Becoming a teacher: tracing changes in pre-service English as a foreign language teachers' sense of efficacy

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This longitudinal study aimed to trace changes in Turkish pre-service English as a foreign language teachers' self-efficacy over a year, and to detect possible sources of information influencing their efficacy. Utilizing concurrent mixed model design of Creswell (2003) both qualitative and quantitative data was collected. A total of 40 pre-service teachers participated in the study. Findings indicated that pre-service English language teachers' efficacy changed significantly over time. We also found that pre-service teachers seem to depend more on enactive mastery experience and social persuasion than on vicarious experience and affective state as sources of information. Based on our findings, measures are suggested on how to support pre-service teachers to improve their sense of efficacy. Implications for research on teaching and teacher education are discussed.

Keywords: pre-service teachers; school observation; sources of teacher efficacy; student teaching; teachers' sense of efficacy

Introduction

In the 21st century, knowledge has become the highest value commodity worldwide. Recognizing this reality, many countries have developed strategies to "carefully plan appropriate investments in human capital" (Kefela, 2010:68) to improve their competitiveness. Developing countries, such as Brazil, China, Poland, Turkey and South Africa, initiated certain education reforms in order to become active players and to sustain their economic growth. As part of these reforms, teacher quality and education has become a hotly debated issue since research has affirmed that teacher quality is the most important factor associated with student performance (Darling-Hammond, 2000; Rivkin, Hanushek & Kain, 2005). While literature refers a wide range of knowledge, skills, personal characteristics and dispositions as effective teacher qualities, Bandura (1997) asserts that teachers' beliefs in their abilities to instruct students and influence student performance are the most important indicators of instructional effectiveness. One such belief effective on student outcomes and instructional practices is teacher efficacy (Chacón, 2005).

Stemming from Bandura's social cognitive theory, teacher efficacy has been a global focus of interest to educational research for more than three decades now (for example Ashton & Webb, 1986; Gencer & Çakiroglu, 2007). Evidence in literature suggests that teachers' sense of efficacy (TSE) is a powerful construct affecting teacher motivation and classroom behavior as well as contributing to important student outcomes (Ashton & Webb, 1986; Coladarci, 1992; Ross, 1992).

Given the impact of TSE in teacher effectiveness and quality, the question of how it evolves takes on a new significance. Previous research on the development of TSE suggests that teacher efficacy is widely influenced by the experiences during student teaching and the induction year (Woolfolk-Hoy & Spero, 2005), which implies that early teaching experiences would be critical to long-term development of teacher efficacy. However, studies on the development of TSE throughout teacher education programs in different contexts have so far failed to reach consensus on how teachers' efficacy beliefs change over time. Since each teacher education program has unique features, examining the development of pre-service teachers' (henceforth PTs) TSE in different contexts might provide new insights to teacher education literature.

The purpose of the present longitudinal study was to investigate how TSE evolves in pre-service teachers of English as a foreign language (EFL) in Turkish context over time and to explore some possible sources.

Teachers' sense of efficacy

Consistent with the general formation of self-efficacy, TSE is defined as a teacher's belief to execute the course of action required to successfully accomplish specific tasks in a given context (Tschannen-Moran, Woolfolk-Hoy & Hoy, 1998). Research findings have shown a close relationship between the level of teacher efficacy and a number of important teacher behaviours and instructional variables. For example, teachers with a strong sense of efficacy are found to exhibit greater levels of planning, organization, and enthusiasm (Allinder, 1994), spend more time teaching in subject areas (Riggs & Enochs, 1990), and they tend to be more open to new ideas (Ross, 1992), and more committed to teaching (Coladarci, 1992). Teachers with a low sense of efficacy, on the other hand, were reported to display more authoritarian teaching style and hold more pessimistic views of student motivation (Woolfolk, Rosoff & Hoy, 1990). A low level of sense of efficacy was also reported to hinder teachers to efficiently perform the tasks normally expected from teachers (Rangraje, Van der Merwe, Urbani & Van der Walt, 2005).

