The Effects of Professional Development Initiatives on EFL Teachers' Degree of Self Efficacy

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Abstract: *Despite the importance of teacher efficacy, there has been little research on the effects of interventions intended to increase it. Thus, the present study considered the potential of Professional Development (PD) in enhancing teachers' beliefs about their teaching ability. The study was quantitative in nature and utilized the reliable survey instrument known as "Teacher Sense of Efficacy Scale". Two groups of English as a Foreign language EFL teachers (an experimental group and a convenience sample of control teachers) were surveyed in the study in a Pre-test Post-test (and delayed Post-test) Control Group Design. After administering a Pre-test on self-efficacy which indicated no significant difference between the two groups, the treatment teachers received three 16-session courses during which they were provided with opportunities for PD using five PD models including In-service Training, Fellow Observation/Assessment, Development/Improvement Process, Mentoring, and Study Groups. The two groups were then compared on the post- and delayed post-tests which showed that the treatment teachers obtained significantly higher efficacy scores than the control group of teachers.*

Introduction, Background and Purpose

Teacher efficacy is defined as a teacher's "judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated (Tschannen-Moran and Woolfolk Hoy, 2001, p.783). This important construct has received much acclaim in the educational literature; over the past decade or so, noticeable developments in research on this construct and its significant role in education has been witnessed. But there still remain quite a number of questions regarding the function of teacher efficacy in teachers' lives. Although myriad research agendas could be developed to pursue these questions, there are three major areas of inquiry that show great promise for the advancement of teacher efficacy. These areas include: Efficacy Building Information, Collective Teacher Efficacy, and Impacting Teacher Efficacy Change (Henson, 2001).

The third of these factors concerns the study of interventions thought to increase teacher sense of efficacy. Given the fact that teacher efficacy has attracted to itself a real currency and much potential educational value, efforts to impact changes in teacher efficacy would be valuable in moving teacher efficacy research beyond the realm of correlational designs (Henson, 2001). Practically however, a majority of the studies on teacher efficacy in both mainstream and EFL/ESL pedagogy have been carried out with teacher efficacy acting as the independent variable.

The focus of these studies has been particularly on the efficacy of teachers which has been investigated mostly in terms of its relation to student achievement outcomes. The link between student achievement, as the most important manifestation of teacher effectiveness, and teacher efficacy has been documented by numerous researchers (e.g. Brownell & Pajares, 1999; Auwarter & Aruguete, 2008; Good & Brophy, 2003, Moore & Esselman, 1992, Anderson, Greene, & Loewen, 1988, etc). Most of these studies assume that teacher efficacy influences student achievement through teacher commitment to student academic learning.

In addition to student achievement, researchers have explored the relationships between a teacher's level of efficacy and his or her willingness to adopt instructional innovation (Ghaith & Yaghi, 1997; Guskey & Passaro,1994), higher levels of planning and organization (Allinder, 1994)., ability in controlling stress level, willingness to stay in the field and teaching commitment (Coladarci, 1992; Ware & Kitsantas, 2007), less special education referral (Podell & Soodak, 1993; Soodak & Podell, 1993) and predictions of student success (Tournaki & Podell, 2005).

However, little experimental or long-term intervention research has been conducted on teacher efficacy. In Ross's (1994) terms, "In the absence of interventions it is difficult to tell whether teacher efficacy is a cause or a consequence of the adoption of more powerful teaching techniques" (p. 382). The limited number of studies in this area does call for carrying out more research studies that probe the effects of meaningful, active interventions on teacher efficacy (Henson, 2001; Ross, 1994).

This dearth of research studies is far more evident when it comes to second language pedagogy as a cursory look at the major English Language Teaching (ELT)-related journals reveals. To make up for this dearth of research, the present study deals with the possible effects of PD initiatives on EFL teachers' sense of efficacy. The reason why PD is selected as the independent factor possibly influencing teachers' sense of efficacy is threefold:

First, a limited number of studies (e.g. Rimm-Kaufman and Sawyer, 2004; Ross and Bruce, 2007) have investigated the effects of PD on teacher efficacy and more experimental studies, particularly studies of teacher efficacy effects of PD with control groups, are desperately needed. While both PD and teacher self-efficacy have been thoroughly investigated with reference to many variables, particularly teacher performance and student achievement as the clearest indicator of successful teacher performance, what appears missing in the literature is studies investigating the possible connection between the two variables (Darling-Hammond & McLaughlin, 1995, Lieberman, 1995).

