional development. According to Woolfork (2004), the link between teacher performance and student achievement was already established, but what went into creating and maintaining a high level of teacher performance and a teacher's sense of self-efficacy had not been studied in depth yet and presented an opportunity for further research.

Onafowora (2005) in her study related to the issues of self-efficacy of novice teachers focuses on ways to increase the self-efficacy of teachers at the start of their teaching career. While the teachers come to the classrooms with a solid theoretical base of knowledge about pedagogy and methodology as well as the subject matter, their self-efficacy is rather low and, according to Onafowora (2005), the most effective way to increase it is to engage new teachers in various professional development activities starting in the first year of their teaching career.

Onafowora also maintains that in the first year of teaching new teachers are challenged with balancing their theoretical knowledge with the practice they begin to acquire with teaching experience. The transition from learning to teaching requires a lot of confidence, which new teachers frequently are lacking. Providing new teachers with some workshops to help boost their self-efficacy would be critical in their first years of teaching (Gagen, & Bowie, 2005).

Frost (2008) supports the idea of providing teachers with the time to reflect on their own beliefs, because beliefs lead to setting realistic goals and later the attainment of these goals, which all contribute to the overall quality of teaching. In Frost (2008) and Woolfolk and Hoy's (2004) opinion, teachers' beliefs are at the core of quality teaching. Returning to the concept of professional training for novice teachers proposed by Onafowora (2005), it is important to recognize the value of learning through teaching workshops for new teachers. In her study Onafowora (2005) maintains that professional training for new teachers increases their self-efficacy by building their self-confidence in all aspects of teaching, despite the recent college training these teachers received as a part of their educational degree. Professional development activities designed especially for new teachers help them; transfer their theoretical knowledge into practice and do it with growing confidence in their own teaching ability. In her study of the challenges new teachers face in their first year of teaching, she discovered that most challenges stem from discipline and teachers' hesitance in classroom management, which leads to the loss of confidence in their expertise in the subject matter. New teachers focus on discipline and the learning becomes discipline centered. The study also states that several new teachers who did not lose their confidence in the face of various discipline problems and kept engaging students on the academic level, eventually managed to change the focus of their teaching from discipline to the subject matter. Onafowora (2005) concludes her study with a strong suggestion of offering professional development to new teachers in order to increase their self-efficacy and provide their students with quality instruction.

According to Woolfolk and Hoy (2004), teachers became aware of their own level of self-efficacy when it was specific to a particular task. So the higher level of teacher self-efficacy, the higher student achievement. It is only logical to focus on-going professional development on increasing the level of self-efficacy in teachers. As Woolfolk and Hoy (2004) maintained, the higher teachers' level of efficacy, the more likely they were to overcome obstacles and persist on using innovative teaching. If individual teachers developed a higher level of efficacy through professional development, it was much easier for a school to set attainable collective goals, thus fostering collective efficacy of the organization. In order to focus organizational professional development on efficacy it was important to identify possible sources of it. Woolfolk and Hoy (2004) further explained the importance of mastery experience as one of the main sources for efficacy due to the perception of an organization that a performance has been successful and thus produced positive results. While vicarious experience may not have been as critical in development of efficacy, it was important in the sense of simple modeling of the correct skill needed for this or that teaching practice. According to Yost (2002), social persuasion was a very powerful source since it occurs in the form of feedback from colleagues and supervisors

alike as well as in informal discussions between groups of teachers. Yinger and Daniel (2010) insist that workshops and other professional development opportunities as well as all kinds of feedback about achievement inspire action. In their analysis of the affective state as a source of efficacy. Yinger and Daniel postulate that organizations with strong beliefs in group capability could withstand pressure and crises and continue to function without major consequences. This conclusion stemmed from Fritz, Miller-Heyl, Kreutzer and MacPhee's (2001) belief that organizations much like individuals react to stress. Developing mechanisms of coping with stress as connected with efficacy could be a focus of a potential professional development workshop.

Given the importance of self-efficacy as a mediator of teacher effectiveness surprisingly little attention haa been paid to teacher education and professional development (Wilkinson, 2005). In a study conducted by Fritz *et al*. (2001), the impact of professional development on self-efficacy was assessed and, as results of the study showed, teacher efficacy increased when adequate professional development was provided to teachers. The same study also concluded that teachers after content-based professional development began to feel more confident in their teaching. Teachers were able to provide in-depth instruction to students with less strain. Ross (1994) supported the argument that teacher professional development must provide far more than just new knowledge and skills and focused on building teacher confidence through involvement in their professional roles. The results of the sample studied by Fritz et al. (2001) showed that teachers who received sufficient in-service training were most likely to engage in trying new curriculum and held a stronger sense of competence and felt comfortable in the teaching role.

Yost (2002) also took a closer look at mentorship as a form of professional development suitable for developing teacher self-efficacy. According to him, the key to teacher self – efficacy was in professional development, which was controlled by teachers. Such professional development directly improved student academic performance and indirectly contributed to teacher self-efficacy (Davies, 2004). Chacón (2005) defined teacher efficacy as a teacher's ability to produce academic gains with all types of learners. This could be achieved through close work with mentors. Professional development in this instance could take a form of team teaching with a more experienced mentor or the integration of recent research into the educator's practice. It is vital for teachers to stay current with recent research as well as with the changes that inevitably takes place in student performance standards.

Guskey (1987) argued that adjusting instructional strategies according to current students, standards, and necessary learning outcomes was a sign and requirement for efficacy of teachers. Waters (2009) maintains that professional development in the 21st century be measured by the teacher's commitment to his/her own development and efficacy. This suggests an on-going change in order to produce high academic results. Yost (2002) stated that mentoring as a form of professional development could be a very effective tool in developing high teacher efficacy. According to her, effective professional development should include the latest research, be on-going rather than a one-shot activity, involve teachers in planning and include release time.

Mentoring, if administered properly, covers all of these aspects and has a direct effect on teacher efficacy. As Yost (2002) conducted her study on mentoring programs and their effectiveness, she discovered that mentors also benefited from these programs as they became aware of leadership skills they had not been using before.

6. Conclusion

Becoming a professional teacher is a continuous process which never stops throughout a teacher's career. Research is also a process and teachers need to strive to become active researchers, as they have first-hand knowledge of what is needed to address issues with student learning (Waters, 2009; Woolfolk, 2004). Professional development should be research driven, providing teachers with not only answers to their questions, but also with questions which need to be answered by further research. This type of active research, according to Shaughnessy (2004), helps build a sense of efficacy in teachers. Yost (2002) also emphasized the need to deliver the results of the latest research to classroom teachers in order to develop motivation and a thirst for learning among teachers in the hope that this motivation for learning would transfer later on to the students. Darling-Hammond (2003) argued that it was critical for schools to focus on-going professional development on academics to make academics valued. This would not only increase teacher efficacy but also strengthen the school as a whole.

In sum, self-beliefs are the heart of teachers' success. That is exactly why it is critical for teachers to develop a high sense of self-efficacy in all aspects of their teaching. Inadvertently, the success of students depends on teacher self-efficacy, which means that self-efficacy may be one of the central issues in teacher development.

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