The sources of teachers' sense of efficacy

In social cognitive theory, there is a reciprocal relationship between the individual and environment. Individuals by interpreting the results of their performance attainments inform and alter their environments and their self-beliefs. Their beliefs, in turn, inform and alter their performances (Pajares, 1997). In this system, individuals evaluate and alter their own thinking and behavior by interpreting information from four main sources: enactive experience, vicarious experiences, social persuasion, and physiological/affective states (Bandura, 1997). Enactive experiences are "authentic successes at dealing with a particular situation" (Palmer, 2006:337), directly influencing the sense of efficacy either in an increasing or decreasing way (Bandura, 1997). Within the context of education, while the perception of success raises efficacy, the perception of failure lowers efficacy beliefs of the teacher which in return contributes to the expectation that teaching will be inept in the future (Bandura, 1982; Woolfolk-Hoy & Spero, 2005). In the case of pre-service teachers, Palmer (2006:339-340) argues that there could be some other forms of enactive experience and suggests two other possible forms: content mastery and cognitive pedagogical mastery. While the former is explained as "mastery in understandings of subject matter", the latter is described as "mastery in understanding of specialist pedagogical knowledge".

The second source of information is vicarious experiences in which the skill in question is modelled by someone else. Particularly in circumstances where people are inexperienced, modelling serves as an effective tool for promoting personal efficacy (Bandura, 1997; Gibbs, 2002). Bandura (1997) posits four possible modes of modelling: (1) effective actual modelling, (2) symbolic modelling, (3) self-modelling, and (4) cognitive self-modelling. In addition to these, Palmer (2006: 340) mentions a fifth possible modelling where the tutor and the students simulate the real conditions and refers it as "simulated modelling".

The third source of information is the social persuasion which includes specific performance feedback from a supervisor or a peer. Social persuasion can either be direct (verbal persuasion), or indirect (non-verbal) (Britner & Pajares, 2006; Mulholland & Wallace, 2001), and can create either a supportive or unsupportive social environment (Milner & Woolfolk-Hoy, 2003). The degree of persuasion depends on the credibility, trustworthiness, and expertise of the persuader (Bandura, 1977). The findings of Tschannen-Moran and Woolfolk-Hoy (2001) indicated that social persuasion is an important construct of self-efficacy for novice teachers.

The last source of information is the physiological and affective states. When faced with complex tasks or task failures, people may read their physiological state as indicators of physical inefficacy (Bandura, 1997), which in turn may interfere with their performance (O'Neill & Stephenson, 2012). Since individuals react differently to bodily and emotional signals, individuals' responses to such situations may vary.

Within the context of teaching and teacher education, previous studies provided empirical evidence for each of the abovementioned sources of efficacy, with enactive mastery experiences to be the most influential. For example, in a longitudinal case study examining transition from pre-service to in-service teaching of an elementary teacher, Mulholland and Wallace (2001) concluded that enactive mastery experiences in the form of successful lessons is an important source of teaching efficacy belief. In another study, Poulou (2007) reported that students' perceptions of teaching efficacy were strongly influenced by enactive mastery experience and social persuasion. In a more recent study, O'Neill and Stephenson (2012) found that sources with the highest mean score for influence were enactive mastery experiences and social persuasion, while the lowest mean score for influence was physiological/affective states.

Pre-service teachers' sense of efficacy

As early as the 1990s, the recognition of TSE as a valuable construct to teacher education (Pintrich, 1990) generated a great deal of research interest on the development of teacher efficacy beliefs among pre-service teachers. The issue has been investigated in different contexts such as the United States, Australia, Greece, Korea and Turkey (e.g. Fives, Hamman & Olivarez, 2007; Woolfolk-Hoy, 2000; Mergler & Tangen, 2010; Charalambous, Philippou & Kyriakides, 2008; Gorrell & Hwang, 1995; Atay, 2007). However, studies have provided some contradictory findings. For instance, in one of the earlier studies in the U.S. context with 55 participants, Woolfolk-Hoy (2000) investigated changes in teacher efficacy beliefs of pre-service teachers using three different instruments and found that however assessed pre-service teachers' efficacy beliefs increased during teacher preparation. Similarly, Fives et al. (2007) collected data from 49 pre-service teachers twice during student-teaching and found significant increases in efficacy over time. In Greece, Charalambous et al. (2008) also found an increase in pre-service teachers' efficacy beliefs during fieldwork. In the Australian context, however, two contradictory results were reported. Mergler and Tangen (2010) examined Australian postgraduate education students' efficacy in relation to the utilization of microteaching as an assessment tool and reported significant increase over time. Yet, in another study Pendergast, Garvis and Keogh (2011) investigated the development of TSE of pre-service teachers from various undergraduate and postgraduate teacher education programs, and reported a decrease in the overall TSE.