Second, there are now indications in the literature that teacher efficacy is fixed and resistant o change (Ohmart, 1992) and some indications that that teacher efficacy is malleable and likely to change (Housego, 1990); thus, much more research is needed to

shed light on the issue (. In Henson's (2001) terms, current evidence suggests that teacher efficacy is indeed malleable, but that change will likely occur only via engaging and meaningful professional development opportunities. The study attempts to probe into this issue more.

Third, Bandura (1997) maintains that positive changes in self-efficacy only come through "compelling feedback that forcefully disrupts the preexisting disbelief in one's capabilities" (p. 82). It is obvious that PD can create some belief in the teachers' capabilities, but the study aims to find out if PD would be compelling enough to significantly disrupt the teachers' previous beliefs in their abilities.

Thus, specifically, the study seeks to find answers to the following question:

Does participation in effective professional development activities significantly affect teachers' sense of efficacy?

Of course, the question could be divided into three smaller questions to probe into the effects of PD initiatives on the three components of teacher efficacy. Thus, to be more precise, the study seeks answers to the following questions.

1. *Does participation in effective professional development activities significantly affect teachers' efficacy beliefs about their ability to engage students?*
2. *Does participation in effective professional development activities significantly affect teachers' efficacy beliefs about their ability to implement appropriate teaching strategies?*
3. *Does participation in effective professional development activities significantly affect teachers' efficacy beliefs about their ability about their ability to manage students?*

Theoretical Framework

Clearly, the study of teacher efficacy has borne much fruit in the educational realm and teacher efficacy has come to be recognized as a highly important factor in predicting many useful variables (Zambo & Zambo, 2008; Overbaugh and Lu, 2008; Ross and Bruce, 2007). However, as mentioned earlier, far less research has been carried out to show how to change or solidify the teachers' beliefs about their ability. Investigating the effects of PD initiatives has been no exception in this regard and has received very little, if any at all, attention in the literature. There have, however, been a small number of studies probing the topic.

The first study to be mentioned is Zambo and Zambo, (2008). They intended to probe the influence of professional development in mathematics on collective and individual efficacy of mathematics teachers. They, thus, carried out their study with 63 4th through 10th grade teachers who voluntarily participated in two-week, summer professional development workshops on mathematics problem solving. The workshops focused on helping teachers increase their own problem solving ability as well as improve their classroom problem-solving instruction. Group competence and contextual influence, subscales of collective teacher efficacy, were measured before and after the workshops using the 21-item Likert scale *Collective Efficacy Questionnaire* designed by Goddard, Hoy, and Woolfolk-Hoy (2000). Personal competence and personal level of influence, subscales of individual efficacy, were measured with the 25-item, Likert scale

Enoch & Riggs Elementary Science Efficacy Questionnaire (1990). The results showed significant increases in teachers' efficacy – both individual and collective – as a result of participating in professional development programs.

Edwards, Green, Lyons, Rogers, and Swords (1998) also found a small positive effect of a peer coaching program on teacher sense of efficacy. In their study, the results of the pre-test for teacher efficacy scores of experimental and control group teachers indicated no significant difference between the two groups. Nevertheless, the two groups of teachers varied on prior in-service credits and sample attrition was significantly higher among the treatment teachers than the control group teachers.

Rimm-Kaufman and Sawyer (2004) also investigated how experience with a relational approach to education, the Responsive Classroom (RC) Approach, impacted teachers' beliefs, attitudes, and teaching priorities. Questionnaire and Q-sort data were collected for a sample consisting of 69 teachers in grades kindergarten through 3 at 6 schools (3 schools in their first year of RC implementation and 3 comparison schools) in a district with a diverse student population. The results indicated that teachers who reported using more RC practices reported greater self-efficacy beliefs and teaching practice priorities that were much in accordance with those of the RC approach. Teachers who received RC in their schools were also more likely to report more positive attitudes toward teaching as a profession and to hold disciplinary and teaching practice priorities that were consistent with the aims and objectives of the RC approach.