Studies conducted in the Turkish context have presented a similar picture. In a study conducted to investigate the change in TSE of Turkish pre-service EFL teachers through the student teaching period, Atay (2007) found a slight, yet statistically insignificant, increase in the overall TSE scores. Similarly, Aydın, Demirdöğen and Tarkın (2012) explored changes in TSE of pre-service science teachers during practicum and found a slight increase by the end of the practicum. However, in another study by Aktağ (2011) no significant differences were observed.

The abovementioned studies on the development of TSE have so far failed to reach consensus on how teachers' efficacy beliefs change over time. Longitudinal studies investigating the change are also few in number. Furthermore, studies of teaching efficacy have been largely dominated by quantitative methods (Labone, 2004) and as suggested by Tschannen-Moran et al. (1998) in order to expand and enrich conceptions of teacher efficacy, studies collecting both quantitative and qualitative data are needed.

The present study addresses the need for a deeper understanding of how pre-service teachers' efficacy evolve in Turkish context. The purpose of this study was to trace changes in teacher efficacy beliefs of pre-service EFL teachers over a year and to examine some possible factors that might influence the pre-service teachers' efficacy beliefs. With this aim in mind, the present study sought answers to the following questions:

1. How do pre-service teachers' sense of efficacy change over time?

2.   What are some possible sources of information that might be related to pre-service teachers' sense of efficacy?

Method

The study was a longitudinal investigation tracing changes in pre-service EFL teachers' sense of efficacy (TSE) over an academic year. The study utilized concurrent mixed model design of Creswell (2003), in which qualitative and quantitative approaches are used to confirm and corroborate findings.

Participants and program

A total of 40 pre-service teachers participated in the study. All participants were undergraduate students enrolled in an English Language Teaching (ELT) department at a state university in Turkey. The participants were 67.5% female and 32.5% male with a mean age of 20.05 years. At the time of the initiation of the study, the participants were 3rd year students which means that they successfully completed the first three years in the ELT program. In the first three years, the students are required to take 51 credits of teaching methodology and pedagogy courses (27 and 24 credits, respectively). The fourth year of the program is mainly dedicated to teaching practice in real classroom settings. The research was initiated in the 2011-2012 academic year and completed in the 2012-2013 academic year.

In Turkish context, in ELT licensure programs the teaching practice is offered as two different 14-week consecutive courses: school observation (4 hours per week) and student teaching (6h/week). The school observation course involves two components: 1h seminar held by the faculty instructor once a week in order to discuss the observation task and 4h school observation under the supervision of a mentor. The student teaching also involves two components: 2h seminar held by the faculty instructor once a week in order to discuss the teaching task and 6h teaching practice under the supervision of a mentor. While in the school observation pre-service teachers are given opportunities to observe practicing teachers, during student teaching they are required to carry out some classroom tasks and teach under the supervision of a mentor.

The teaching practice can be carried out in a primary, secondary or high school. The pre-service teachers are assigned to schools in groups of 10-12. Each instructor is responsible for a group, whereas each mentor works with 1-2 pre-service teachers. At the time of the study, the PTs were assigned to four primary state schools. They were placed to these schools upon the decision of the department. The mentors in the schools were appointed by the school principal upon the request of the instructor.

Instruments and procedures

Data were collected by means of both quantitative and qualitative methods to triangulate the findings. The quantitative data was gathered using the Turkish version of Teachers' Sense of Self-Efficacy Scale (TSES) which was originally developed by Tschannen-Moran and Woolfolk-Hoy (2001) and adapted into Turkish by Çapa, Çakıroğlu and Sarıkaya (2005). The TSES is a 24-item likert type scale. The participants responded to each item on a 9-point scale ranging from strongly disagree (1) to strongly agree (9). Scores for each item were summed to obtain a composite score. The reliability for the Turkish version was found 0.93 (Çapa et al., 2005). Sample items are: "How much can you do to get through to the most difficult students?" (item 1) and "How well can you respond to difficult questions from your students?" (item 7).