Ross, McKeiver and Hogaboam-Gray (1997) also carried a study in which four exemplary Grade 9 mathematics teachers were studied for over a year as they implemented destreaming, an externally induced reform. The reform implementation was reported to have an immediate negative effect on teachers' beliefs about their effectiveness in the classroom. However, within the year, they found out that there was a substantial rebound in the teachers' beliefs about their professional efficacy. The rebound was put down to curriculum factors (getting evidence that students were learning), organizational culture factors (collaborating with peers and having a timetable supporting collaboration), and personal factors (trying to avoid negative thoughts about their effectiveness, being certain about personal goals, and drawing on teaching experience). Ross (1994), while arguing that few studies of the stability of professional efficacy have been conducted, investigated teacher efficacy on three occasions during an 8 month in-service course. The study found that it was the application of the received in-service knowledge, not mere exposure to it, that significantly impacted changes in teacher efficacy and that it was general, not personal teaching efficacy that changed.

Much along the same line, Onafowora (2005) in her research on the issues of self-efficacy of novice teachers focused on the ways to enhance self-efficacy of teachers at the beginning of their teaching career. She argued that although the teachers come to the classrooms with a solid theoretical knowledge base about pedagogy and methodology as well as the subject matter, their sense of efficacy is rather low and that the most effective way to enhance it is to provide new teachers with some PD activities beginning in the first year of their teaching career. Onafowora (2005) argues that in the first year of teaching new teachers face the challenge of striking a balance between their theoretical knowledge and the practice they begin to acquire with teaching experience. The stage of transition from learning to teaching requires a lot of confidence, which new teachers mostly do not possess. Providing new teachers with some workshops and PD

opportunities to help lift their self-efficacy would be highly critical in their first years of teaching.

A glance at most studies investigating the link between teacher professional development and teacher efficacy, including the ones reported in the present study, reveals that virtually all these studies take a myopic view of professional development and focus on activities which aim to affect efficacy through only one source of efficacy – mastery learning, vicarious experiences, etc. However, in the present study attempts have been made to provide various experiences for the participant teachers through the employment of five different PD models. These PD models provide a wide range of experiences including various kinds of group-based activities, presentations and discussions, observations about the performance of fellow educators, critical review of organizational programs, curriculum and instruction with their fellow teachers, pairing a more experienced practitioner with a less experienced teacher, study groups, etc (See the descriptions of the models below).

However, a look at the literature on the topic reveals that almost all the studies carried out have been conducted outside EFL/ESL pedagogy, and that there is no study, to the best of the researcher's knowledge, on the effects of PD initiatives on EFL teacher efficacy change. The present study could take an important step in this regard. This is important in that EFL teachers have come to claim a status as a distinct community of practice among educators.

Methodology

Participants

Participants of the study consisted of 60 (two groups of 30) junior high school teachers teaching in the two western provinces of Iran (Kermanshh and Ilam). The age range of the participant teachers varied from 21 to 42 and included both male and female teachers. There were two groups of teachers in the study, the treatment and the control group. Treatment teachers were the ones accepted in Ilam Province Teacher Training Center. The ones assigned to the control group were a purposeful sample of 30 teachers teaching in the junior high schools of Ilam and Kermanshah. The treatment group received PD through five models of PD including In-service Training, Fellow Observation/Assessment, Development/Improvement Process, Mentoring, and Study Groups.

Instrumentation

Teacher Sense of Efficacy Scale

Teachers' sense of efficacy was measured using the Teacher Sense of Efficacy Scale (previously called the Ohio State Teacher Efficacy Scale, Tschannen-Moran & Woolfolk Hoy, 2001). This measure consists of 24 items, assessed along a 9-point continuum with anchors at 1 - Nothing, 3 - Very Little, 5- Some Influence, 7 - Quite A Bit, and 9 - A Great Deal. Previous factor analyses have identified three 8-item subscales: Efficacy for Instructional Strategies, Efficacy for Classroom Management, and Efficacy for Student Engagement. The Teacher Sense of Efficacy scale was employed because it is

becoming a standard instrument in research on teacher efficacy and has had high reliability in previous administrations. “Evidence shows concurrent validity with the Rand items and Gibson and Dembo (1984) scales (Tschannen-Moran & Woolfolk Hoy, 2001, 2002), and it is faithful to the prevailing conception of teacher efficacy (Tschannen-Moran et al., 1998)” (Ross and Bruce, 2007, p. 53). In previous research, reliabilities for the subscales have ranged from .86 to .90 and for the full scale from .92 to .95 (Tschannen-Moran & Woolfolk Hoy, 2001).