The TSES questionnaire was administered to the PTs three times (T1 to T3) as shown in Table 1. The first measurement was done at the end of the 6th semester after successfully fulfilling theoretical courses prior to any experience in schools. This measurement, which was conducted before any school placement experience, was used as the baseline measurement. The second measurement was done at the end of the 7th semester after the final report delivery for school observation. The last measurement was done at the end of the 8th semester after the final report delivery for student teaching. The timing for the second and third questionnaire administrations was chosen so that the factor most influencing their beliefs would be the impact of the experience they had just had in the schools. As the questionnaire was to be administered three times, an identification (ID) code was developed for each participant consisting of each student's initials.

Table 1   TSES questionnaire administration at T1 to T3

Time	Placement	No. respondents
T1	Before school observation	40
T2	After school observation	40
T3	At the end of student teaching	40

As recommended by Tschannen-Moran and Woolfolk-Hoy (2001) and by Duffin, French and Patrick (2012), for the present study the questionnaire was accepted to be unidimensional and the total score was used for data analysis. In the present study, the reliability of the whole scale measured was as 0.93 at T1, 0.97 at T2 and 0.92 at T3. Before administering the questionnaire for the first time, all participants were informed regarding the research and its aims.

In order to investigate some possible sources of information that contributed to PTs' sense of teaching efficacy, we collected qualitative data as well. Since we wanted to capture the points that the participants would mention under free expression conditions, instead of utilizing a readymade tool, qualitative data were collected through reflection papers. In the last week of student teaching, the PTs were requested to reflect over their student teaching experiences including the aspects they were content with, their perceived level of achievement, the problems they encountered and the way they resolved those problems, the feedback they received from their mentors and peers and their feelings.

Data analysis

Data from the TSES questionnaire, closed question responses from all responding students were entered into Statistical Package for the Social Sciences (SPSS) 16.0 for quantitative analysis. Descriptive statistics on the demographics of gender, age and responses to TSE of the 40 participants were analysed using SPSS. To trace changes in TSE beliefs of the PTs over time, the responses given to TSES questionnaire were analysed and compared using one-way analysis of variance (ANOVA) with repeated measures over the period T1 to T3.

The qualitative data were analysed by means of pattern coding (Miles & Huberman, 1994). After a thorough reading of the document, the researcher coded the data and a list of sources of self-efficacy was created. The descriptive codes were assigned into four main categories as described by Bandura (1997), and each category was further divided into some sub-categories as proposed by Palmer (2006). The sub-categories of

symbolic modelling and self-modelling were not included as no such cases were detected in the reports. Instead a simulated modelling sub-category was included. Each source and its meaning were outlined in Table 2.

In order to ensure the reliability, an expert from the same department was consulted to independently cross-check the coding of responses and the categorizations. The set of codes were refined in the light of insights generated from reading and coding the data. Consensus was achieved upon discussions on differences in coding and categorizing the themes. The reliability of the data analysis was enhanced through this cross-checking process (Cohen, Manion & Morrison, 2000).

Table 2 Categories for sources of TSE

Category	Description
Enactive experience (EE)	Authentic success at dealing with a particular situation
Cognitive pedagogical	Mastery in understanding specific pedagogical knowledge
Cognitive content	Mastery in understanding language content knowledge
Vicarious experience (VE)	Situations in which people estimate their capabilities in comparison to others
Actual modelling	Individuals see a person performing the task
Simulated self-modelling	Individuals rehearse the task in a different context
Cognitive self-modelling	Individuals visualize themselves performing successfully at the task
Social persuasion (SP)	Situations in which individuals are given positive feedback from others
Verbal feedback	Individuals are given verbal feedback about his/her capabilities
Non-verbal feedback	Individuals are given indirect persuasion via non-verbal feedback
Physiological/Affective state (P/AS)	Individuals' responses to their own stress

Note: Based on Bandura (1997) and Palmer (2006)

Results
Changes in PTs' sense of efficacy over time
The means and standard deviations (SD) for sense of efficacy measured across the three stages are given in Table 3.