Professional Development Models Used in the Study

A PD model is a pattern or plan used to guide the designing of a program (Joyce & Weil, 1972). In their extensive reviews of the research, Drago-Severson (2002), Sparks and Loucks-Horsley (1989) and Marczely (1996) have found out that seven distinct PD models are used for teachers: (1) in-service training, (2) observation/assessment, (3) development/improvement process, (4) study groups, (5) inquiry/action research, (6) individually guided activities, and (7) mentoring. Five of these models were used in the present study, which are explained below:

In-service training: In-service training is the most common or conventional form of PD. It often occurs during a predetermined period of time during which a presenter leads and shares ideas and expertise to participant teachers. It may include various kinds of group-based activities, presentations and discussions. Training may come through several formats like workshops, colloquia, demonstrations, role-playing, and simulations. It is considered a cost-effective model since large groups of educators are reached at once. The same knowledge base is shared with all participants.

Observation/assessment: Observation/assessment is another model of PD that involves colleagues who provide feedback based on observations about the performance of fellow educators. Both the observers and the observed learn from the process.

Development/improvement process: Development/improvement process is a PD model in which the participant teachers are called together to make decisions and changes in organizational plans, procedures and activities. It might require participants to critically review organizational programs, curriculum and instruction, or decisions made on particular problems. Guskey (2003) noted that the principal advantage of this PD model is the improvement of specific knowledge and skills of participants due to increased awareness about issues. The model also helps participants to develop different perspectives, become more aware of diversity within the organization, and to develop their interpersonal skills as they interact with the group.

Study groups: The use of study groups is still another PD model that is used to arrive at solutions to common problems. It often involves teacher participants from many academic institutions. The participants are usually placed into groups of four to six members, and each group is required to focus on different aspects of the problem. Recommendations and findings of each group are later shared with the whole population of the participants. Study groups provide unique opportunities for all the members to work together and bring focus to improvement efforts. Study groups pave the way for professional learning communities and provide opportunities for ongoing PD.

Mentoring: As a PD model, mentoring involves pairing a more experienced practitioner with a less experienced teacher. This pair decides to have regular encounters to discuss goals, issues, and problems, and to make on-the-job observations. The pair also reflects on their practices. This model encourages lifelong and productive PD relationships.

Procedure

As mentioned earlier, two groups of teachers participated in the study, the treatment and the control group. The teachers in the treatment group were a convenience sample of 30 teachers accepted in Ilam Province Teacher Training Center. The teachers assigned to the control group were a purposefully selected sample of 30 teachers in the junior high schools of Ilam and Kermanshah. For the control group, attempts were made to choose teachers with the characteristics similar to those in the treatment group. Thus, the equivalency of the teachers in the two groups in terms of length of service, age range and number of male and female teachers was confirmed prior to pre-testing them on self-efficacy. The two groups were then given Teacher Sense of Efficacy Scale to fill out. After ascertaining the existence of no significant difference between the two groups (see tables 2 and 3), the researcher commenced on the actual experiment. As the researcher of the present study was an instructor in the center, he could safely run the experiment. The researcher taught the treatment group three 16-session courses (Principles of Language Teaching, Practicum, and Evaluation of Junior High School ELT Materials) during which he provided them with opportunities for PD using five PD models including In-service Training, Fellow Observation/Assessment, Development/Improvement Process, Mentoring, and Study Groups. In in-service training, the researcher who was the instructor too, taught the participant teachers about techniques, practices and procedures about teaching foreign language skills and components based on Harmer's (20001, 2002) books: The Practice of English Language Teaching and How to Teach English In the observation/assessment model, each participant teacher was required to teach a lesson based on Iranian junior high school books and the teaching was critiqued by the instructor and the fellow educators. In the Development/Improvement Process Model, different aspects of the organizational programs, curricular and instructional issues in Iranian junior high schools and Study Groups – made up of four to six participant teachers – were required to deeply investigate the issues and hand in some tentative solutions and decisions on how to tackle these issues. For the Mentoring model, the researcher asked the Office of Education for the names of the successful junior high school teachers in Ilam, the city where the study was performed, and each participant teacher was required to observe the classes run by these successful teachers and hand in an observation report to the researcher. Each session lasted 90 minutes. The nature of the courses lent themselves well to PD models, as the content of the courses was in line with the characteristics of the models. Teacher attendance records were used to make sure that teachers participated at the PD sessions to which they were assigned. After the experiment, both groups of teachers were given the Teacher Sense of Efficacy Scale to fill out as a post-test once immediately after the experiment and once with a two months' delay. Independent samples T-Tests were used for the investigation of the difference