Table 3 Means and standard deviations of TSES at T1, T2, T3

Time	Mean	SD
T1	7.07	.88
T2	6.40	1.44
T3	7.21	.73

A one-way repeated measures analysis of variance (ANOVA) was conducted to compare the effect of time on the PTs' sense of efficacy. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2 = 7.88$, $p < .019$, and, therefore, a Greenhouse-Geisser correction was used. A repeated measures ANOVA with a Greenhouse-Geisser correction indicated that there was a significant effect for time ($F(1.684, 65.687) = 10.521$, $p < 0.000$)), that is, TSE changed significantly across the three stages.

Further pairwise comparisons using Bonferroni correction were conducted to compare the means between T1-T2; T2-T3 and T1-T3 to ascertain information about the changes in PTs'

sense of efficacy. The analysis revealed that there were significant differences between T1 and T2 ($SD = 0.88$ vs. $SD = 1.44$ $p < 0.004$), and between T2 and T3 ($SD = 1.44$ vs. $SD = 0.73$, $p < 0.002$). Although the mean TSES score in T3 was slightly higher than that of T2 (mean = 7.07 and 7.21, respectively) the difference was not significant ($p < 1.0$). The results of the pairwise comparisons given in Table 4 showed that the mean scores of TSES decreased significantly from T1 to T2, and increased significantly from T2 to T3.

Table 4 Pairwise comparisons for TSES over T1-T3

Time	Time	Mean difference	SE	Sig. [a]
T1	T2	.665*	.194	.004
T2	T3	-.812*	.222	.002
T3	T1	.148	.151	1.00

* $p < .05$; a = adjustment for multiple comparisons: Bonferroni

Possible sources of teaching efficacy
The frequencies and percentages of source occurrences based on reflection paper codings were reported in Table 5. The percentages were calculated within each category. The results indicated that for the PTs of English, mastery experience and social persuasion were the most frequently referred sources of TSE.

Table 5 Frequencies and percentages of four sources of TSE

Category	Sub-categories		N = 40	%
EE	Cognitive pedagogical		32	80
	Cognitive content		5	12.5
	Actual modelling		2	5
VE	Simulated self-modelling		8	20
	Cognitive self-modelling		11	27.5
SP	Verbal feedback	mentor	22	55
		peer	3	7.5
		student	6	15
	Non-verbal feedback	mentor	5	12.5
		peer	-	-
		student	27	67.5
P/AS	Stress		9	22.5
	Fear		25	62.5

EE: Enactive Experience; VE: Vicarious Experience;
SP: Social Persuasion; P/AS: Physiological/Affective state

Enactive experience
The high frequency of occurrences presented in Table 5 indicated that 92.5% of the PTs had been influenced from their teaching experience in real classroom conditions and reported gains. Out of 37 statements, 32 were related to pedagogical gains, such as learning how to instruct lessons and activities, how to give explanations or operate procedures while teaching. These statements were included under the subcategory of cognitive pedagogical mastery. All of these were statements of improvement in either knowledge or confidence in instructional strategies, for example:

> *It was a great experience to be in the class as a real teacher. I learned how to manage my time, how to create a democratic atmosphere in my class. More importantly, I learned how to engage both willing and unwilling students* (AK).

Before I thought I had problems with my instructions, but during student teaching, I saw that I can actually give clear and simple instructions (YB).

Only a few PTs (*f* = 5) mentioned improvement in their understanding of language concepts or their ability to answer questions about language and language skills. These statements were considered under the subcategory of cognitive content mastery. Out of the 3 cases mentioning content mastery, only one of them expressed improvement. The other two, however, mentioned their worries about content knowledge. The following quotes are from the reflections that mention cognitive content mastery:

What made me happy the most was seeing that I could speak English fluently in the class (YS).

I experienced some problems while explaining grammar rules, like once I was asked to teach modal verbs and I realized that I really do not know and need to revise my knowledge on modal verbs (AG).

Vicarious experience

Among the five modes of modelling proposed by Palmer (2006), three modes were specifically reported in the reflection papers. The statements referring to seeing a mentor during school observation were coded as actual modelling (*f* = 2); the statements referring to PTs' rehearsing the task in a different context were coded as simulated self-modelling (*f* = 8); and the ones referring to PTs' visualizing him/herself performing successfully at the task were coded as cognitive self-modelling (*f* = 11). With the exception of 2 PTs, none of the participants mentioned either positive or negative effects of actual modelling during their school observation. However, cognitive self-modelling (AK) and simulated self-modelling (EEK) were relatively more frequent. The following were given as examples:

I was really excited the day before my final student teaching. I worked hard in order not to make mistakes during my teaching. I rehearsed my lesson plan many times at home (AK).

For each student teaching, I prepared my lesson plan carefully and then rehearsed my teaching with my neighbor's children. After this rehearsal, I made some changes in my plans (EEK).

Social persuasion

In the study, social persuasion appeared in two different forms: verbal and non-verbal. PTs reported verbal mentor feedback (*f* = 22), peer feedback (*f* =3) and student feedback (*f* =5). Mentors seemed to affect PTs' perceived ability through verbal feedback. Out of 22 PTs mentioning verbal mentor feedback, 38% was in the form of positive verbal feedback and the remaining 62% was a mixture of corrective verbal feedback and verbal support from the mentor:

Generally, my mentor trusted me and behaved indulgently towards me at all times. With her advice I learnt how to deal with disruptive student behaviors. ... My peers' feedback and support was invaluable for me as well. They gave me ideas about how to improve my lesson plans and helped me develop different management strategies (FZH).

He [my mentor] *was actually encouraging; always focused on my strengths* (GI).

From their reflections it is understood that unless the corrective feedback follows supportive feedback, this is considered as a criticism by the PTs, and in such cases they tend to avoid the feedback as in the following extract:

My mentor said that my performance was better than he had expected, which was quite discouraging. He constantly insisted that I should follow his method. I disagree that I must teach the way he did. From time to time he harshly criticized me about my classroom management (PE).

Since throughout the year PTs were encouraged to work collaboratively with their peers, we expected to find peer feedback in their reflections, however, there were only three such instances. One of the PTs for example noted: *After my teaching my group member congratulated me, but did not make any further comment. I think she liked my teaching as she didn't make any negative comments* (SK).

The other two also reported peer verbal persuasion in a similar manner, indicating that they barely made comments on each other's teaching.

The PTs also reported non-verbal mentor feedback (5) and student feedback (*f* = 27). Almost all the PTs mentioned non-verbal persuasion in the form of student engagement (*f* = 27). Their reflections indicated that PTs considered student engagement and participation as an indication of their success. Particularly during student teaching in class, with an impulse to inspire confidence and hope, PTs would readily refer to pupils' participation as in the following example: *I can say with confidence that I realized all my objectives because; I managed to engage all the students during my lessons. Furthermore, the students participated in my lesson willingly* (RDT).

Mentors seemed to influence our PTs not only with their verbal feedback, but also with non-verbal feedback. The attentive behavior of the mentor was understood and interpreted as support. The following is an example: *My mentor was quite young, and maybe for this reason she seldom gave me verbal feedback. Most of the times she showed her support with her actions. She was quite attentive in behavior* (NT).

Physiological/Affective state

Most of the PTs reported their affective states in the form of fear, anxiety and stress (85% in all cases). However, they also mentioned that these feelings temporarily affected their perceptions of their teaching abilities. They also added that they could control their fear once they started teaching. Most of them noted that they securely reached their pre-determined aims and felt themselves successful: *I was too excited before my first teaching. I didn't know why I felt that way. I was sure I was ready for student teaching. I began teaching and after a short while my excitement decreased* (EEK).