between the means of the two groups and Matched T-Tests were used to investigate the difference between the pre-test/post-test results of the two groups.

Results

As stated earlier, the study aimed to investigate the effects of PD initiatives on EFL teachers' sense of efficacy. There were two groups of participants in the study with the following descriptive statistics information.

Group	N	Length of Service Range	Age Range	Number of Males	Number of Females
Treatment Group	30	2-23	22-47	14	14
Control Group	30	2-24	21-49	16	16

Table 1: The Descriptive Information for the Two Groups

Prior to embarking on the experiment, the two groups of participant teachers were tested on self-efficacy through the reliable (as reported earlier) survey instrument "Teacher sense of efficacy Scale" (Tschannen-Moran & Woolfolk Hoy, 2001). The results of the independent samples t-test (Table 2) indicated no significant difference between the two groups which allowed the researcher to begin the experiment.

Group	N	Efficacy Mean Score	Std. Deviation	Std. Error Mean
Treatment Group	30	105.53	31.54	5.75
Control Group	30	102.86	31.68	5.78

Independent Samples T-TEST		DF	Sig. (2-tailed)	Mean Difference
Equal variances assumed	.327	58	.745	2.66

Table 2: Teacher Efficacy Pre-Test Results

The equality of the two groups was also observed in the components of teacher efficacy, i.e., efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management. The results (Table 3) are as follow:

Independent Samples Test	T	DF	Sig. (2-tailed)	Mean Difference
Efficacy for Student Engagement	.11	58	.91	.30
Efficacy for Instructional Strategies	.51	58	.60	1.40
Efficacy for Classroom Management	.33	58	.73	.96

Table 3: Pre-Test Results for the Components of Teacher Efficacy

As mentioned earlier, the treatment group, then, received three 16-session courses (Principles of Language Teaching, Practicum, and Evaluation of Junior High School ELT Materials) during which they were provided with opportunities for PD using five PD models including In-service Training, Fellow Observation/Assessment, Development/Improvement Process, Mentoring, and Study Groups. The two groups of teachers were, after that, post-tested on self-efficacy the results of which are reported in table 4:

Group	N	Mean	Std. Deviation	Std. Error Mean
Treatment Group	30	120.36	27.33	4.98
Control Group	30	103.26	31.65	5.78

Independent Samples Test	T	DF	Sig. (2-tailed)	Mean Difference
Equal variances assumed	2.23	58	.029	17.10

Table 4: Teacher Efficacy Post-Test Results

As the results of the Independent Samples T-Test (table 4) indicate, a significant difference was observed between the two groups after running the experiment. It clearly shows that the PD opportunities have had a significant effect on the enhancement of teacher efficacy beliefs. This difference appeared even in the components for teacher efficacy, as follow:

Independent Samples Test	T	DF	Sig. (2-tailed)	Mean Difference
Efficacy for Student Engagement	2.15	58	.036	5.63
Efficacy for Instructional Strategies	2.13	58	.037	5.50
Efficacy for Classroom Management	2.34	58	.023	5.96

Table 5: Post-Test Results for the Components of Teacher Efficacy

The effects of the PD initiatives on EFL teachers' sense of efficacy was tested with a three months' delay to see if the results stand test of time. The results are reported in table 6 and 7:

Group	N	Mean	Std. Deviation	Std. Error Mean
Treatment Group	30	120.36	27.68	5.05
Control Group	30	103.20	31.76	5.79

Independent Samples Test	T	DF	Sig. (2-tailed)	Mean Difference
Equal variances assumed	2.23	58	.030	17.16

Table 6: Teacher Efficacy Delayed Post-Test Results

Independent Samples Test	T	DF	Sig. (2-tailed)	Mean Difference
Efficacy for Student Engagement	2.16	58	.035	5.70
Efficacy for Instructional Strategies	2.13	58	.037	5.60
Efficacy for Classroom Management	2.31	58	.024	5.90

Table 7: Delayed Post-Test Results for the Components of Teacher Efficacy

As observed, the results are almost the same indicating that the effects of PD initiatives on teacher beliefs about their capacity are not transient and tend to be highly stable over time.

Discussion and Conclusion

As mentioned earlier, the principal rationale behind this study was to research the possible influences that professional development initiatives may exert on teacher efficacy beliefs about his/her ability to teach, manage the classroom, and engage the

students. The results of the study proved a significant effect of PD initiatives on enhancing EFL teachers' sense of efficacy in teaching. It demonstrated that teacher efficacy which refers to "a teacher's desire to implement the teaching strategies he/she believes to be appropriate and efficacious and, perhaps more importantly, the tenacity with which he/she will persist in trying to do so" (Overbaugh & Lu, 2008, p.45) can be closely related to the knowledge and skills a teacher possess in a specific domain. It, in fact, attests to Bandura's (1997) claim that positive changes in self-efficacy only come through "compelling feedback that forcefully disrupts the preexisting disbelief in one's capabilities" (p. 82). Thus, it is indicated that PD can create some belief in the teachers' capabilities and is compelling enough to significantly disrupt the teachers' previous beliefs in their abilities. A good point about the findings of the study is that the effects of PD on self-efficacy beliefs tends to hold strong even with the passage of time, as the results of the delayed post-test revealed.

The findings can be illuminated with reference to the sources of self-efficacy one of which is mastery experience, which is reported to be the most influential factor in promoting teacher self-efficacy (Bandura, 1997). Teaching is, by nature, a demanding job which poses substantial challenges to the teachers in terms of content knowledge, pedagogical knowledge and strategies, student management, etc. (Ross & Bruce, 2007). The teachers should, therefore, be prepared to effectively meet these challenges. Professional development initiatives provide teachers with mastery experiences in the areas of content knowledge, instructional strategies, student and classroom management. PD activities can be described as significant vehicles for offering to teachers a wide range of information aligned to their pedagogical needs. These activities, if planned properly, address the needs of teachers in all the three components of teacher self-efficacy (Guskey, 2003; Sparks and Hirsh, 2000; and Hopkins, 2005). This, in turn, enhances theirefficacy judgments about what they can do in their classes.

Teachers' enhanced efficacy judgments of their teaching capabilities are believed to positively affect their persistence, drive and instructional success (Zimmerman, 1995), motivational states (Bandura, 1997), goal setting and pedagogical strategies (Goddard, Hoy & Woolfolk Hoy, 2000), increased commitment to teaching (Coladarci, 1992), adoption of innovative teaching strategies (Midgley, Feldlaufer, & Eccles, 1989) and higher levels of planning and organization (Allinder, 1994). Based on this line of argument and given the critical importance of teacher belief in his/her pedagogical ability to student achievement outcome (Zambo & Zambo, 2008), educational policy makers should consider launching quality professional development programs aimed specifically at raising teachers' operational knowledge and content standards which in turn boosts the teachers' efficacy.

More research using larger samples sizes, different groups, various settings, and a longitudinal approach is, however, needed to comprehensively investigate the relationship between these two important constructs, as professional development and teacher self-efficacy offer support to one another and contribute to the overall professional strength of a teacher by reinforcing valuable concepts in various educational contexts (Kuskovski, 2008). Thus, research intended to reveal the effects of interventions which have the potential to enhance teachers' beliefs about their ability is called for.

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