Discussion

The present study aimed at tracing changes in PTs' teaching sense of efficacy over an academic year, and examining some possible sources of information. The results from the quantitative data indicated that the pre-service EFL teachers' TSE changed significantly across the three stages of before school observation (T1), after school observation (T2) and at the end of student teaching (T3). While the level decreased significantly from time 1 to 2, it increased significantly from time 2 to 3. The decrease from time 1 to 2 seemed to have resulted from the first real contact with the complexities of the teaching profession and school context. The PTs' beliefs in their teaching abilities which were established from the indirect experiences of theoretical coursework weakened while observing classes taught by experienced teachers. This first encounter with reality might have caused the PTs to have second thoughts about their own teaching abilities. A similar decrease was reported by Tschannen-

Moran et al. (1998) as a result of initial encounter with the real school environment. As has been posited by Bandura (1997) with the help of real experiences, individuals will regain their trust in themselves. The increase measured with this sample of PTs in TSE from Time 2 to 3 confirmed that real teaching activities they performed during student teaching gave them a first-hand experience, which as a result, helped them restore their teaching efficacy levels. Although the change from Time 1 to 3 was not statistically significant, the mean TSES score at Time 3 indicated that their efficacy was not only restored, but was also slightly higher than their initial efficacy levels.

Regarding the change during student teaching, there is a discrepancy among the findings of previous research. While some studies reported increases in the sense of teacher efficacy during student teaching (Charalambous et al., 2008; Fives et al., 2007; Mergler & Tangen, 2010; Woolfolk-Hoy, 2000), others have found a decrease or no change (Aktağ, 2011; Atay, 2007; Aydın et al., 2012; Pendergast et al., 2011). This discrepancy in findings can be attributed to the methodological differences observed in these studies. One of the major differences lies in the cohorts. Although all the aforementioned studies were conducted with PTs, the cohorts were different in nature. For example, the cohorts in the studies of Woolfolk-Hoy (2000), Mergler and Tangen (2010) and Pendergast et al. (2011) were students of a postgraduate teacher education program. Although the participants of the studies in the Turkish context were all undergraduate students (Aktağ, 2011; Atay, 2007; Aydın et al., 2012), there are still differences in cohorts, for example, in the study of Aktağ (2011) the participants were from eight different majors. The second major difference is the data collection tool. While some of the researchers used the long form of TSES (e.g. Fives et al., 2007), some used the short form of it (e.g. Mergler & Tangen, 2010). Still some others used an adapted version (e.g. Charalambous et al., 2008; Atay, 2007). This discrepancy might also be resulting from some contextual factors, such as the type of the school. For example, in Atay's study (2007), which is comparable to this study in many respects, the PTs were assigned to two different types of schools – primary and secondary schools. Since the PTs were assigned to two different types of schools in her study, the context might have influenced the PTs' efficacy levels differently. In this study, the PTs were assigned only to primary schools. Pendergast et al. (2011) argue that context may influence interpretations of efficacy sources and may cause oscillations in the level of efficacy.

The qualitative data indicated that information from different sources seemed to influence the PTs' TSE in varying degrees. In this study, the most frequently mentioned sources were enactive experience and social persuasion. This finding is in line with previous research. O'Neill and Stephenson (2012), for example, using the Teaching Efficacy Sources Inventory (TESI) found that the component source with the highest mean score for influence were enactive experience and verbal persuasion. In this study, social persuasion from mentors was mentioned less frequently than social persuasion in the form of student engagement. This might be due to the low credibility and/or misinterpretations of the suggestions made by the mentors. Particularly, in the cases where mentors gave negative verbal feedback, PTs' self-perceptions might have been as in the example of PE. Echoing this result, Kiggundu and Nayimuli (2009) reported that while some mentors fulfill their role of guiding, some others caused dissatisfaction in student teachers. In the cases of dissatisfaction, resulting from the affective need to be approved, PTs might refer to student engagement as an indication of success. Evidence exists in literature supporting this finding. Ross, Cousins and Gadalla (1996), investigating the influence of within-teacher factors on TSE, found that pupils' enthusiasm during student teaching influenced perceptions of teaching, and that teachers' perceptions of student engagement was a significant predictor of teacher efficacy. In line with previous research, for the PTs in this study feedback from students in the form of enthusiasm and engagement were the most frequently reported source of information.

In respect of vicarious experience, cognitive self-modelling was reported more frequently than either actual modelling or simulated self-modelling. Similarly, Aydın et al. (2012) reported that none of the participants mentioned observing their mentors as a positive experience. Again, in Poulou's (2007) study vicarious experiences did not receive high ratings as a potential source, thus she suggested self-modelling rather than actual modelling as an alternative source for PTs.

As for the affective state, most of our PTs reported stress and anxiety during student teaching. Involvement in a wide range of activities during student teaching has been reported to cause the PTs to perceive teaching as a complex task, which in turn results in high levels of physical and psychological fatigue (Schoeman & Mabunda, 2012). In our study this affective state seemed to be eliminated by enactive experiences. The control over their psychological state and reduction in the levels of fear and stress had a great impact on their level of TSE. As argued by Pintrich and Schunk (1996), if success is attributed to internal and controllable causes, then self-efficacy is enhanced. In our sample PTs seemed to attribute their success either to their ability or self-effort, and hence they managed to overcome their anxiety or excitement. The elimination of the affective obstacles allowed them to approach their teaching experience positively and subsequently, had a minor influence on the level of efficacy they attained at the end of the year.

Limitations

Several limitations of this study must be acknowledged. From a methodological standpoint, this study was conducted with a limited number of PTs enrolled in a single program. Although the sample size was adequate for the statistical analyses, the size of the study warrants a tentative interpretation of the results. The findings reported here may be very different for different contexts. Second the results presented here depend on self-reported data. As always with self-reports of behaviour, social desirability might have biased the data and our participants may have over-estimated their TSE levels. For future research, researchers can observe PTs' students teaching and interview with their mentors as well. Furthermore, research is needed if the findings of this study generalize to other samples and populations.

Conclusion

This study demonstrated that during their final year, certain changes are observed in pre-service EFL teachers' sense of efficacy. These changes support the assertion that efficacy beliefs are in a state of flux, and are likely open to development as new experiences are encountered (Fives, 2003). Following Fives (2003), we conclude that TSE beliefs of pre-service teachers are not stable and change at certain stages of teacher education. New experiences and new challenges disrupt their pre-existing beliefs and force them to reassess their capabilities. The decrease measured in efficacy level during school observation, supports the claim by Bandura (1997) that self-efficacy

is sensitive to vicarious experience where people are inexperienced. From the perspective of teacher training, this finding could be interpreted as a call for restructuring student teaching experience. We suggest that during teacher training, well before student teaching, opportunities for vicarious experience in different modes should be provided. This could be done through embedding symbolic modelling and self-modelling within the structure of all methods courses. The PTs can further be supported through alternative simulated modelling opportunities that can be created in virtual environments. With symbolic modelling by watching effective models, they might have a better chance of understanding the nature of teaching task and its context, and with self-modelling by seeing the favorable aspects of their own performances they might have an opportunity to reflect on their capacities. This, in turn, would help them develop their efficacy through several channels and strengthen their teaching sense of efficacy beliefs.

Of the four sources of information, the findings of this study indicate that PTs depend more on enactive experience and social persuasion than on vicarious experience and affective state as sources of information. The rise in the efficacy level after student teaching proves that experienced mastery is in fact the most important source of efficacy. The social persuasion appeared to make an important contribution as a source of information as well. In this respect, as suggested by Atay (2007), attention should be paid while selecting the mentors. Supervisors in the universities should act as agents, helping mentors see the importance of building rapport with the PTs. This can be possible with greater communication and effective collaboration which can be achieved by more formal and structured arrangements (Quick & Siebörger, 2005). As recommended by Kiggundu and Nayimuli (2009), to improve the collaboration with schools, universities can organize workshops to support mentors.

Previous research has focused on the development of the teaching efficacy beliefs of pre-service teachers (e.g. Atay, 2007; Aydın et al., 2012; Woolfolk-Hoy & Spero, 2005). However, all of these studies vary in methodology. Replication studies in different contexts can add valuable information to literature. Furthermore, for a more in-depth understanding of PTs' sense of efficacy, studies tracing changes throughout teacher training are also needed. Such studies would allow researchers to observe how efficacy beliefs evolve at different stages of teacher education. In addition, studies examining the sources of information that the PTS use are needed in order to have more in-depth insights about the underlying factors influencing the development of teacher efficacy.

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